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The Determinants of Financial and Operational Sustainability of Microfinance Institutions: Case Study of Clecam-Ejoheza Ltd

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The Determinants of Financial and Operational Sustainability of Microfinance Institutions: Case Study of Clecam-Ejoheza Ltd

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Abstract- This research is about analysing the determinants of financial and operations sustainability of Microfinance institutions in Rwanda, particularly the case study of CLECAM-EJOHEZA Ltd. The study evaluates the financial and operational sustainability of CLECAM-EJOHEZA Ltd through a financial analysis by ratios conducted on the financial statements of CLECAM-EJOHEZA Ltd for the period from 2010 to 2015. For instance, to accomplish the measurement of financial and operational sustainability of a company cited above, financial self-sufficiency ratio (FSS) and operational self-sufficiency ratio (OSS) were used as the dependent variables because the Microfinance Financial Reporting Standards recommends the use of financial self-sufficiency (FSS) and operational self-sufficiency (OSS) as measures of sustainability of the MFI.

The dates used in the study have been collected using quantitative aspects and the study involves both primary and secondary data. Primary data was collected by soliciting the top management staffs of CLECAM-EJOHEZA Ltd particularly those involved in the financial department through an unstructured interview. But the secondary data which was used to analyze mfi-specific variables was collected from its financial reports available at the head office of CLECAM-EJOHEZA Ltd and to analyze external-specific variables the data was collected from MINECOFIN and BNR with documentary survey. Different tools such as SPSS and statistical aspect have been also used to give data the meaningful information for the research's readers.

The finding from the collected data depicted that CLECAM EJOHEZA Ltd is fairly operational sustainable but is not financially sustainable during the period from 2010 to 2015. Indeed, during the period from 2010 to 2015, total asset as well as other ratios or financial and operation indicators of CLECAM EJOHEZA Ltd have been fluctuating which explain both positively for some determinants of financial sustainability and negatively for other financial sustainability factors.

Keywords: microfinance, sustainability, financial sustainability, operational sustainability.

I. INTRODUCTION

Nowadays, poor people are not benefited from formal financial systems across global. As referred by Brau and Woller, (2004) exclusion ranges from partial exclusion in developed countries to full or nearly full exclusion in lesser developed countries. Indeed, most of the poor population and small

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enterprises in Sub-Saharan Africa countries have very limited chance to access deposit and credit facilities and other financial services provided by formal financial institutions (Basuet *al*, 2004). Lack of access to credit is a major obstacle to growth in the continent. Therefore, Microfinance (henceforth MFIs) in the 20th century has been characterized by many new products and discoveries in the financial industry.

The aim of clients that microfinance serves represents the difference with many of other discoveries even as most of the new ideas target the smaller and richest part of the world population, microfinance reaches a large number of poorer people enabling them to access to financial services such as credit and deposits, insurance and others. This success on financial services has to be considered formal as there are many informal ways in which people tend to borrow for credit and save money for unexpected situations.

According to Iezza (2010), Microfinance has been accepted not only as a financial mean to target specific people but it realize also a social aspect contributing to poverty reduction, women empowerment, economic development and employment creation. However, thought Microfinance institutions have contributed positively to boost the countries' economics, especially in Rwanda, but they still experiencing some limitations and barriers. For instance, while a large body of research on financial institutions sustainability has been undertaken in the conventional banking industry in Rwanda: Muteteri (2015); Ugirase, (2013); Ukwibishaka (2010), rigorous empirical evidence on microfinance remains limited, largely due to lack of reliable data.

Moreover, it is rare or uncommon such study with regard to identification and assessment of factors that affect financial and operational sustainability has been conducted in Rwanda where the majority of MFIs are not well developed or small. The studies conducted in the areas of microfinance institutions in Rwanda are few in number and did not give such an emphasis on the factors considered to be determinants of financial and operational sustainability of microfinance institutions in Rwanda. Since it is believed that MFIs must be profitable for their healthy operation and attainment of the long term goal which is alleviation of poverty, this



study will find out the MFIs specific, macroeconomic and industry-specific factors affecting their financial and operational sustainability and fills the gap in the context of Rwandan MFIs.

II. OBJECTIVES

The general objective in this research is to ascertain and analyse the determinants of financial and operational sustainability of microfinance institutions in Rwanda. For the purpose of clarification, the study has the following specific objectives:

- To analyse the determinants of financial sustainability of CLECAM-EJOHEZA Ltd,
- To assess the determinants of operational sustainability of CLECAM-EJOHEZA Ltd,
- To measure the relationship between the determinants of operational sustainability and the determinants of financial sustainability of CLECAM-EJOHEZA Ltd.

III. LITERATURE REVIEW

The literature explored various factors that can influence the sustainability of these institutions. This was done with a view of collecting views, prospective and opinions and understanding the factors affecting financial and operational sustainability of MFIs in Rwanda. Under this section, the theoretical and empirical evidences focusing on the determinants of microfinance institution financial and operational sustainability have been presented.

a) Conceptual Framework

This section of conceptual framework includes the definitions and clarifications of the key concepts of the concept model according to different authors. It is in this section where the concepts of microfinance, operational and financial sustainability of microfinance institutions are presented.

• Microfinance definition

Since the microfinance institutions have been launched, they are viewed in different ways by different authors (Arun, 2005; Brau & Woller, 2004, Drake & Rhyne, 2002; Stack & Thys, 2000). However, the concept or the meaning of the definitions is usually the same in which microfinance refers to the provision of financial services; primarily savings and credit to the poor and low income households that lacked to have access to commercial banks service. The popularly known institution which is Microfinance information exchange (MIX) added that microfinance institutions are the variety of financial services that target low-income clients, in particularly the women.

