UGANDA MANAGEMENT INSTITUTE

INTEREST RATE POLICY AND FINANCIAL SUSTAINABILITY

OF MICROFINANCE INSTITUTIONS IN UGANDA;

A CASE STUDY OF PRIDE MICROFINANCE LTD (MDI)

BY

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A Dissertation submitted to Higher Degrees Department in partial fulfilment of the requirements for the award of Master's Degree in Management Studies (Financial Management) of Uganda Management Institute.

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DECLARATION

I, Richard Wanderemah, hereby declare that the dissertation on "interest rate policy and financial sustainability of Microfinance Institutions (MFIs); A case study of PRIDE Microfinance Ltd (MDI)", is an original undertaking of the research and to the best of my knowledge has not been presented to any other academic institution for any academic or other award.

Signature……………………………………………………..

Richard Wanderemah

Date……………………………………………………..

APPROVAL

The dissertation on "interest rate policy and financial sustainability of Microfinance Institutions (MFIs) in Uganda; A case study on PRIDE Microfinance Ltd (MDI) is an original work and has never been presented in any institution for academic award or other purpose. The dissertation is submitted to the Uganda Management Institute for the award of a Masters Degree in Management Studies (Financial Management) with the approval of supervisors.

Signature…………………………..   Signature………………………

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UMI based Supervisor   Work based Supervisor.

Date………………………………….   **Date……………………………**

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For contributions, by persons and reasons mentioned above, I dedicate this book to be of inspiration to all readers, researchers and stakeholders in the microfinance industry.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABREVIATIONS

Acronym		Words in full
AMFIU	-	Association of Microfinance Institutions in Uganda
CGAP	-	Consultative Group to Assist the Poorest
FS	-	Financial Sustainability
FSS	-	Financial Self Sufficiency
GGS	-	Group Guarantee Scheme
ILS	-	Individual Lending Scheme
IRP	-	Interest rate policy.
LIF	-	Loan Insurance Fund
MDI	-	Microfinance Deposit Taking Institution
MFI	-	Microfinance Institution
MFPED	-	Ministry of Finance, Planning and Economic Development
MTCS	-	Medium Term Competitive Strategy
OSS	-	Operational Self Sufficiency
PAP	-	Poverty Alleviation Project
PAR	-	Portfolio at risk.
PEAP	-	Poverty Eradication Action Plan
PRIDE	-	Promotion of Rural Initiatives & Development Enterprises
SACCOs	-	Savings and Credit Cooperative Society
SLS	-	Salary Lending Scheme
SPSS	-	Special package for social scientists
UGX	-	Uganda Shillings / Uganda Currency or written as /=
VIF	-	Variance inflation factors.

LIST OF FORMULAE USED IN THE STUDY.

Formulae   **Page**

Sustainable Interest Rate function (R),

$$R_1 = \frac{AE + LL + CF + K - II}{1 - LL} \quad \text{(CGAP, 2002)}$$ 12, 23

Sustainable Interest Rate function (R), Modified.

$$R_2 = \frac{AE + LL + CF + K}{1 - LL} \quad \text{(CGAP, 2002) modified}$$ 12, 23

Credit Officers Workload $= \dfrac{\text{No. of active clients}}{\text{Av. No. credit officers}}$ 38

Loan loss reserve rate $= \dfrac{\text{Annual loan reserve amount}}{\text{Outstanding portfolio}}$ 24

Operational self sufficiency, OSS $= \dfrac{\text{Interest Income}}{OC + LL + FC} \geq 1$ 43

Financial self sufficiency FSS $= \dfrac{\text{Interest Income}}{OC + LL + FC + IC} \geq 1$ 43

Imputed cost of capital (IC)   35

$$IC = \frac{\text{Inflation (Av net worth – Av fixed Asset) + (Inflation – Interest rate pd) concession loan}}{\text{Average Performing Assets}}$$

Content Validity Index CVI $= \dfrac{R + VR + QR}{R + VR + QR + NR.} \times 100$ 55

