Original Research Article

Analysis of Loan Portfolio Management for financial Profitability and Sustainability of Umwalimu SACCO in Rwanda

Abstract

The analysis of loan portfolio management for financial profitability and sustainability of MFIs in Rwanda, Teachers saving and Credit (UMWALIMU SACCO) has been taken as a pilot in this paper which covered the period of 2010-2014. This paper with aim of answering problem statement of "how does loan portfolio management contribute to MFI's financial profitability and sustainability" employed the methods of data collection and analysis. Both primary and secondary data were collected then analyzed through MFI Factsheet 3_4, SPSS 16 tools (Pearson correlation, and multi regression analysis), so that the correlation and strength between variables can be determined. The analysis found the p value significance between amount disbursed, gross loan, PAR (loan management indicator) and interest rate, loan duration (credit policy indicator), with expected sign, and between cost ratio, net margin and operating margin, profitability indicators, and PAR and loan loss reserve ratio, the loan management indicators, some of them with contrary expected sign, The total asset towards sustainability variables (ROE, ROA, ROE excluding donations, ROA excluding donations), some of them has contrary expected sign after the consideration of the lowest p= 0.009 and the highest significance level of p=0.032 all of them <0.05, three hypothesizes were confirmed and concluded that credit decisions are strongly influenced by credit policies. Therefore, credit policies can have significant impact on the success of an institution. For example, if a credit policy is too risk averse it will hamper credit provision to marginal but potential creditworthy borrowers resulting in or contributing the institution failing to achieve its revenue goals.

Keywords: Loan Portfolio, Microfinance, financial Profitability, Sustainability.

1. Introduction

A policy regulates, directs and controls action and conducts. Policies can range from broad philosophy to specific rules. A policy should be either being Government or institutions policy (BNR, 2012). According to Kariuki, (2010), there are various policies that an organization should put in place to ensure that credit management is done effectively; one of these policies is a collection policy which is needed because all customers do not pay the firms bills in time. Loan portfolio management is the effective management, monitoring and reviewing of lending institutions' loan portfolio by using appropriate tools and techniques. Loan portfolio can be defined as portfolio outstanding which refers to the amount of loans outstanding. Projected interest is not usually considered part of portfolio. Principal outstanding is an asset for any MFI; interest contributes to the income of a MFI and is recorded as revenue (BNR, 2012)

The two key aspects of any investment are time and risk, the sacrifice takes place now and is certain. The benefit is expected in future and tends to be uncertain (Chandra, 2002). Loan portfolio forms a substantial amount of the assets of banks. It is the amount predominant source of interest income as lending is principal business activity for banks. However, when prudent measure are not put in place, loans may go bad which tend to have some serious effect on the financial position of banks through provision for bad depts., in lines with banking regulation (Boateng, 2001).

The loan portfolio is typically the largest asset and the predominant source of revenue. As such, it is one of the greatest sources of risk to bank's safety and soundness. Effective management of loan portfolio's credit risk requires that the board and management understand and control the bank's risk profile and its credit culture. To accomplish this, they must have through knowledge of the portfolio composition and its inherent risks. They must understand the portfolio's products mix, industry geographical concentrations, average risk ratings, and other aggregate characteristics. They must be sure that policies, procedures and practices implemented to control risk of individual loans and portfolio segment are sound that lending personnel adhere to them (Imeokparaia, 2013).

Profitability is one of the most important objectives of financial management because one goal of financial management is to maximize the owner's wealth (McMahon, 1995). Thus, profitability is very important in determining the success or failure of a business. At the establishment stage, a business may not be profitable because of investment and expenses for establishing the business. When the business becomes mature, profits have to be produced.

Profitability is achieved when profits net of taxes and subsidies are at least equal to the opportunity cost of capital and risk taking. Operational efficiency is the ability of an institution to offer a particular service at the lowest cost. Many of MFIs experienced management inefficiency, high running costs, persistent subsidy dependence, inclination of social service than business approaches, NPLs, higher default rates, small number of clients and targeting failure to the poor. Those MFIs that secured self-sufficiency are through extending credit to marginally poor than the poorest.

The MFI term refers to the provision of financial services to low-income clients, including the self-employed. Financial services generally include savings and credit; however, some microfinance organizations also provide insurance and payment services. In additional to financial intermediation, many MFIs provide social intermediation such as group formation, development of self-confidence, and training in financial literacy and management capabilities among members of a group. Thus definition of microfinance often includes both financial intermediation and social intermediation. Microfinance is not simply banking; it is a development too (Ledgerwood, 1999).

2. **Research objectives**: The study is focused on achievement of following five objectives:
   - ✓ To assess the loan policy of UMWALIMU SACCO.
   - ✓ Analyze the loan portfolio management in UMWALIMU SACCO
   - ✓ To measure the correlation between loan management and loan policy of UMWALIMU SACCO.
   - ✓ Analyze the relationship between loan portfolio management and financial profitability of UMWALIMU SACCO

- ✓ Analyze the relationship between loan portfolio management and financial sustainability of UMWALIMU SACCO

3. Literature review

Prior to the genocide of 1994 in Rwanda, the microfinance sector had experienced slow growth. Following the genocide, large inflows of donor funds were directed into relief orientated microfinance initiatives, stimulating the growth of the sector. In addition, as part of its reconstruction phase, the Rwandan government provided credit lines and grants to the microfinance sector. The fast and chaotic growth that followed caused several unintended problems, including "*a weak culture of loan repayments*" according to the author of the National Microfinance Policy Implementation Strategy. The need for greater consolidation within the sector led the government to initiate a reform of the financial sector in 1995.

Joegensen (2011), in her research, "*The profitability of microfinance ins Institutions and the connection to the yield on the gross profit*" by using the second data empirical analysis, the analytical and the system problem-solving methods, Joegensen analyzed and tested to profitability models with ROA, and profit margin, and finds that factors that statistical influenced profitability was the capital asset ratio, and gross loan portfolio. Factors with a statistical negative influence were legal status (Credit union), and cost per borrower. Two other variables also showed a statistical significance but with the opposite influence than expected, and these were operating expense over loan portfolio which had a positive influence, and number of active borrower with negative influence. The findings at this research answered the critics and conflicts raised, as Pr. Mohamed Yunus said: "greedily 'for profit' MFIs are exploiting the poor to make the large profit and that the only poor people should be the only beneficiaries of Microfinance". The research proves wrong that the high interest goes hand in hand with the high profits for MFIs as claimed by critics.

Telahum (2013), in his paper, by using binary probit, ordered probit regression mode, from unbalanced data of 23 MFIs for a period of 2004-2009, investigates " *Determinants of financial sustainability of Microfinance Institutions in in East Africa*", the regression results reveal that MFIs' financial sustainability is positive and significant driven by loan intensity and size. However management inefficiency and portfolio at risk (PAR) have a negative and significant impact on financial sustainability. Breadths of outreach and deposit mobilization are not important determinants of financial sustainability. Telahum's study ends by calling for the further research which could examine the determinants of credit risk and lending behavior, the main determinants variables of MFI's sustainability.