The above definitions shown that the clients of microfinance institutions are poor or have lower incomes and often have limited access to other financial services, therefore microfinance products tend to be for smaller

monetary amounts than traditional financial services. Indeed, their services not only provide micro credit service for those who have lower incomes but also include loans, savings, insurance, and remittances. Consequently, these varied needs, and because of the industry's focus on the poor, microfinance institutions often use non-traditional methodologies, such as group lending or other forms of collateral not employed by the formal financial sector especially by banks.

b) History of Microfinance in Rwanda

The ideas and aspirations towards microfinance are not new. According to (Helms, 2006) Small, informal savings and credit groups have worked for centuries across the world, from Ghana to Mexico, India and beyond. In Europe, as early as the 15th century, the Catholic Church founded pawn shops as an alternative to usurious moneylenders. These pawn shops spread throughout the urban areas in Europe throughout the 15th century.

Indeed, these informal financial institutions have existed in Rwanda for long period ago. For instance, small self-help peasant organizations (tontines and ibimina) were used for agriculture, cattle breeding and in the purchases of domestic equipment for several years ago. The microfinance sector is however relatively young. Microfinance was first formalized with the creation of the first Banque Populaire du Rwanda (bpr) in 1975 by the Rwandan and Swiss governments. A few years later, the various Banques Populaires initiated in the country formed a Union des Banques Populaires (Mtransparency, 2011).

In additional, as referred by AQUADEV CENTRAL AFRICA, (2008) after the 1994 Genocide in Rwanda, the microfinance sector has known a dramatic progress through the support of relevant international and non-government organizations especially for humanitarians. These NGOs helped people by support of daily use of equipment, foods but had also the microcredit teaching program. But, during the above emergency period, in some cases the loans did not differ to grants or donations and sowed confusion among the population. Thus, leads to non-repayment culture that resulted in non-performing loans, and therefore had a negative impact on results of microfinance institutions.

c) Microfinance models

In this section the most common lending approaches and microfinance credit models are described in order to give an overview of how the actual money lending technically is accomplished

• Solidarity group

The solidarity group model is also called "peer lending group" and normally consists of four to five individuals who group together to borrow a loan in solidarity. The members are self selected, based on

their reputation and relationship to each other. Useful here is the self screening and group pressures imposed upon every member of the group, urging each and every one of the borrowers to contribute his part in solidarity as mutually agreed and so ensures a rather secure loan recovery for the MFI. However, the whole group suffers possible consequences in case they fail to pay back the loan. Thus, in this model the MFI has less work to do since the borrowers of the groups have most of the responsibilities such as: forming the group and selecting the right members, administration and organization of repayment plan and scheduling group meetings and meetings with the loan officers from the MFI (Hazeltine & Bull, 2003).

- Village banking

Village banking describes a community-based credit and savings association, run by a village itself. The model was founded by John Hatch, the founder of the American NGO Finca (Felder-Kuzu, 2005). With this lending model, 25 to 50 low income members of a village, mostly women, join to take out a relatively large loan from a MFI and act as guarantors at the same time. After receiving the loan a self appointed village committee decides who gets smaller loans out of the group. Furthermore, this model enables saving deposits. According to Hazeltine & Bull, (2003) the role of the MFI is to assist only in administration and technical issues.

- Grameen model

The Grameen model was invented in 1976 by Professor Muhammad Yunus, the founder and managing director of Grameen Bank. The model proved to be successful and today is practiced in more than 250 outlets of Grameen Bank in more than 100 countries (Yunus, 1999). The Grameen model was copied and modified many times according to the respective needs of regional markets and clients. Therefore many other models are extensions of, or derived from, the Grameen Model.

Basically, new branch of the MFI is set up in a village with a field officer and some qualified workers, and therefore these employees support then up to 15 to 20 villages in the surrounding and are strive to make the local, poor people aware of the microfinance possibilities through word of mouth and personal advisory. Furthermore, the lending process is similar to the solidarity group approach. Groups of five are created. However in the beginning only two members of the group receive a loan and are monitored for one month. The credibility of the group will then be based on the repayment performance of the first two individuals (Hazeltine & Bull, 2003). If they are reliable and could pay back their loan, the remaining members qualify for a loan as well, since the group is jointly and severally liable for the single members.

- Individual model

The individual model is the most expensive and labour-intensive model for the MFI. Here clients have to be monitored and far more and deeper field research is necessary in order to choose the right clientele, especially because these people have no tangible collateral or credit history and in most cases are illiterate.

As referred by Hazeltine & Bull, (2003) sources of information for the field officer are the family, friends and leaders of the community. With this model, the loan is given directly to the borrower and it is his/her sole duty to pay back the full amount plus interest rates without financial support from a group in case he/she defaults. However, the assistance as well as payment schedules and business management training is generally provided by the MFI (Hazeltine & Bull, 2003).

- d) *Determinants of MFI's sustainability*

As MFIs seek to reach as many poor people as possible in the long run to fulfil their goal to fight against the worldwide poverty, it became clear that this outreach is only possible on a sustainable and efficient basis. Sustainability in general means the ability of a program to continuously carry out activities and services in pursuit of its statutory objectives. For an ideal MFI this would mean the ability to continue operating as a development financial institution for the rural poor (Khandker & Khalily, 1995).