Cronbach's coefficient alpha, $\alpha = \dfrac{N \times €}{V + (N-1) \times €.}$ 56

Peason Corrélation Coefficient, $r = \dfrac{n\,(\sum XY) - (\sum X)\,(\sum Y)}{\sqrt{\left(n\,(\sum X^2) - \sum(X)^2\right)\left(n\,(\sum Y^2) - \sum(Y)^2\right)}}$ 56

$$FS = [R + IRAM + IICM] \quad CR$$ 13

ABSTRACT

PRIDE Microfinance Ltd had experienced low profitability for the period 2004 – 08, with remarkable loss of UGX 0.7 billion in 2006 where interest income earned barely covered all aggregated costs. The researcher conceived that interest rate policy from which interest income was derived affected financial sustainability of PML, which prompted the study to establish the relationship between interest rate policy (IRP) and financial sustainability (FS) of PRIDE Microfinance Ltd (PML). The IRP was conceptualised as the independent variable, financial sustainability as the dependent variable, clients' response as the moderating variable and operational grants, subsidies … and Treasury bill interest income as the intervening variables. The objectives of the study were to establish the effects of interest rate determination policy, interest rate application methods, interest income collection methods and the moderating influence of client's response to the interest rate policy on the relationship between interest rate policy and financial sustainability. The case study design used a quantitative approach integrated with qualitative aspect with a sample of 89 respondents out of a study population of 149 elements using census, purposive sampling, random and systematic random sampling techniques. Data was collected using questionnaires, an interview guide, and documentary review and observation checklists and were analysed using Pearson correlation, Part and partial correlation and a hierarchical multiple regressions with the aid of SPSS. The results were used to answer the research questions and testing hypotheses.

With the part correlation result $r_1 = 0.880$, sig. 0.000, it was found that the interest rate policy had a very strong, positive linear relationship and significantly accounted for 77.4% of financial sustainability. The interest rate determination policy with Pearson correlation, $r = 0.685**$, sig. 0.002, had a positive linear relationship and accounted for 47 % variations in financial sustainability. The interest rate application methods with Pearson correlation, $r = 0.864**$, sig. 0.000, had a very strong positive linear relationship and significantly accounted

for 75% variations on financial sustainability, where by the flat rate application method negatively affected while the reducing balance method positively improved financial sustainability respectively. The interest income collection methods with Pearson correlation, r = 0.833**, sig. = 0.000 had a very strong positive linear relationship and significantly explained 70% variations in financial sustainability while clients' response to interest rate policy, with part and partial correlation reducing from $r_1 = 0.880**$ to $r_2 = 0.876**$, sig. 0.000, was found to have a negative influence on the relationship between interest rate policy and financial sustainability at 99% significance level. Financial sustainability was low when the interest rate policy was neither in place nor tailored, but when the interest rate policy was in place and implemented, financial sustainability improved. Financial sustainability reduced when client's response to interest rate policy was exhibited.

The study recommended a fully documented interest rate policy for PML. The interest rate determination policy should specify composition rates; Administrative expense rate, loan loss provision rate, cost of funds rate and Capitalisation rate and the interest rate charged should be revised periodically to suit financial sustainability. The study further recommended the declining balance method as the interest rate application method to be implemented for PML to improve financial sustainability. The study recommended the interest income due, interest income paid and zero arrears tolerance policies in the interest income collection methods and finally, client's awareness on the rationale of interest rate policy and a study on client's sensitivity to interest rate in PML should be undertaken. Those recommendations once implemented will enable PML to achieve financial sustainability.

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Uganda, like other developing countries such as India, Indonesia, Namibia embraced microfinance in the poverty eradication action plan during the past three decades and forward to achieve improved incomes for all by 2015 and beyond (MFPED, 2001, p.19). However, during the implementation, financing of operational activities for Microfinance Institutions (MFIs) transformed from dependence on grants and subsidies to emphasize interest rate policies that enhanced financial sustainability (FS) which was conceived to guarantee outreach. The case study on the relationship between interest rate policy (IRP) and financial sustainability was therefore undertaken to inform PRIDE Microfinance Ltd to take action to recover from low profitability trends towards achieving financial sustainability.