Menzie (2011), "*the effect of subsidies on performance and sustainability of MIFs in Sub-Saharan Affrica*, (SSA)", by quantitative approach used in analysis in which financial data selected 92 MFIs were estimated by using panel data estimation. The result shows that the majority of MFI (90.22%) were not sustainable, nor were they found to be profitability. However the results show that all institutions were operationally Self-Sufficient and that on average MFIs in SSA charged high interest rate than MFIs in the rest of the world. The average of OSS was 136.01% showing that MFIs are operationally self-sufficient, however the Financial Self-Sufficient (FSS) value was 74.32% reflecting that MFIs are not able to raise enough revenue to cover their capital and indirect cost which should lead ultimately result in running out of equity funds. Further result based on the frequency show that only 90.22% in sample were not self-

sufficient. The findings of this result that over the years the FSS of MFIs in low income countries of Africa have been below the breakeven point of 100% (Stephnes, 2009).

Nyamusgoro (2010), by quantitative research approach using panel data regression as the main data analysis technique, the study based on 4 years primary and secondary data obtained from 98 sampled rural MFIs in Tanzania, his research "Financial Sustainability of Rural MFIs in Tanzania", shows that microfinance capital structure, interest rate charged, different in lending type, cost per borrower, product type, MFI size, number of borrowers, yield of gross portfolio, level at PAR, liquidity level, staff production, and the operation efficiency affect financial sustainability of rural MFIs in Tanzania. The study makes key contributions to knowledge in addition to determinants factors affecting financial sustainability of rural MFIs in Tanzania.

This paper is supported or based on some economic theories such as:

1) Modern Portfolio Theory (MPT)which explains how risk-averse investors can construct portfolios to optimize or maximize expected return based on a given level of market risk, MPT is applied in order to achieve a higher return of loan portfolio, by combining a strong loan portfolio that beats the market in the long-run, and should be the strong goal for MFI.
2) Capital asset pricing and arbitrage pricing theory, based on the idea that not all risks should affect asset prices, MFIs determine and adjust loan pricing, loans should be priced at a level sufficient to cover all costs, fund needed provisions to the allowance accounts as well as facilitate the accretion of capital.
3) Profitability theory: The behavior of a firm is analyzed in term of profit maximization; loan portfolio must enable MFI to generate profit, factor of ensuring activity continuity and viability.
4) Production theory: An effort to explain the principles by which a business firm decides how much of each commodity that it sells (its "outputs" or "products") it will produce. Production theory enables MFI to predict the income from loan portfolio (as outputs in function of what it invested to make loan portfolio (inputs).
5) Conventionalist theory: to some crucial theoretical questions there may "*be no fact no matter",* Credit approval should be made in accordance with institutions' written guidelines and granted by the appropriate level of management.

4. Research Methodology:

In this section tools and techniques and methods had been used to achieve four research objectives has been discussed: both primary and secondary data were collected then analyzed through MFI Factsheet_ 3.4, SPSS 16 tools (Pearson correlation, and multi regression analysis), so that the correlation and strength between variables can be determined.

4.1. Data

The research is analytical and empirical in nature and makes use of secondary data. The population for the study is staff of UMWALIMU SACCO in Republic of Rwanda. The data has been sourced from UMWALIMU SACCO financial reports. The sample period undertaken

for the objective is from the year 2010-2014 to 2009-10.

The Sample

The sample frame

Douglas (2006) defined a sampling frame as a list or other device used to define a researcher's population of interest. The sample frame in this study is all those staff (89) in UMWALIMU SACCO who deals daily with loan portfolio management.

Research Instruments

Primary data and second data collection had been used in order to achieve the research purpose. The primary data had been collected by mean of survey of loan portfolio management for profitability, a question questionnaire was developed and a number of total population 89 UMWALIMU SACCO staff chosen by non-probably method responded to it. References have been made to textbooks, journals, newspapers and other published literature, electronic journal and the internet provide as valuable sources of data. Archival method was important for this research. It consisted to gather data from written resources concerning research topic in order to understand present situation. The literature review bought about comprehensive review involving the collection of both academic theories and research directly related to the study.

Models and techniques

To Find out the relationship of loan portfolio management and financial profitability a Multiple Linear Regression analysis is carried out in respect of UMWALIMU SACCO for data of 5 years i.e. from 2010-14.

To explain the relationship between loan policy and the financial profitability the following regression model has been used:

$$LPO=\beta_0+ \beta_{11}AD+\beta_{12}GLO-\beta_{13}PAR +\varepsilon \quad \Longrightarrow \quad \textbf{Model 1}$$

To explain the relationship between loan portfolio management and the financial profitability the following regression model has been used:

$$PRO=\beta_0+ \beta_{12}NM+\beta_{22}CR+\varepsilon \quad \Longrightarrow \quad \textbf{Model 2}$$

To explain the relationship between loan portfolio management and the financial sustainability the following regression model has been used

$$SUS=\beta_0+ \beta_{13}RE+\beta_{23}RA+ \beta_{33}OSS+\varepsilon \quad \Longrightarrow \quad \textbf{Model 3}$$

Where β_0 is the regression constant, ε is the error term β_{11},β_{12} β_{21},β_{22}, β_{32}, and β_{42} were the coefficients of independent variables which were amount disbursed, gross loan, portfolio at risk, net margin, cost ratio, and the dependent variables were represented as loan policy, profitability and sustainability ratios.

5. Findings and results:

5.1.UMWALIMU SACCO financial performance analysis

UMWALIMU SACCO analysis result shows that the average variation in total asset variation was 49%. The figure shows the positive performance of total asset progressively. 2011 market the high total asset variation which testify the performance of new hired Managing Director and its team, the lowest variation of 2014 is translated by the a big amount of loan invested in

mortgage loan, payable in long term period, the first years of payment, interest are paid at big and the capital paid little.

TABLE 1: UMWALIMU SACCO Financial variation 2010-2014

	Year	Year	Year	Year	Year-to-date
	2010	2011	2012	2013	2014
Variations to previous year					
in Total Assets	Previous year needed	66%	41%	61%	29%
in Net Portfolio	Previous year needed	55%	44%	75%	19%
in value of loans disbursed	Previous year needed		105%	48%	-8%
in Equity	Previous year needed	44%	61%	75%	24%
in Total Deposits	Previous year needed	40%	29%	64%	34%
in Total Borrowed Funds	Previous year needed		67%	-3%	65%
in Operational Income	Previous year needed	101%	36%	35%	25%
in Operating Expenses	Previous year needed	37%	46%	31%	42%
in Nbr. of Staff	Previous year needed	-12%	153%	-5%	2%
in Nbr. of Clients	Previous year needed	97%	16%	3%	-11%
Currency Variation	Previous year needed	0%	7%	10%	-9%

Source: UMWALIMU SACCO factsheet, April 2015

The average variation in net portfolio is 48%. Net portfolio increased progressively, a good indicator of financial performance which testifies that UMWALIMU SACCO keep loanable fund, the major source of financial result. The average variation in value of loan disbursed is 36%. The value of amount disbursed keeps growth, 2014 marked by the negative variation of (8%), comparatively in 2013 net portfolio had been caused by the decision taken by general Assembly held in June 2014 to mitigate long term risk of big amount allocated in mortgage loan, mortgage loan amount was subject to diminution, unfortunately was the most attractive loan product .