- ✓ Source of funding (Financing structure)

Financing structure is a financial tool that helps to govern how firms choose their funding structure. Most MFIs in the world started off as NGOs and had built substantial supply side competencies which makes funding structure had no relevance. However, with development and commercialization, MFIs are spanned off to become fully independent, the enigma of funding structure that will ensure sustainability becomes relevant. During any time of financial or banking crisis, when bailout aid is available, questions of capital structure become more salient.

Indeed, several elements of MFIs' funding sources have established to support the FMs. For instance, Bogan (2009) mentioned that most MFIs start out as NGOs with a social vision, funding operations with grants and concessional loans from donors and international financial institutions that effectively serve as the primary sources of risk capital for the microfinance sector. It from this in recent years there has been increasing internal and external pressure for the MFIs to decrease dependence on subsidized or grant funding.

In additional, Debt to equity ratio plays an important role to measure firm leverage and believed as the drivers of MFIs sustainability and efficiency. However, Sustainability of MFIs does not depend only on debt to equity ratio but also on their saving mobilizing capacity. Deposit to loan ratio is an important indicator



for MFIs that mobilize deposits and it measures that portion of the MFIs' portfolio funded by deposits. Consequently, the higher the ratio the greater is the MFIs' capability to fund its loan portfolio from its deposits and enhances commercialization of microfinance operation.

e) *Macroeconomic factors*

Understanding the linkages between overall country's macroeconomic level and MFIs sustainability can make MFI evaluation more accurate and, further, can help to locate microfinance in the broader picture of economic development. Furthermore, understanding the macroeconomic impact on MFIs may also help a growing number of investment funds that target their financial resource toward MFIs, sometimes with the dual goal of earning returns for investors and achieving social impact. Evidences arise for strong relationship between MFI performance and the broader economy. Christian, et al. (2009) has explained that, MFIs are more likely to cover costs when growth is stronger; and MFIs in financially deeper economies have lower default and operating costs, and charge lower interest rates. There is also evidence suggestive of substitutability or rivalry. For example, more manufacturing and higher workforce participation is associated with slower growth in MFI outreach (Ahlin, Lin, & Maio, 2011). The suggestion of most of the previous empirical studies is that macroeconomic variables are based primarily upon an economic tradition, emphasizing the importance of external market factors in determining firm's success. These typically include inflation, GDP growth rate, GDP per capita, GNI per capital, population, unemployment rate and interest rate differentials. For example Vingo (2012) indicated that the common approach has been to study the impact of macroeconomic factors by investigating the impact of GDP growth and inflation on performance. The inflation indicator refers to a rise in the general level of prices of goods and services in an economy over a period of time. Overall, the country context appears to be an important determinant of MFI performance (Christian Ahlin, et al., 2009).

f) *Theoretical framework*

The theoretical framework, through a review of existing literature within the microfinance field, serves as a platform for the forthcoming empirical study. As explained in the previous section, microfinance institutions are considered to be a tool for poverty alleviation through improving access to finance and financial services.

There are two competing views to which goal of microfinance should be given higher priority in as far as poverty reduction is concerned. These are the institutionists (also known as financial system) and welfarists (poverty lending) approaches (Arun, 2005; Brau & Woller, 2004).

g) *Welfarists' Approach*

Brau & Woller, (2004) mentioned that the welfarists emphasize on poverty lending as measured by depth of outreach. That is, reaching not just a large number of clients (breadth of outreach) but a large number of poor clients also known as depth of outreach. It follows, therefore, that welfarists view microfinance as established for poverty reduction, their objectives being to empower the poorer of the economically active poor and thus, depth of outreach should be given a higher priority. Microfinance institutions should be, in as far as possible, able to serve as many as possible poor clients, even when it may appear not profitable. The deficit in operations should be filled with donors and government support or social investors (Woller et al, 1999). Taking the welfarists view abroad, many groups, especially NGOs argue that there is a trade-off between sustainability (profitability) and targeting the poor (outreach) because the poorest are cost ineffective to reach when profitability is considered and thus donor support (to support MFIs) is required to this end (Paxton, 2002). Their argument is that, to reach the poorest groups require small exclusively focused programs which cannot be sustainable and require ongoing donor funding (Rhyne, 1998; Morduch, 1999).

h) *Institutionists Approach*

Institutionists on the other hand focus mainly on financial sustainability of microfinance institutions. According to Woller et al (1999) the Institutionists view financial deepening as the main objective of microfinance institutions. Here financial deepening refers to creating sustainable financial intermediation for the poor. Institutionists assert that the financial sustainability as measured by financial self-sufficiency (profitability) should be given higher priority by all MFIs (Brau & Woller, 2004). Their argument comes from the fact that in most cases donor dependence is not certain and thus, unless an MFI is able to sustain itself financially it will not be able to serve the poor in the long run.

i) *Subsidy and Poverty reduction approach theories*

Subsidy refers to financial resources received by an MFI at below market prices (Woller et al, 1999). Subsidy (also known as donation) may be received in monetary terms or in-kind. The role of subsidy in reaching the vast majority of poor people is seen differently under the two competing poverty reduction approach theories: the Institutionists and Welfarists theories.

The Institutionists approach the sustainability of MFIs from the institution point of view. Their argument is that, institutional sustainability of an MFI will be attained when the MFI is financially self-sufficient. That is, be able to operate without subsidization. The emphasis here is that, for sustainability, an MFI should be able to cover its

operating and financing costs with the program revenue (Brau & Woller, 2004).