The interest rate policy was conceived as the independent variable, financial sustainability was conceived as the dependent variable, client's response as a moderating variable while grants, subsidies, Treasury bill interest income, stationery fees, ledger fees and penalties were the intervening variables which were studied using an institutional approach.

This chapter presents the background to the study in a funnel approach, the statement of the problem, the purpose, objectives, research questions, hypotheses, a conceptual framework, significance, justification, scope, assumptions and limitations and operational definitions.

1.2   Background to the Study

The background to the study is presented in a funnel approach depicting the global, regional, national trends and aspects of the interest rate policy and financial sustainability of Microfinance Institutions before the local context focusing on PRIDE Microfinance Ltd.

1.2.1   Global perspective of interest rate policy on financial sustainability of MFIs.

Financial sustainability for Microfinance Institutions (MFIs) in most parts of the world according to Rosenberg, (2007), was projected to depend on the interest rate policy among other dimensions, such as legal environment, market sustainability, MFI strategic plan … (www.sa-dhan.net/adls/microfinance_11.11.2005) which provided coverage to all costs namely administration costs, cost of funds, Loan losses provision, imputed costs of capital through determining the interest rate, the interest rate application methods and interest income collection methods by the MFI best practices. The Micro Credit Summit at Dhaka in Bangladesh 10th June, 2004 among other proceeding summits approved the Rosenberg view that microfinance could pay for itself through interest rate policies that covered all costs profitably as opposed to subsidies and grants which changed the trend of fundraising and conduct of microfinance businesses between MFIs and stakeholders (Fernando, 2006; CGAP, 2002; www.cgap.org). This has had impact of emphasizing interest rate policies that maximise internally generated revenue towards financial sustainability by LDCs and MFIs. Whereas Microfinance Institutions in developing countries endevour that interest rate policies should cover the full costs profitably for financial sustainability, it was observed that most MFIs worldwide such as Latin America, Bolivia, India, Namibia and Uganda were not generating sufficient interest income to be financially sustainable (AMFIU, 2005 p.13; CGAP, 2002; Adongo & Stock, 2005; Morduch, 1999, p.1588, PML Annual Report, 2007).

Mohammed Yunus , an economist with experience gained from setting up the Good Faith Fund in Arkansas, USA while on a consultancy under the Clinton Fund, historically founded formal microfinance through piloting the successful financially sustainable Grameen Bank in Bangladesh in 1974 (Yunus, (1995) in Morduch, 1999). The Grameen Bank microfinance best practices including determining interest rates, interest rate application methods and the methods on interest income collection which are factors associated with financial sustainability among others have been either adapted or adopted to other developing countries such as Bolivia, Washington….and Uganda in its Poverty Eradication Action Plan in order to enhance financial sustainability for MFIs (Yaron et al; Abbink, Irlebusch & Renner, 2002; Morduch ,1999, p 1575). Participating developing countries are represented by the Consultative Group to Assist the Poorest (CGAP), constituted by World Bank in research and pursuit of MFI best practices in support of the institutional approach to micro finance transformation process (CGAP, 2002).

Youssoufou (2002), in a study carried out in Burkina Faso, at the World Institute for Development Economics Research (WIDER), while emphasizing insufficient interest rate policies in MFIs observed that only 3-5 % of the MFIs in the world were financially sustainable, 7% of the MFIs were tending towards financial sustainability with operating costs averaging 15 – 25% of their total costs. The other 90% of the MFIs "will either fold or will require subsidies to be made available to finance their operations" unless they transformed from welfare approach (depending on grants and subsidies in a regulated environment) to pursue the institutional approach for financial sustainability which emphasizes charging sustainable interest rates. Robinson (2002) reported a tremendous turnaround on selected Indonesian MFIs that revised interest rate policies to cover all costs

of the MFI and recovered from shocks of loss, doubled their profits and achieved financial sustainability in the period 1984 – 1996.