The average of variation in operational income is 49%, operational income grows continually, a very good indicator of financial performance. In 2011 the variation of 101% recorded justified the performance of the new Managing Director hired in 2010, and his team.

The average of variation in operational expenses is 39%, the operational expenses are increased some time and decreased in other time. The good financial performance indicator is to diminish the variation of operational expenses. UMWALIMU SACCO must cut back the operational expenses.

The average of variation in number of clients is 26%, UMWALIMU SACCO increased its membership in 2011, due to the increment of loan sealing amount from Frw 3,000,000 to Frw 15,000,000, the payment period from 2 years to 5 years, and also intensive awareness complain conducted by the new Management team. 2011 had been also marked by cooperative innovation such as funeral solidarity fund, credit solidarity fund, mobile counter, and the consumption of partnership with UMURENGE SACCO.

The average variation in number of staff is 26%. The was a big variation of staff in 2011 due extend of activities, mobile counter required more tellers, all branches were been equipped with Branch manager, credit officer, chief cashier, and cashiers. Some branches were given the Customer Care and Commerce officer. The negative variation of (12%) in 2011 and (5%) in 2013, as the institution keeps annually benefit, justify that the number of staff is not correlated with operational income. UMWALIMU SACCO can keep diminished staff and keep operational income.

The average variation of currency is 2%. 2011 -2013 the currency variation increased progressively, meaning that the currency was not enough invested either in loan or in term deposit with financial institutions for interest. 2014 there was a negative variation of (9%) a good indicator of currency investment and liquidity risk mitigation strategy.

The average variation in equity is 51%. The equity is growing continuously, due to the new members who pay the share capital, and due to the fact that up to now there is sharing of dividends. After the deduction of regal reserve, always the general assembly votes for increasing equity from financial revenue. The average variation in borrowed fund is 43%, UMWALIMU SACCO in 2012 borrowed to Rwanda Development Board (BRD), frw 1.5 billion to pay in period of 15 years, and end of 2014 got a loan of 2 billion from OIKO credit[1]. The total of the

[1]Oikocredit is a worldwide cooperative and social investor, providing funding to the microfinance sector, fair trade organizations, cooperatives and small to medium enterprises.

two loans over debit considering the value of total asset of UMWALIMU SACCO which end of December 2014 evaluated in 35 billion. The diminution and lack of borrowed fund is the good indicator of auto and self-sufficiency over time. The average of variation in operational income is 49%, operational income grows continually, a very good indicator of financial performance. In 2011 the variation of 101% recorded justified the performance of the new Managing Director hired in 2010, and his team.

The average of variation in operational expenses is 39%, the operational expenses are increased some time and decreased in other time. The good financial performance indicator is to diminish the variation of operational expenses. UMWALIMU SACCO must cut back the operational expenses.

Portfolio quality

The article 61 of Microfinance regulation in Rwanda , law N° 02/2009 of stipulates that if the microfinance institution has reached a rate of non-recoverable of 10%, it is no longer authorized to grant loans, and must focus its activities on recovering non-performing loans.

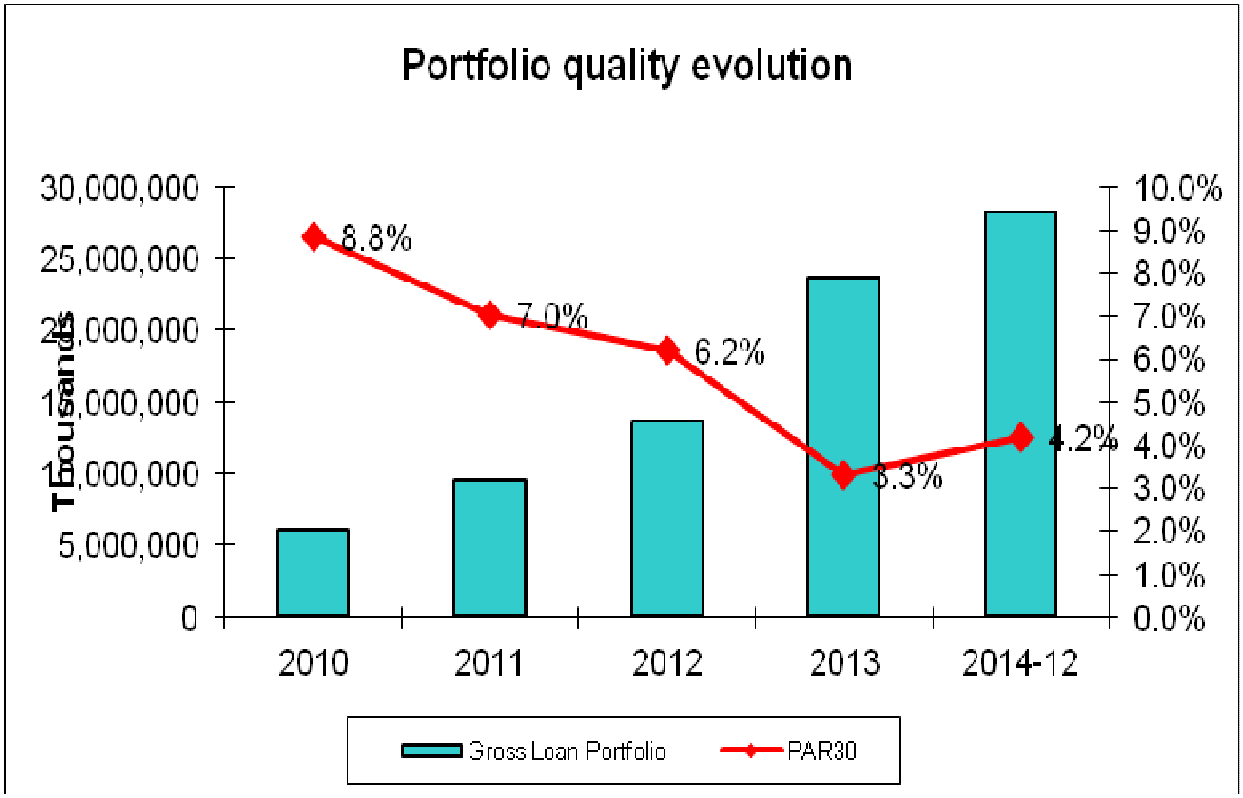

Figure 1: Portfolio quality evolution UMWALIMU SACCO factsheet

The portfolio quality is marked by the decrease of NPL from 8.8% in 2010 up to 4.2% in 2014. The best quality of NPL in 2013 of 3.3% was caused by the decrease of defaulting portfolio from Frw845, 976,502 to Frw 786,373,680. 2014 the institution didn't keep the decrease, the defaulting portfolio jumped to Frw 1,186,469,908. The variation of Frw 400,096,228 had been

caused by 491 borrowers who left the teaching carrier to join the university study. They had an outstanding of Frw 391,028,030 (UMWALIMU SACCO, 2014).