Ideally, a financially viable financial program is one where all cost (delivery and post delivery) of credit, provision for loan losses, inflation, and return on investment are fully taken into account and covered by the interest rates charged on loans (Thapa et al, 1992).

With Institutionists approach, MFIs should make profit to attract private capital because subsidies or donor funds may dry up any time and the microfinance institution may cease from its operations (CGAP, 1995).

IV. RESEARCH METHODOLOGY

This section of methodology sets to explain the research design and methodology, methods of data collection, data analysis techniques and also operational definition.

This study with the aims of ascertaining and analyzing the determinants of financial and operational sustainability of CLECAM-EJOHEZA Ltd will use the quantitative research approach by using time series research design to realize stated objectives. In line with this, quantitative research tests the theoretically established relationship between variables using sample data with the intention of statistically generalizing for the population under investigation. Therefore Ordinary least square (OLS) method particularly multiple regression models will be used to assess the significant determinants of financial and operational sustainability of CLECAM-EJOHEZA Ltd. To measure the financial and operational sustainability of CLECAM-EJOHEZA Ltd, financial self-sufficiency ratio (FSS) and operational self-sufficiency ratio (OSS) will be applied as the dependent variables because the Microfinance Financial Reporting Standards recommends the use of financial self-sufficiency (FSS) and operational self-sufficiency (OSS) as measures of sustainability of the MFI (Muriu, 2011).

a) Source of data and methods of data collection

In order to carry out any research activity; information should be gathered from proper sources. The sources of data for this research are almost secondary sources, but for the purpose of supporting the finding of the research, primary data was used to

$$FSS_t = \beta_0 + \beta_1 GAR_t + \beta_2 DER_t + \beta_3 OER_t + \beta_4 \log (CPB_t) + \beta_5 GDP_t + \beta_6 INF_t + \beta_7 DLR_t + \beta_8 \log (GLP_t) + \epsilon_t$$

Where FSS_t is the observed financial self-sufficiency ratio of CLECAM-EJOHEZA Ltd at year t ,

β_0 is the constant term showing the value of FSS, when all the coefficient of the independent variables are zero,

GAR_t is grants to assets ratio of CLECAM-EJOHEZA Ltd at time t ,

DER_t is the debt to equity ratio of CLECAM-EJOHEZA Ltd at time t ,

OER_t is the operating expense ratio of CLECAM-EJOHEZA Ltd at time t ,

CPB_t is cost per borrower of CLECAM-EJOHEZA Ltd at time t ,

GDP_t is the GDP growth rate of Ethiopia assigned to CLECAM-EJOHEZA Ltd at time t ,

INF_t is the rate of inflation of Ethiopia assigned to CLECAM-EJOHEZA Ltd at time t , and

DLR_t is the deposits to loan ratio of CLECAM-EJOHEZA Ltd at time t ,

GLP_t is the gross loan portfolio of CLECAM-EJOHEZA Ltd at time t ,

β_s are the partial effect of independent variables in period t .

ϵ_t is the error term of CLECAM-EJOHEZA Ltd at time t .

some extent. Primary data was collected by soliciting the top management staffs of CLECAM-EJOHEZA Ltd particularly those involved in the financial department through an unstructured interview. The secondary data which was used to analyze MFI-specific variables was collected from its financial reports available at the head office of CLECAM-EJOHEZA Ltd and to analyze external-specific variables the data was collected from MINECOFIN and BNR with documentary survey.

To evaluate the financial and operational sustainability of CLECAM-EJOHEZA Ltd, a financial analysis by ratios was conducted on the financial statements for the period under this research.

On the other hand, for measuring the impact of ascertained determinants on the financial and operational sustainability of CLECAM-EJOHEZA Ltd, the collected data were regressed and interpreted with the help of multiple regression analysis (significant test). To conduct this, we used SPSS software.

i. Model specification

Along with the use of inferential statistics, the researcher will apply two separate multiple regression models to analyze the sustainability of CLECAM-EJOHEZA Ltd. Many econometricians argued that one of the most useful aspects of a multiple regression model is its ability to identify the independent effects of a set of variables on a dependent variable. The study tests the impact of funding, firm characteristics, and macroeconomic variables on sustainability. Hence this study will involve two dependent variables and 15 independent variables for testing against each of these two dependent variables.

b) Model estimation of financial self-sufficiency for sustainability

To test whether the financial self-sufficiency of CLECAM-EJOHEZA Ltd is explained by the independent variables namely; Grant to asset ratio (GAR), Debt to Equity ratio (DER), operational expense ratio (OER), cost per borrower (CPB), GDP growth rate (GDP), Inflation (INF), deposit to loan ratio (DLR), and gross loan portfolio (GLP). The following regression model is estimated to carry out the analysis.

V. RESULTS AND DISCUSSION

Under this section the researcher presented the financial indicators of CLECAM-EJOHEZA Ltd, analyzed its financial and operational sustainability and interpreted the findings. This section has two main parties: The first part presents, after an analytical adjustment, the financial analysis of CLECAM-EJOHEZA Ltd for its financial and operational sustainability; while the second part deals with model presentation and interpretation of the results about the determinants of the financial and operational sustainability of CLECAM-EJOHEZA Ltd.

a) Financial Analysis of Clecam-Ejoheza Ltd

From the financial reports of CLECAM-EJOHEZA Ltd, the researcher calculated and extracted useful financial ratios and indicators for they can permit the researcher to conduct a consistent analysis of the sustainability of CLECAM-EJOHEZA Ltd for the period under this study.