The Welfare approach is none - profit and emphasizes that the Poorest need subsidized microfinance services with salient policy feature such as grants, subsidies, ceilings and regulated interest rates, towards MFI operations whose output is outreach to many active poor but with institutions that are not financially sustainable and would be bound to close down due to short lived nature of grants and subsidies (Robinson, 1995, in Lutaaya, (2009). The institutional approach is a focus on profitable interest rate policies for MFI to increase internally generated revenue in a liberalised market environment and performance measured by the level of financial sustainability (WIDER, 2002, p.3; Fernando, 2006). From the global perspective, the MFIs, by using an institutional approach would charge a financially sustainable interest rate irrespective of the source of capital (Ledgerwood &White (2006).

1.2.2   Regional perspective of interest rate policy on financial sustainability of MFIs.

West and Central African countries such as Namibia, Nigeria, Ivory cost and malawi have regulated the microfinance operating environment by putting in place legal policies that enforce ceilings on interest rates and the administration of the subsequent interest rates accordingly. The MFI Industry in West Africa is regulated in a welfare approach that seeks to maximize outreach but with constrained MFI financial sustainability because the resulting interest rates charged are below the breakeven point. As a result, the Microfinance Institutions such as Women Development Initiative (WBI) in Nigeria … and Women Action for Development (WAD) in Namibia were reported not to have achieved financial Sustainability (Anyanwu , 2004).

Namibia is one of the countries in west Africa that regulates microfinance environment by enforcing the Usury Act 1968 in place above which no MFI will charge to generate interest income for financial sustainability. The interest rate ceiling for MFIs is 30% per anum and is below the break even point of 78% per anum. Subsequently, Namibian MFIs were making loss and others winding up because the Usury rate imposed on them was established below the sustainable interest rate required to break even (Adongo and Stock, 2005). Studies by the Namibian Economic Policy Research Unit (NEPRU, 2005) had recommended that the interest rate policy for MFIs in Namibia should be set above the current usury rates and liberalized to enable the MFIs achieve financial sustainability.

East African Governments on the other hand had to liberalize interest rate environment to enable MFIs to put in place interest rate policies that enhance financially sustainability and to reach out to many clients. The onus was on individual MFIs in East Africa to determine interest rate policies that were financially sustainable although they faced criticism that the resulting interest rates were high among stakeholders (Semboja, 2004). Although interest rates charged by MFIs in the East African Community and Uganda in particular have reportedly been falling from 5% -3% per month on average due to demand from pressure groups, stakeholders and competition, the MFIs have not achieved financial sustainability (The Microfinance Banker, 2005, V5, Issue 2).

1.2.3   National perspective of interest rate policy on financial sustainability of MFIs.

The operating environment for Microfinance Institutions in Uganda is liberalized, regulated by the MDI Act 2003, MDI Regulations Act 2004, Company Act, CAP 85, and the Co-operative Society statute 1991 alongside the Association of Microfinance

institutions in Uganda. Apex institutions namely Ministry of Finance, Bank of Uganda, AMFIU, Microfinance Support Centre Ltd, Uganda Institute of Bankers and Uganda Cooperative alliance supervise the conduct of microfinance business in which the Government has a poverty eradication agenda and financial sustainability for MFIs.

The Government of Uganda (GOU) assured MFIs a conducive environment, enacted MDI Act 2003 and Regulation Act 2004 besides the Medium Term Competitive Strategy (MTCS)in which further commitment towards financial sustainability of MFIs was declared

> The financial sustainability for microfinance institutions in the MTCS is mandated to depend on service delivery at commercial interest rates for a profit while reducing subsidies and grants from Donors…. The policy of no restrictions on maximum interest rate shall continue in the case of MFIs that want to charge interest rates for their operations being essential precondition for financial sustainability of microfinance institutions (MFPED, 2001, February, p. 19).