The lower NPL rate, justifies the better portfolio quality. The continuous gross loan portfolio is also a good indicator of portfolio quality. Since 2010 up to 2014 gross loan portfolio grows at the rate of 490%. Portfolio quality ratios are directly affected by the writ-off policy of the lending institution. If delinquent loans continue to be maintained on the books rather than written off once it has been determined that they are unlikely to be repaid, the size of the portfolio, and hence the denominator, is overstated. However, the numerator is also greater because it includes the delinquent loans, but the amount of delinquent loans is proportionately less relative to the denominator). The result is a higher portfolio at risk than for lender that writes loans off appropriately.

Efficiency and productivity

The productivity of a firm is the ratio of the output(s) that it produces to the input(s) that it uses. Productivity= outputs/inputs. When we refer to productivity we are referring to total factor productivity, which is productivity measures involving all factors of production. Efficiency is the comparison of what is actually produced or performed with what can be achieved with the same consumption of resources (money, time, labor, etc.). Productivity and efficiency indicators show if the MFI is providing best quality services to as many as possible clients at the lowest cost. Efficiency and productivity indicators reflect how well MFI uses its resources, particularly its asset and personnel.

UMWALIMU SACCO gross loan portfolio from 2010 up to 2014 had been increased positively, from 5.5 billion up to 27.1 billion. The variation of 57% in 2011, 47% in 2012, 79% in 2013, and 18% in 201. This is the good indicator for the life of the institution as loan activity is the major source financial revenu. Number of borrowers increased also as the shart shows from 2.348 in 2010 to 42,398 in 2014. The increase of borrowers justifies the the increase of outreach of UMWALIMU SACCO. The figure below explains the average loan size of UMWALIMU SACCO in the 5 years analyzed.

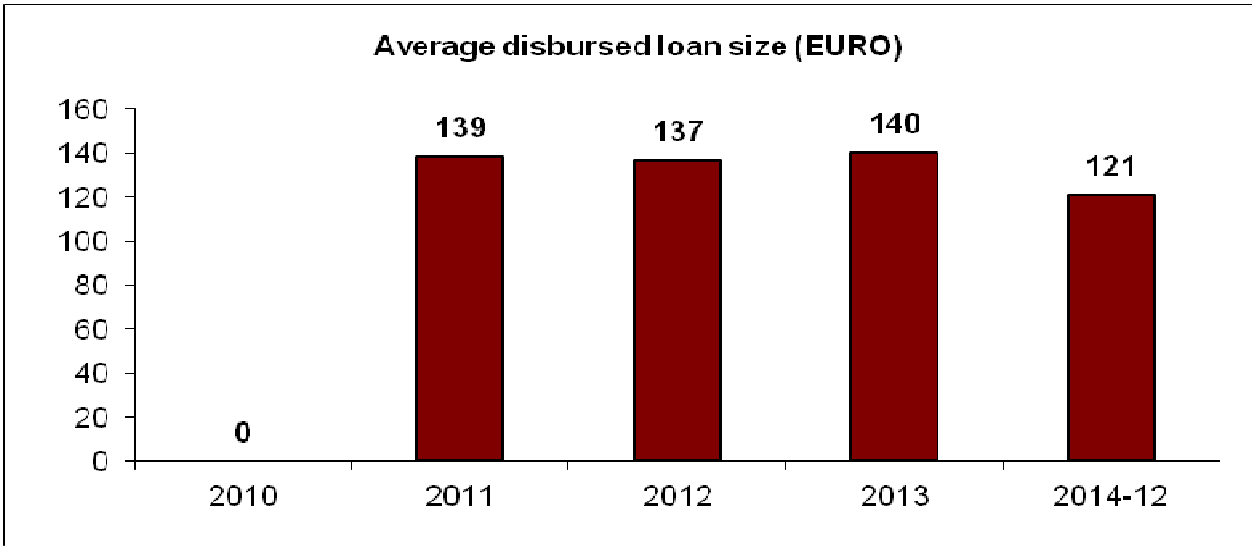

Figure 2: Portfolio size of UMWALIMU SACCO

The average of disbursed loan size was 139 Euro in 2011, the average not exagereted if it was considered the high increase of portfolio size from 2010-2011, the average went little down in 2012 as the portfolio size didn't keep the same progress. The up grow of 140 € from 137 in 2013, had been caused by the almost double growth of gross loan portfolio realised in 2013. To remind that 2013 had been marked by the best record of NPL 3.3%, the fund borrowered had been recoverd succesfully. The fall down of 2014 fro 140 € to 121 €, was caused by three major reasons. Fistly November 2013, the General Assembly of UMWALIMU SACCO adopted the decision of suspending to open account for members not serving direct from teaching in primarly and secondary schools, there was a challenged that Staff from Universities. High Education Institutions, Institutions realated to education, due to their good financial position in term of monthly salary, carry on them big average of borrowed size. Secondary, according to cabinet paper, from July 2014-June 2015, from Mineduc badget 5 billion should be allocated to UMWALIMU SACCO, 80% of its was supported to finance loan activity. UMWALIMU SACCO for 2014 badgetized 2.5 billion from that fund unfortenetly the first installment reached UMWALIMU SACCO account in midi December, there was not time invest it in loan. Thirdly, the Insitution started in 2014 the implementation of diminshing the funds alocated in mortgage loan, with aim of encouraging IGA, as way of diminishing the period of return of funds.