The objective in this section was to go through these financial ratios and indicators of CLECAM-EJOHEZA Ltd and interpret them for they can help the researcher to understand the true financial situation of CLECAM-EJOHEZA Ltd. The researcher compiled a number of ratios and indicators of CLECAM-EJOHEZA Ltd through the six categories as follows:

- Annual variation of financial indicators,
- Sustainability indicators,
- Profitability indicators,
- Portfolio quality indicators,
- Financial structure indicators,
- Efficiency and productivity indicators.

Because the researcher needed to calculate OSS and FSS to measure the sustainability of CLECAM-

EJOHEZA Ltd, some accounts from the financial statements of CLECAM-EJOHEZA Ltd have been subject to a prior analytical adjustment for the true performance and sustainability analysis of CLECAM-EJOHEZA Ltd. By gathering more information on the funding resources of CLECAM-EJOHEZA Ltd, the researcher found that the MFI got subsidies from different partners of micro finance sector in Rwanda, subsidies received in cash as well as in kind. Furthermore, the study is mindful that CLECAM-EJOHEZA Ltd operates in Rwandan economic environment and hence affected by a number of factor affecting this environment notably the inflation rate, exchange rate, GDP growth rate, taxes, etc.

For these reasons, certain adjustments were applied on the financial statements of CLECAM-EJOHEZA Ltd notably the Subsidies Adjustments, Portfolio at risk Adjustment and Inflation Adjustments to reflect the true performance of CLECAM-EJOHEZA Ltd (or its ability to maintain its level of operation over the long term) by studying its ability to cover all costs.

i. Adjustments for Subsidies

To offset the effects of subsidies, the study distinguished Subsidized Cost of Funds Adjustment and In-kind subsidy Adjustment.

Subsidized Cost of Funds Adjustment consists of calculating the extra expense that CLECAM-EJOHEZA Ltd would incur if it were paying market rate for funding from commercial sources.

$$A1 = (Average Borrowings \times Market rate for Borrowing) - Interest \wedge Fee expense on Borrowings$$

	2010	2011	2012	2013	2014	2015
A ₁	3,315,351	1,642,595	7,925,773	7,017,323	13,017,394	(860,608)

However, if the result of the adjustment is negative, the adjustment is not applied. In other hand, the effect of this adjustment on financial statements of CLECAM-EJOHEZA Ltd is that it causes an increase in Financial Expense on Funding Liabilities. This increase in expenses will reduce Retained Earnings of the year.

In-kind subsidy Adjustments CLECAM-EJOHEZA Ltd received year after year In-kind subsidies,

	2010	2011	2012	2013	2014	2015
A ₂	34,011,800	34,484,291	9,646,858	63,755,760	42,889,486	74,125,277

ii. Inflation Adjustment

Rwandan economy is affected by inflation and so is the microfinance sector in general and CLECAM-EJOHEZA Ltd in particular. High inflation makes it difficult for MFIs to operate and has an erosive effect on

such as donated vehicles or computers or even directs payments of staff members' salaries by TERRAFINA and AQUADEV. Although these items do not have any effect on the MFI's cash flow, the omission of their actual cost obscures the true cost of operations. We really needed to know how dependent CLECAM-EJOHEZA Ltd is on such in-kind subsidies to continue operations.

an MFI's Equity. The purpose behind this inflation adjustment is to calculate the decrease in the real value (or purchasing power) of Equity of CLECAM-EJOHEZA Ltd due to inflation.

$$A3.1 = (Equity \times Inflation \text{ rate})$$

$$A3.2 = (Assets \times Inflation \text{ rate})$$

$$A3 = A3.1 - A3.2 \text{ Or simply}$$

$$A3 = (Equity \times Inflation \text{ rate}) - (Assets \times Inflation \text{ rate})$$

	2010	2011	2012	2013	2014	2015
A3.1	5,513,056	18,864,469	26,144,240	20,606,516	10,356,380	15,056,329
A3.2	547,891	1,781,697	2,026,714	5,318,561	4,321,699	7,322,053
A3	4,965,165	17,082,772	24,117,526	15,287,955	6,034,681	7,734,276

The effect of inflation adjustment on financial statements of CLECAM-EJOHEZA Ltd is that it causes an increase in Other Financial Expense and an increase in Net Fixed Assets. This increase in expense will reduce Retained Earnings of the year; revaluation of Net Fixed Assets will increase Total Assets. To balance these changes, the sum of these two effects is added to Adjustments to Equity in the balance sheet (SEEP Network, 2005).

a) Portfolio at Risk Adjustments

The research found that, in calculating the impairment loss allowance, CLECAM-EJOHEZA Ltd has been following and respecting the impairment loss allowance as per article 59 of the BNR regulation No

02/2009 organizing Microfinance activities. Therefore, the adjustment proposed in this section is not needed.

b) Sustainability of CLECAM-EJOHEZA Ltd

Sustainability ratios are the most comprehensive of the ratios here, and reflect the MFI's ability to continue operating in the future (Nancy Natilson et al, 2001). The ratios recommended in this section are the most widely accepted in the microfinance industry, notably the Operational self-sufficiency ratio, the Return on Equity ratio and the Return on assets ratio (Micro Save, 2008).

The following table shows the sustainability indicators of CLECAM-EJOHEZA Ltd for the six years from 2010 to 2015.