A survey by MFPED (2002) reported that there were over 1000 MFIs reaching out to above 10 million clients, and had invested an average portfolio of UGX 86.5 billion. The statistics excluded commercial banks and informal money lenders. Leading MFIs in Uganda include PRIDE Microfinance Ltd, Micro Enterprise Development Network, Finance Trust (U) Ltd, tier 4 NGOs, Savings and Credit Cooperative Societies (SACCOS) and Opportunity Uganda. The MFIs and MDIs in Uganda are not charging financially sustainable interest rates on financial services. Consequently, Bank of Uganda reported reduction in profits for MDIs by UGX 2.1 billion from UGX 8.2 Billion with profitability trends declining in 2007 which threatens their future survival (MFPED, 2008, p.27)

1.2.4   The local context on PRIDE Microfinance Ltd (PML)

PRIDE Microfinance Ltd, formerly PRIDE Uganda and funded by the Government of Norway was incorporated as an MFI in 2004 with shares fully owned by the Government of Uganda and was licensed to take deposits in June 2005 (Ledgerwood & White, 2006, p. 4; PML Annual report, 2007, p. 12).   PML is governed by a Board of Directors and a Management Team and is one of the leading MFIs/ MDI in Uganda. PML has its head Office located at plot 8-10, Entebbe road in Kampala with a 29 branch office network in Uganda (Appendix 1). PML has recorded 146,634 clients and a portfolio of UGX 43.4 billion as at 31st December 200**8**. Products offered by PML include Group Guarantee Scheme (GGS), Individual Lending Scheme (ILS), salary Loans Scheme (SLS), savings deposits, and microfinance support services such as training, research and extension visits.

Table 1: Interest income, operating expense and net interest income 2004 – 08

Financial year	2004	2005	2006	2007	2008
Particulars/ Details/ Currency & Value	**Billion UGX**	**Billion UGX**	**Billion UGX**	**Billion UGX**	**Billion UGX**
Interest Income	3.159	11.897	10.79	14.31	18.55
Total Financing costs,	0.812	2.2	2.451	4.88	6.496
Total Operating costs,	2.45	90.6	10.72	10.707	14.361
Total loan loss Provissions	0.271	0.35	0.35	0.096	0.121
Total costs/ Expenses,	3.533	11.61	13.521	15.683	20.978
Net Income over costs	**0.999**	**1.697**	**1.204**	**0.005**	**-0.928**
Net Interest Income after Tax .	**0.999**	**1.697**	**-0.736**	**-0.425**	**-1.768**
Imputed costs (3% annual average)	**1.51**	**2.62**	**3.47**	**6.15**	**9.3**

Source; Final Accounts, PML 2004 – 2008, Appendix XIa.

Table 1 above shows interest income, total costs and net income after tax. Despite charging stationery, ledger fees and fines to meet costs, low net income after tax was reported in 2006 after interest income earned could not cover the aggregate of costs (PML Annual Report, 2007; PML Operational Manual, 2008).

Figure 1:   **Interest income, total costs and net interest income gap, PML 2008.**