Portfolio yield - generated by dividing total interest and fee income from the loan portfolio by the Average Gross Portfolio of the period. Portfolio yield also known as internal rate of return is computed by determining the cash flows for the portfolio and determining the interest rate that will make the present value of the cash flows equal to the market value of the portfolio. The figure below indicates the situation:

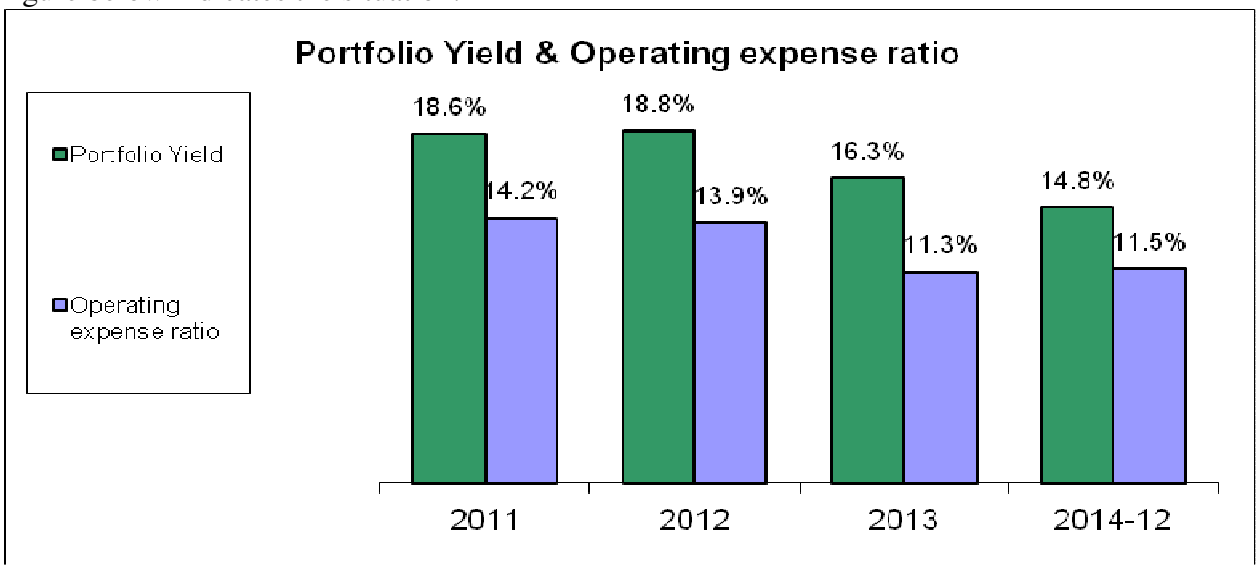

Figure 3: Average disbursed loan size (Euro) of UMWALIMU SACCO

In 2011 portfolio yield ratio was 18.6% which increased by 0.2% in 2012, meaning that by the comparison of those two years, the internal rate of return was increased, the good financial performance for institution before the implementation of mortgage loan, with 15 years as term duration, since 2012 portfolio yield ratio fall down to 16.3% in 2013 and 14.8% in 2014. The fall movement of portfolio yield is justified the mortgage loan product design, and a big amount of money which allocated in it in 2013-2014, unfortunately it will take long to be recovered.

Loan loss reserve ratio

Loan loss reserve ratio - loan loss reserves divided by gross loan portfolio. Reflects how much of the gross loan portfolio has been provisioned for. In 2010 loan loss reserve ratio was 2.6%, the ratio which increased to 3.3% in 2011 constitutes the bad indicator as failure of loan recovery strategy, happy that in 2012 in was reduced to 2.9% in 2012, and reduce continues in 2013 up to 1.9%, the ratio kept up to 1.9%. As the provision of loan is expenses for MFI, the continuous decrease is a good indicator of financial performance for the period analyzed.

Portfolio at risk written off index

Portfolio at risk write-off index equals to Value of Write-Offs / (PAR30 + Value of Write-Offs). The ratio measures how much of the PAR30 has been written-off. The available data for the 5 years analyzed is for 2012-2014, 2012 portfolio at risk written off index was 28.8%, the ratio had been increased up to 57.3% in 2013, the worst indicator for MFI, if it was remembered that 2013 had been marked by the best PAR30, 3.3% the increase of portfolio at risk written off index translates that in 2013 was a big amount of loan which had been written off. The Institution recorded a very high expense due to write of loans. In 2014 the ratio had been brought down up 25.5%, the figure which needs to be downed as possible.

Portfolio rotation

Portfolio Rotation - Value of loans disbursed during a period divided by Average Gross Loan Portfolio, measures how often the loan portfolio is renewed. This ratio holds strong relation to the average loan term. 2010 portfolio rotation was 118% meaning that loan portfolio was able to be renewed at 118%, and was brought up 164% in 2012, and started down movement of 150% in 2013 and 99% in 2014. The higher ratio of portfolio ratio, the better portfolio rotation is and preferable. When UMWALIMU SACCO started mortgage loan product, the portfolio rotation started to fall down. The need adequate strategies to keep the increase of portfolio rotation, either by diversify mortgage loan product, in term of reviewing its design, or associating the mandatory saving to mortgage loan, as person contribution to get mortgage loan.

5.2. Profitability ratios analysis

Profitability is one of the most important objectives of financial management because one goal of financial management is to maximize the owner's wealth. Profitability is very important in determining the success or failure of a business. At the establishment stage, a business may not be profitable because of investment and expenses for establishing the business. When the business becomes mature, profits have to be produced.

Net Margin - Net income divided by total financial income. Measures what percentage of financial revenue remains after all expenses are paid. In 2010 Net margin ratio was 16.1%, the percentage of financial revenue remaining after the payment of all expenses, 2011 the ratio had been doubled, and reduced some little since 2012 to 30.5% up to 29.3 by passing to 31.4% in

2013. The figures above are the good indicator of financial performance as UMWALIMU SACCO in 5 years was able to achieve a positive net margin. There was no loss recognized.

Cost Ratio - Operating costs divided by (net financial margin plus other operating income). Measures how much is spent in operating costs in order to make the income. When the ratio touches above the 100% line = losing money. In 2010 cost ratio was 99.4 %, the Institution spent almost 100% of its resources to make income, 2011 the ratio decreased to 61.9% in 2011, in 2012 it was 68.3%, 2013 64.7% and 68% in 2014. The figures are not bad as there was anyone above 100% which translates the losing money. Financially UMWALIMU SACCO performed well as able to cat off cost ratio from 99.4% in 2010 up to 68% in 2014 with the considerable extension of activities realized (Increasing branches, extending outreach by partnering with UMURENGE SACCO etc.)

Sustainability ratios

Financial sustainability means: *"ensuring the longevity of the organization."* Financial sustainability refers to the ability for the MFI to survive in the long run by means of its own generating activities. ROE: Net income divided by average equity. ROE expresses the rate of return on the average equity for the period. 2010-2014 ROE was respectively 19.4%, 15.6%, 12.8% and 10.5%, the going down movement is caused by the change of term of borrowing, from short term, medium up to long term period. In 2010 all the loan disbursed had to be reimbursed in 2 years, in 2011 the period was increased to 5 years and finally up to 15 years. The long term investment requires not only a lot of financial resources, but also a lot of patience ROE. Even if financially the borrowed fund is not recovered immediately, the long term loan enabled UMWALIMU SACCO to answer the needs of its clients in term of house acquisition via mortgage loan.