Table: Sustainability Ratios of CLECAM-EJOHEZA Ltd 2010-2015

	2010	2011	2012	2013	2014	2015
Operational self-sufficiency Ratio	106.0%	123.0%	122.9%	93.0%	103.4%	96.3%
Financial self-sufficiency Ratio	82.8%	89.3%	101.3%	72.1%	82.7%	81.4%
Return on Equity Ratio	5.3%	13.6%	11.4%	-4.5%	6.2%	2.4%
Return on Assets Ratio	1.8%	4.1%	3.1%	-1.2%	1.5%	0.6%

Source: CLECAM-EJOHEZA Ltd Report (2010-2015)

c) Profitability of CLECAM-EJOHEZA Ltd

Profitability is highly linked to sustainability. In other words, profitability is a stepping stone to financial sustainability (Schreiner, 2000). It has also been widely used as a measure of financial sustainability (Armendáriz & Morduch, 2007; Cull et al, 2007;

Gonzalez, 2007; Adongo & Stork, 2006; CGAP, 2003; Woller & Schreiner, 2002)

The table below illustrate the ratios the research calculated under this section in order to present the profitability of CLECAM-EJOHEZA Ltd from the year 2010-2015.

	2010	2011	2012	2013	2014	2015
Net Income Ratio	27.0%	36.5%	18.7%	12.5%	18.3%	22.0%
Interest margin Ratio	62.3%	77.3%	78.7%	81.2%	71.3%	73.1%
Operating Income Ratio	7.1%	18.8%	21.3%	-2.2%	13.2%	9.9%
Net Financial Income Ratio	95.4%	92.4%	89.2%	86.8%	84.3%	80.8%
Cost of funds Ratio	1.9%	2.2%	2.4%	3.3%	4.0%	5.1%

Operating Income Ratio	7.1%	18.8%	21.3%	-2.2%	13.2%	9.9%
Net Financial Income Ratio	95.4%	92.4%	89.2%	86.8%	84.3%	80.8%
Cost of funds Ratio	1.9%	2.2%	2.4%	3.3%	4.0%	5.1%
Financial Expense Ratio	4.6%	7.6%	10.8%	13.2%	15.7%	19.2%

Source: CLECAM-EJOHEZA Ltd report (2010-2015)

From these ratios it is clear that From these ratios the Profitability of CLECAM-EJOHEZA Ltd 2010-2015 was as follow

CLECAM-EJOHEZA Ltd report (2010-2015)

d) CLECAM-EJOHEZA Ltd's Portfolio quality indicators

The loan portfolio is for an MFI the largest asset and the quality of that asset and the risk it poses for the institution can be quite difficult to measure (Micro Rate and Inter-American Development Bank, 2003). The primary asset of CLECAM-EJOHEZA Ltd as an MFI is its gross loan portfolio. Portfolio quality is important to the financial success of any microfinance institution (SEEP

Network, 2005). Drops in portfolio quality could mean a decline in customer satisfaction and, therefore, may presage a low retention rate resulting in higher costs to recruit new clients. It may also be signal problems in staff supervision and control. The researcher examined the quality of CLECAM-EJOHEZA Ltd's portfolio from several different perspectives to get a clearer picture of the situation by considering the following three ratios presented in this section together, because none of them alone is sufficient for effective analysis (Micro Save, 2008.)

	2010	2011	2012	2013	2014	2015
Current Loans	64.9%	87.6%	79.1%	78.7%	84.7%	85.8%
Portfolio at risk 1-29 days	28.7%	8.6%	16.6%	13.4%	11.3%	9.7%
Renegotiated Loans (current)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Portfolio at risk 30 to 89 days	1.8%	1.3%	1.5%	1.9%	1.2%	1.7%
Portfolio at risk 90 to 179 days	2.0%	1.4%	1.4%	2.4%	1.7%	1.3%
Overdraft at risk 31 to 90 days	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Portfolio at risk >=180<365 days	2.5%	1.2%	1.4%	3.5%	1.0%	1.5%
Overdraft at risk >=90 <180days	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Renegotiated Loans (overdue for 1 day or more)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Portfolio At Risk >30 days in arrears	6.4%	3.9%	4.3%	7.9%	4.0%	4.5%
Write-Off Ratio	0.6%	1.5%	1.7%	2.0%	3.1%	1.1%
Risk Coverage Ratio	46.9%	41.3%	66.1%	77.2%	72.3%	94.4%

Source: CLECAM-EJOHEZA Ltd report (2010-2015)

Portfolio at risk is important because it indicates the potential for future losses based on the current performance of the loan portfolio. The PAR ratio is the most widely accepted measure of loan performance in the microfinance industry (MicroSave, 2008; CGAP, 2003).

PAR > 30 days is often used as the threshold beyond which loans are considered to be at higher risk. This ratio also includes Renegotiated Loans. This not only prevents hiding troubled loans through rescheduling or refinancing, but also indicates a higher level of risk associated with clients who have had repayment problems.

As for CLECAM-EJOHEZA Ltd, the table above reveals that the portfolio at risk with more than thirty days in arrears has been increasing and decreasing between 3.9% in 2011 and 7.9% in 2013. This is an indication of inefficiency in making collections because it went beyond the benchmark of 5% as per BNR regulation. The higher the PAR, the more inefficient the

microfinance will be and, therefore, the less financially sustainable (Nyamsogoro, 2010).

On other hand, The Write-off Ratio indicates the past quality of the Gross Loan Portfolio. Write-offs are the greatest threat to an MFI because they result in a reduction in the MFI's assets and its current and future earning potential (Micro Save, 2008).

As for CLECAM-EJOHEZA Ltd, the writing off has been increasing in nominal values as well as in relative value as percentage of the average gross loan portfolio. This high ratio indicates not only a problem in the MFI's collection efforts but also a sign of poor analysis of the loan applications. One may think that CLECAM-EJOHEZA Ltd has been disbursing big loans to poor people that are unable to repay the loan or CLECAM-EJOHEZA Ltd had poor recovery mechanism to collect the money from its clients.

The Risk Coverage Ratio measures how adequate the Impairment Loss Allowance is to account for potential loan losses. Because the Impairment Loss



Allowance represents the institution's preparation for loan losses, the Risk Coverage Ratio is an approximate indicator of how prepared the MFI is to absorb loan losses in the worst-case scenario; that is, if all Portfolio at Risk > 30 days became uncollectible (SEEP Network,2005).

Although CLECAM-EJOHEZA Ltd ideally accounts for the risk of default, this does not mean that this ratio will be always 100 percent. The size of the Impairment Loss Allowance depends on the Portfolio Aging Schedule. For example, in the year 2015 where most past due loans are more than 180 days past due, the ratio was close to 100 percent (94.4%). However, in the year 2011 when most past due loans were fewer than 90 days past due, the ratio was far less than 100 percent (41.3%).

e) *Analysis of Financial Sustainability of CLECAM EJOHEZA Ltd*

The analysis of the financial sustainability of CLECAM-EJOHEZA Ltd was done by assessing the effects of the indicators of the financial sustainability on the sustainability of the microfinance institution. According to the theories and empirical studies in chapter two (Sileshi Mirani, 2015; Tilahum Aemiro Tehulu, 2013), Grant to asset ratio (GAR), Debt to Equity ratio (DER), operational expense ratio (OER), cost per

borrower (CPB), GDP growth rate (GDP), Inflation (INF), deposit to asset ratio (DLR), and gross loan portfolio (GLP), has been considered as the independent variables to determine the factors affecting financial self-sustainability of MFIs in Rwanda. This study tried to analyze how these indicators of the financial self-sufficiency improve, enhance and impact the financial sustainability of CLECAM EJOHEZA Ltd. The researcher adopted an empirical methodology to determine the correlation between variables and has built a model to show statistically the effects that these indicators have on the financial self-sustainability of CLECAM-EJOHEZA Ltd.

The researcher has built a model (presented in the methodology) and run it using linear regression. The researcher used SPSS to run the equations and compute the correlations.

The following regression model was estimated to carry out the analysis. The model was also used by Sileshi Mirani (2015).

$$FSS = \beta_0 + \beta_1 GAR + \beta_2 DER + \beta_3 OER + \beta_4 \log(CPB) + \beta_5 GDP + \beta_6 INF + \beta_7 DLR + \beta_8 \log(GLP) + \epsilon$$

The obtained result was summarised in the following table

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.885 ^a	.783	.739	7.96100%

Source: Extracted from primary data using SPSS

Based on the regression result in above table, the study found that the estimated result of multiple regression analysis is at a satisfactory level where the R-squared is 78.3% and the Adjusted R-squared value is 73.9%, respectively. The value of the Adjusted R-squared revealed that there are good relationships between dependent and independent variables where all independent variables can explain about 73.9% of the financial self-sufficiency within the sample. However, the remaining 26.1% of the change in FFS regression model

is explained by other factors which are not included in the regression line. Both the R-squared and the Adjusted R-squared values in this study are found to be higher (has more explanatory power) (Nyamsogoro, 2010).

To apply the above mode to appropriate company to this study, the coefficients for the estimated model of determinants of financial sustainability of CLECAM-EJOHEZA Ltd has calculated

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error			
1	(Constant)	18.301	6.602	.393	.016
	GAR	-3.741	2.909	-.324	.020
	DER	-7.074	4.500	-.172	.012
	OER	-10.407	0.584	.036	.035
	CPB	-1.799	.470	-.691	.043
	GDP	1.851	3.859	-.089	.034
	INF	-.545	1.407	-.080	.021

DLR	.826	.394	.203	2.098	.042
GLP	6.334	.000	.137	.430	.029

Source: Extracted from primary data using SPSS

Estimated equation is

$$FSS = 18.301 - 3.741GAR - 7.074DER - 10.407OER - 1.799CPB + 1.851GDP$$

$$\begin{aligned} &.393 - 1.286 - 1.572 - .340 - .984.480 \\ &-5.545INF + .826DLR + 6.334GLP \\ &-3872.098.430 \end{aligned}$$

Basing on the results in the table extracted from SPSS, the researcher found that all estimated parameters were statistically significant at 5% as long as all their probability values were less than 5%.

According to the results, the researcher found also that Grant to Asset ratio, Debt to Equity ratio, Operational Expense ratio, Cost per borrower and Inflation explanatory variables have negative effect (negative sign) on the Financial self-sufficiency of CLECAM-EJOHEZA Ltd while Deposit to Loan ratio GDP growth rate and Gross Loan Portfolio have a positive effect on the Financial self-sufficiency of CLECAM-EJOHEZA Ltd at 5% level of significance. All the expected signs agreed with the estimated signs.

The probability of their estimated parameters is less than 5%. Therefore the following interpretations were made:

When the grant to asset ratio increases by 1% all other things being equal, the financial self sufficiency ratio of CLECAM-EJOHEZA Ltd decreases by 3.741% and contrary when the grant to asset ratio decreases by 1% all other things being equal, the financial self sufficiency ratio of CLECAM-EJOHEZA Ltd increases by 3.741%. Ravicz, et al (1998) claimed that microfinance initiatives can reduce, and even eliminate the need for subsidies if they achieve a significant volume of business so that they can be sustainable. Bogan (2009) claimed that the negative effect of grants was a particularly meaningful result given that it is consistent with a growing view that MFIs should rely less on grants, soft loans and other types of donor funds.