ROA: Net income divided by the average total assets. ROA expresses the rate of return on the average assets for the period. 2010-2014 ROA was respectively 7.2%, 5.9%, 5.4% and 4.5%. The explanation is the same as ROE decrease.

OSS : Total operating income divided by (Operating expenses + Financial expenses + Net loan loss provision expenses). Measures how well an MFI can cover its ordinary costs through operating income. In 2010 OSS was 100.5% from that period it shows that UMWALIMU SACCO breaks even, and kept the positive growth of OSS 149% in 2011, 136,1 in 2012, 142,9 in 2013 and 141.3%. UMWALIMU SACCO through operating income it covers its ordinary costs.

Relationship between Loan policy and loan portfolio management

Since the loan spread is the basic source of Microfinance institutions, loan policies are closely tied to their operating performance, in loan portfolio management, loan staff complies day to day with the loan policies to ensure the MFI's performance. The SPPS 16 analysis report concluded the following results:

The percentage of 50% strongly agreed, ans 50% agreed of existence of credit policy. About its usage 68.8% agreed, and 32.2 % strongly agreed. UMWALIMU SACCO credit policy includes the normal correction procedures, as 79.4% agreed, and 11.8% strongly disagreed, and 8.8% disagreed. UMWALIMU SACCO credit policy includes primary criteria for evaluating

borrower's credit application, 44.1% strongly agreed, 41.2 agreed, 8.8% strongly disagreed and 5.9% strongly disagreed . UMWALIMU SACCO complies with prudential lending guideline about Restriction on credit concentration, 55.9% agreed, 20.6% strongly agreed, 17.6% disagreed and 5.9% strongly disagreed. The average mean was 4.21178, strong according to Smidt's mean evaluation. The standard deviation was found homogeneity for all questions tested. Coefficient of variation for the two first questions was below 15, and CV confirmed. For the rest not confirmed.

For the Poor credit appraisal factor accounts for the incidence of NPL in UMWALIMU SACCO, 41.2% disagreed, 50% agreed, and 8.8% strongly agreed. The delay of loan approval factor accounts for the incidence of NPL in UMWALIMU SACCO, 14.7% strongly disagreed, 38.2 disagreed, 38.2% agreed and 8.8 strongly agreed. The average mean was strong, standard deviation homogeneity, and coefficient of variation not confirmed.

The percentage of 14.7% strongly disagreeddd that rigid approval procedures are the causes of delayed of loan approval, 41.2% agreed, 35.3% agreed and 8.8% strongly agreed. 8.8% strongly disagreed that customers' inability to meet the approval requirement is the cause of delayed of loan approval, 29.4% disagreed, 41.2 agreed, and 20.6 strongly agreed. 17.6% strongly disagreed that an insufficient loanable fund is the cause of delayed of loan approval, 26.5 disagreed, 50% agreed, and 5.9% strongly agreed. The average mean was strong, standard deviation homogeneity, and coefficient of variation not confirmed.

The 8.8% strongly disagreed that staff is factor hindering effective monitoring of loan, 35.3 disagreed, 50% agreed and 5.9 strongly agreed. 14.7 Strongly disagreed that logistic is factor hindering effective monitoring of loan, 44.1% disagreed, 20.6 % agreed, and 20.6 strongly agreed. 76.5 disagreed that product design is factor hindering effective monitoring of loan, 2.9% agreed, and 20.9 strongly agreed. The average mean for all the cases was weak standard deviation homogeneity, and coefficient of variation not confirmed.

A percentage of 26.5% strongly disagreed that business loan records the highest incidence of NPLs, 41.2 % disagreed, and 26.5% agreed, and 5.9% strongly agreed. A percentage of 8.8% strongly disagreed that consumer loan product loan records the highest incidence of NPLs, 26.5% disagreed, and 32.4 % agreed and 32.4% strongly agreed. 17.6% Housing and mortgage loan product loan records the highest incidence of NPLs, 38.2% disagreed, 29.4% agreed, and 14.7% strongly agreed. The average mean was weak, standard deviation homogeneity, and coefficient of variation not confirmed.

The parcentage of 8.8% strongly disagreed that lack of proper monitoring counts for diversification of funds, 47.1 disagreed and 44.1% agreed. A percentage of 23.5% strongly disagreed that ignorance of lending terms and conditions counts for diversification of funds, 47.1% disagreed, and 29.4 % agreed. 20.6 strongly disagreed that over financing counts for diversification of funds, 29.4% disagreed, 44.1% agreed, and 5.9% strongly agreed. A percentage of 11.8% strongly disagreed that underfinancing counts for diversification of funds, 35.3% disagreed, 47.1% agreed, and 5.8% strongly agreed. The mean for all the cases was weak, standard deviation homogeneity, and coefficient of variation not confirmed**.**

A Percentage of 2.9% strongly disagree that UMWALIMU SACCO deals NPLs by loan restructuring, 23.5% disagree, 52.9% agree and 17.9% strongly agree. A percentage of 14.7%

strongly disagree that UMWALIMU SACCO deals NPLs by loan written off, 20.6% disagree, 50% % agree and 14.7 strongly agree. 23.5% strongly disagree that UMWALIMU SACCO deals NPLs by legal action, 20.6% disagree, 50% agree, and 5.9% strongly agree. A percentage of 14.7% strongly disagree that non-compliance with credit policy accounts for NPLs, 35.3% disagree, 47.1% agree, and 38.2% strongly agree. The average mean was strong, standard deviation homogeneity, and coefficient of variation not confirmed

Basing on above responses it was confirmed that UMWALIMU SACCO has a credit policy; its composition corresponds to prudential lending guidelines as prescribed by regulator/National Bank of Rwanda. The study confirmed that the poor credit appraisal counts for NPL, the customers' inability to meet the approval requirement is the cause of delayed of loan approval, staff is factor hindering effective monitoring, consumer loan product loan records the highest incidence of NPLs, UMWALIMU SACCO deals NPLs by loan restructuring, also UMWALIMU SACCO deals NPLs by loan written off, UMWALIMU SACCO deals NPLs by legal action, that non-compliance with credit policy accounts for NPLs. In loan portfolio management, the quality of credit policy, the efficiency and productivity of staff are main factor for financial profitability and sustainability of MFI.