When the debt to equity ratio increases by 1% all other things being equal, the financial self sufficiency ratio of CLECAM-EJOHEZA Ltd decreases of 7.074% and contrary if the debt to equity ratio decreases by 1% all other things being equal, the financial self sufficiency ratio of CLECAM-EJOHEZA Ltd increases by 7.074%. Kyereboah (2007), also, found that highly leveraged microfinance institutions have higher ability to deal with moral hazards and adverse selection than their counterparts with lower leveraged ratio. This states that high leverage and profitability are positively correlated. Bogan et al (2007) conducted a study to ascertain

whether capital structure affects the financial sustainability of an MFI. They found that microfinance institutions capital structure were associated with their financial sustainability. The study by Nyamsogoro (2010) indicates that there is a positive correlation coefficient between the capital structure and financial sustainability of microfinance institutions. The more an MFI is equity financed compared to other sources of finance, the more the improvements in its sustainability in other words, although how the capital has been structured affects the financial sustainability (Bogan et al, 2007) having different source of capital does not improve the financial sustainability of microfinance institutions.

When the operational expense ratio increases by 1% all other things being equal, the financial self sufficiency ratio of CLECAM-EJOHEZA Ltd decreases by 10.407% and contrary when the operational expense ratio decreases by 1% all other things being equal, the financial self sufficiency ratio of CLECAM-EJOHEZA Ltd increases by 10.407%. According to the research finding of Nyamsogoro (2010), the lower the ratio, all things being constant, will imply efficiency and the ratio strongly affects the financial sustainability of microfinance institutions. This indicates that, the more MFIs are efficient in reducing operating costs at a given level of outstanding loan portfolio, the more profitable they become and, therefore, maintain financial and operational self-sufficiency and ensure financially sustainable.

When the cost per borrower increases by 1% all other things being equal, the financial self sufficiency ratio of CLECAM-EJOHEZA Ltd decreases by 1.799% and contrary when the cost per borrower decreases of 1% all other things being equal, the financial self sufficiency ratio of CLECAM-EJOHEZA Ltd increases by 1.799%. This is in line with the result of the study made by Yoshi et al (2011), that the lower cost per borrower implies that an MFI is more efficient to reduce the borrowing cost. Therefore, MFIs with a lower ratio have a higher OSS, and negatively related to the FSS and OSS of a given MFI, leading to a negative sign for the coefficient.

When inflation rate increases of 1% all other things being equal, the financial self sufficiency ratio of CLECAM-EJOHEZA Ltd decreases by 0.545% and contrary if the inflation rate decreases by 1% all other things being equal, the financial self sufficiency ratio of CLECAM-EJOHEZA Ltd increases by 0.545%. Gwas & Ngambi (2014) noted that the negative impact of inflation on sustainability indicated that repayment levels are usually weak and low in the presence of higher inflation rates. The study made by Ahlin & Lin (2006);

Bogan (2009) on the relationship of macroeconomic variables and efficiency, asserted that macroeconomic variables could have an effect on MFI efficiency.

VI. CONCLUSION

This research under the topic "The determinants of Financial and Operational Sustainability of MFIs in Rwanda" analysed first the sustainability of CLECAM EJOHEZA Ltd by focusing on the two indicators recommended by Microfinance Financial Reporting Standards as measures of sustainability of the MFI notably the financial self-sufficiency ratio (FSS) and the operational self-sufficiency ratio (OSS).

The analysis of financial statements along with the non financial indicators revealed that CLECAM EJOHEZA Ltd is fairly operational sustainable but is not financially sustainable during the period from 2010 to 2015. Based on the results under the section of result and discussions, it was clear that during this period the total asset as well as other ratios or financial and operation indicators of CLECAM EJOHEZA Ltd has been fluctuated across the years from 2010 to 2015. Furthermore, not all the determinants of operational sustainability explain positively the determinants of financial sustainability, the research found that the determinants of operational sustainability explain positively some determinants of financial sustainability and explain negatively some other financial sustainability factors.

VII. RECOMMENDATIONS

Considering the analysis made by the researcher, the following recommendations were formulated and addressed to the different actors and the future researchers.

- ✓ CLECAM-EJOHEZA Ltd has to maintain a sufficient level of FSS ratio to ensure its financial sustainability. This because the empirical evidences showed that unless 100 % FSS ratio is reached, otherwise the long-term provision of credit services is destabilized and MFI opts on the continued necessity to rely on donor funds.
- ✓ It also recommended that the government have to play a central role in creating an encouraging environment for enabling MFIs to ensure their long-term sustainability, by maintaining the macroeconomic stability through appropriate monetary and fiscal policies. This has recommended based on that sustainability of CLECAM-EJOHEZA Ltd is affected by macroeconomic factors like GDP and Inflation.
- ✓ The researchers are recommend to bear in mind that this study has conducted based only to the data or information from CLECAM-EJOHEZA Ltd. Therefore, for future research the researchers have to conduct their studies on a group of MFIs that is

more representative, thus they can analyze consistently this phenomenon and contribute significantly to the Rwandan microfinance sector. Furthermore, this study is limited to only quantitative aspect; it doesn't include the qualitative factors for the determinants of MFIs sustainability in Rwanda. The future researchers on the this topic are also recommended to do comprehensive study by considering other influencing factors using qualitative aspects.

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