5.3. Loan policy and Loan portfolio management analysis

SPSS 16 model 1 analysis establishes the relationship as shown by the table 3:

Table 2: The estimation model of loan policy and loan portfolio management

Dependent Variable	Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Parratio	Amountdisbursed	.671	.058	10.057	.019	.452	2.052
	Grossloan	-15.428	.091	7.821	.012	2.281	17.371
	Intercept	.248	0.71	3.915	.009	0.224	.362
Interest	Amountdisbursed	.189	.057	9.237	.028	.431	.118
	Grossloan	25.461	.531	.18.271	.018	6.911	3.825
	Intercept	9.572	2.481	4.236	.025	6.971	12.781
Loanduration	Amountdisbursed	.452	.091	7.682	.022	.251	.682
	Grossloan	28.191	3.781	6.923	.027	17.662	3.298
	Intercept	10.543	4.978	5.987	.032	.530	20.561

- Between amount disbursed and PAR ratio is 0.022, 0.027 for interest rate, 0.032 for loan duration.
- Between gross loan and PAR ratio is 0.094, 0.028 for interest rate, 0.042 for loan duration. According to hypothesis testing: "The smaller is the P-value, the stronger the evidence against the null hypothesis".

According to hypothesis testing it is explained that : "the smaller is the P-value, the stronger the evidence against the null hypothesis" is obtained.

In analysis model 1 had been kept basing on p value significance level as explained in chapter III, p value to retain should be <0.05. The analysis resulted in the multiple linear regression equation as follow:

$Y_1= 0.248 +0.671X_1-15.248\ X_2$

$Y_2= 9.572+ 25.461X_1+0.189X_2$

$Y_3= 10.543+ 0.452X_1+28.191X_2$

From equation $Y_{1,}$ it means that the PAR ratio affect the amount disbursed and gross loan as follows: for each increase in 1% of PAR is predicted 0.671 amount disbursed, and to decrease by15.248 gross loan. From equation $Y_{2,}$ it means that the interest rate affects the amount disbursed and gross loan as follows: for each increase in 1% of interest is predicted to increase by 0.189 amount disbursed, and to increase by 25.461 gross loans. From equation $Y_{3,}$ it means that the loan duration affects the amount disbursed and gross loan as follows: for each increase in 1% of loan duration is predicted to increase by 0.45 amount disbursed, and to increase by 28.191 gross loans.

Relationship between loan portfolio management and financial profitability

From independent variables the management of loan portfolio, PAR ratio, and loan loss reserve ratio were kept and used in the model the analysis proved them significance. From dependent variables, the profitability of UMWALIMU SACCO, the three components, net margin, cost ratio and operating margin were all of them kept and used in the model two.

Table 3: The estimation model of loan management and financial profitability

Dependent Variable	Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Cost ratio	Intercept	.785	.071	11.018	.008	.478	1.092
	Parratio	9.634	1.069	9.015	.012	5.036	14.232
	Loanlossreserveratio	-25.161	3.913	-6.430	.023	-41.997	-8.325
Net margin	Intercept	.231	.028	8.324	.014	.112	.351
	Parratio	-4.372	.417	-10.491	.009	-6.165	-2.579
	Loanlossreserveratio	12.349	1.526	8.093	.015	5.783	18.914
Operating margin	Intercept	.205	.085	2.420	.137	-.159	.568
	Parratio	-8.253	1.268	-6.509	.023	-13.709	-2.798
	Loanlossreserveratio	20.826	4.642	4.486	.046	.851	40.801

The relationship between loan portfolio management and financial profitability is explained as follow:

- The relationship between PAR ratio and net margin is 0.009 , 0.023 for operating margin, 0.023 cost ratio.
- The relationship between loan loss reserve ratio and net margin is 0.015, 0.046 for operating margin.

Based on hypothesis testing: "the smaller is the P-value, is the stronger the evidence against the null hypothesis is obtained".

In analysis above model was kept basing on p value significance level as explained in chapter III, p value to retain should be <0.05.

The analysis resulted in the multiple linear regression equation as follow:

$Y_1= 0.785 +9.634X_1-25.161\ X_2$

$Y_2= 0.231- 4.372X_1+12.349X_2$

$Y_3= 0.205- 8.253X_1+20.826X_2$

From equation $Y_{1,}$ it means that the cost ratio is influenced by PAR ratio and loss on loan reserve ratio as follows: for each increase in 1% of cost ratio is predicted to increase by 9.634 PAR ratio, and to decrease by 25.161 loan loss reserve ratio.

From equation $Y_{2,}$ it means that the net margin is influenced by PAR ratio and loss on loan reserve ratio as follows: for each increase in 1% of net margin is predicted to decrease by to decease by 4.372 PAR ratio, and to increase by 12.349 loan loss reserve ratio.

From equation $Y_{3,}$ it means that the Operating margin is influenced by PAR ratio and loss on loan reserve ratio as follows: for each increase in 1% of operating margin is predicted to decrease by 8.253 PAR ratio, and to increase by 20.826 loan loss reserve ratio.

Based on the result of the tested variables, It is reminded that the tested was based by the real figures as illustrated in factsheet, only the significance variables were kept in the model to facilitate the analysis. By accepting the significance variable the null hypothesis is rejected, and confirmed the hypothesis two, "There is a significant (positive) correlation between the loan portfolio management and financial profitability of UMWALIMU SACCO".

The hypothesis one had been confirmed based on respondents' responses, for the most cases, the mean was weak, standard deviation homogeneity, and coefficient of variation not confirmed, with the theoretical literature of relationship between loan policy and loan portfolio management, the objectives of loan portfolio management, the result led to confirm the hypothesis one. UMWALIMU SACCO Financial statements have been analyzed through SPSS tool, the $p< 0.05$ for tested all variables in model analysis one, led to re-confirm the hypothesis one. Models analysis results confirmed p value significance $p< 0.05$ for cost ratio, net margin, and operating margin. The $p< 0.05$ led to confirm the second hypothesis.

Analysis of loan portfolio management for financial sustainability

By analyzing the relationship between loan portfolio management and sustainability, all components of loan portfolio management as independent variables were rejected, from mediating variables, the total asset was kept. The results shows that the relationship between total asset and return on equity is 0.027 , 0.041 for return on asset, 0.024.

Table 4: The estimation model of loan management and financial sustainability

Dependent Variable	Parameter	B	Std. Error	t	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Return on equity	Intercept	.228	.015	15.256	.004	.164	.292
	Totalasset	-3.579E-012	6.042E-013	-5.925	.027	-6.179E-012	-9.800E-013
Return on asset	Intercept	.082	.005	15.186	.004	.058	.105
	Totalasset	-1.045E-012	2.174E-013	-4.806	.041	-1.980E-012	-1.095E-013
Return on equity excluding donations	Intercept	.224	.014	16.366	.004	.165	.283
	Totalasset	-3.507E-012	5.531E-013	-6.341	.024	-5.887E-012	-1.127E-012
Return on asset excluding donations	Intercept	.080	.004	18.868	.003	.062	.098
	Totalasset	-1.022E-012	1.718E-013	-5.949	.027	-1.761E-012	-2.828E-013

In analysis above model basing was kept basing on p value significance level as explained in chapter III, p value to retain should be <0.05.The analysis resulted in the multiple linear regression equation as follow:

$Y_1 = 0.228 - 3.579.10^{-13} X_1$

$Y_2 = 0.082 - 1.045.10^{-12} X_1$

$Y_3 = 0.224 - 3.507.10^{-12} X_1$

$Y_4 = 0.080 - 1.022.10^{-13} X_1$

From equation Y_1, it means that the return on equity is influenced by total asset as follow:
For each increase in 1% of ROE is predicted to decrease by $3.579.10^{-13}$ total asset.
From equation Y_2, it means that the ROA is influenced by total asset as follow:
For each increase in 1% of return on asset is predicted to decrease by $1.045.10^{-12}$ total asset.
From equation Y_3, it means that the ROE excluding donations is influenced by total asset as follow: for each increase in 1% of ROA is predicted to decrease by $3.507.10^{-12}$ total asset.
From equation Y_4, it means that the ROA excluding donations is influenced by total asset as follow: for each increase in 1% of return on asset is predicted to decrease by $1.022.10^{-13}$ total asset. Interest rates determine the cost of borrowing and can therefore have a significant impact on return on equity. If interest rates climb, it becomes unattractive to borrow and equity is likely to decline. Declining interest rates is positive impact for borrower, but a negative sign for return on equity for lending FI.

Return on equity excluding donations and 0.027 return on equity excluding donations. According to hypothesis testing as explained in chapter three: "The smaller is the P-value, the stronger the evidence against the null hypothesis. The hypothesis 3 analysis didn't find any variables p< 0.05

for all independent variables, the only significance p value was total asset as mediating variable. If it is remembered that effective management of loan portfolio and the credit function is fundamental to financial institution's safety and soundness, and lending is the principal business activity for most FIs, the loan portfolio is typically the largest asset and the predominance source of revenue, the hypothesis three is confirmed, "There is a significant (positive) correlation between the loan portfolio management and financial sustainability of UMWALIMU SACCO

6. Conclusion

After the analysis, the findings have revealed the contribution of loan portfolio management for the profitability and sustainability of UMWALIMU SACCO. Granting credit involves accepting risk as well as producing profits. Lending institutions should assess the risk-return relationship in any credit as well as the overall profitability of the account relationship. Credit should be priced in such way with other revenues earned would cover all associated cover all of the associated costs and compensate the institutions for the risk incurred.

The largest portion of all MFIs' balance sheet (assets) are made up of products that are packaged to provide financial solutions to clients (loan portfolio), and over 50% of the income (interest and other fees) is delivered from loan portfolio. Therefore for a MFI to grow and be strong it must have a big and best quality of a loan portfolio; as there is a probability that part of loan portfolio may not be paid back, the interest generated by loan portfolio should contribute to cover the unpaid loan. The principal source of funds which MFI use to lend out money are savings from their clients and in case of some clients who do not pay back; pushes the MFI to recover loan from profits made in prior periods. If profits are not enough, the MFI will have to recover this money from its shareholders to bring more capital to at least the required minimum, and if they are unable the last option will be the closure. Therefore the duty of a management of MFI is to come up with adequate policies, procedures that facilitate the probability of clients not paying back and this will ensure the profitability and sustainability of MFI.

Recommendations

The following recommendations have been drawn according to the findings of research:

It has noted that loan portfolio management is an important factor that lending institutions where larger or small should consider as it has a direct impact on the profitability and sustainability of the business. Who says loan portfolio management says credit risk, according to UN Joint Staff Pension Fund ERM policy Statement: "Managing risks is not just about assessing and monitor *all*

the things that could go wrong. Rather it about understands all the things that need to go right for an organization to achieve its mission and objectives". Supported with this statement the following recommendations have been drawn according:

1) UMWALIMU SACCO should review its credit policy to establish the guidelines on the size of the loan portfolio relative to the balance sheet account. Also limits should be developed for the aggregate volume of outstanding loans as well as for the total commitments. Limits also should be placed on individual loan products within a loan category.
2) UMWALIMU SACCO should review its credit policy to require a systematic collection process that grows more aggressive as the risk of loss increases.
3) UMWALIMU SACCO must review its credit policy by indicating the frequency of reporting to senior management and BoD, reports is indicator of staff performance.
4) UMWALIMU SACCO must review by including portfolio distribution by loan category and product, establishing guidelines on the percentage of total loans that can be allocated to a particular loan category or concentration. The risk strategy: "do not put all eggs in the same basket".
5) UMWALIMU SACCO must review its products and redesign them basing on members financial revenue, the mortgage loan is not adequate for those who depend only for the salary if monthly salary falls below 100 thousand, better to design a housing loan matching with their financial capacity.
6) UMWALIMU SACCO must review its credit policy by indicating geographical limit; teachers across the Rwanda don't need the same products. There are specific products for special area. The geographical risks are not the same also.
7) UMWALIMU SACCO must review its credit policy by establishing requirements that stipulates acceptable primary and secondary sources of repayment different to the salary, financial ratios of loan applicants should be considered by approving loans.
8) UMWALIMU SACCO must review its credit policy by establishing the margin requirements for all types of securities accepted as collateral, only the marketable securities to be pledged, otherwise to apply group lending methodology, or Grameen lending methodology.

9) UMWALIMU SACCO must review its credit policy by establishing pricing guidelines; the GoR grants accompanied with conditions of keeping the lowest interest rate should end, better to be prepared in advance.
10) UMWALIMU SACCO must review its credit policy by including limit on guideline on purchasing loans.
11) UMWALIMU SACCO must cut off operating expenses which increased continuously. By looking on the number of staff some time it was diminished and the Institution kept its operations. It is important also to recommend the introduction of digital financial services (ATM, mobile banking) to cut of both operating and operations expenses and increase profitability and sustainability.
12) UMWALIMU SACCO must increase training for its loan staff. By descriptive analysis it was finding that staff is both factor hindering effective loan monitoring, and staff poor loan approval is the cause of NPL, It is recommended to organize more trainings to the credit officers and branch managers in loan analysis, and portfolio management. Otherwise review recruitment policy and internal promotional.
13) UMWALIMU SACCO must review its credit policy by establishing the affordable requirements for loans. It was found that customers' inability to meet the approval requirement is the cause of delayed of loan approval.
14) UMWALIMU SACCO must adopt strategy of discouraging consumer loans. It was find that consumer loan product loan records the highest incidence of NPLs; Important to recommend to redesign the consumer loan product, either by strengthening co-guaranty ship or joint guaranty ship, otherwise cover consumer loan with collateral guaranty.
15) UMWALIMU SACCO must look for recovery officer at Branch level. The financial analysis revealed that both loan reserve ratio even if it was decreased by ratio, by amount it was increased, good to recommend the strengthening UMWALIMU SACCO recovery system by appointing the recovery officer at each branch.
16) UMWALIMU SACCO must apply the charge-off amount as well as the loan reaches the deadline for written off loans, otherwise provision on loan should increase wrongly the expenses and diminish the profit.

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