Interest income, total expences and net int[...]
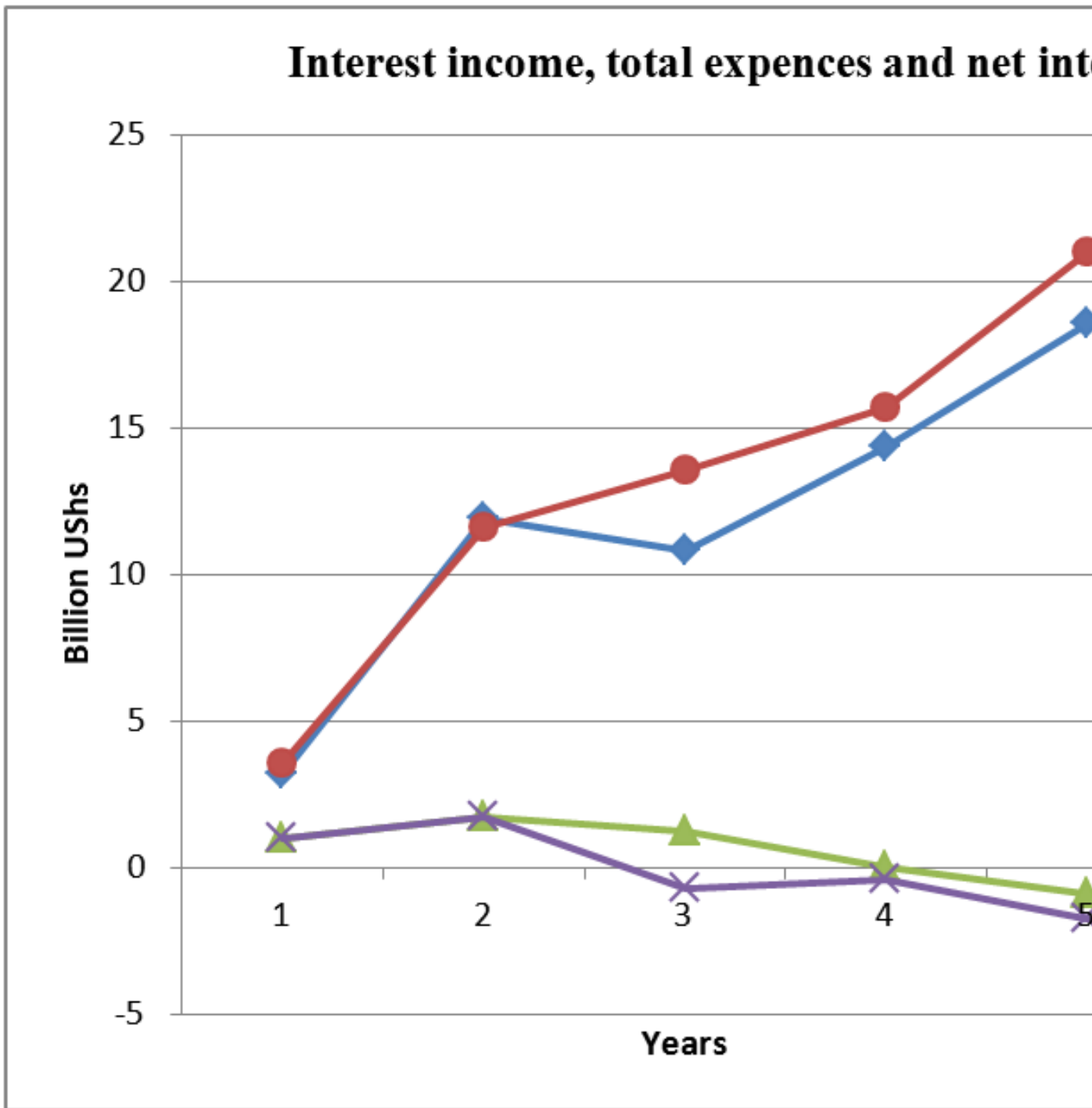
Source; Notes to Final Accounts 2004 – 08, PML (Appendix XIa).

Figure 1 above show that total costs from the year 2006 were higher than interest income consistently with 2006 and 2008 as the most total cost over income gap recorded such as UGX 0.7 billion losses in the year 2006. It is evident that net income over costs has been

declining over the years and always worsened when net income after tax was computed. The MFI has almost not been meeting aggregated costs despite achieving above 95 % recovery rate as indicated in figure 6. This depicts the financial un-sustainability trend of the MFI whose solution must be sought towards recovery from low profitability.

The management of PML reasons that during the period 2006, heavy investment was made in opening and transformation of PML branches into banking halls besides, acquisition of an MDI status and recovery of those costs was overloaded over depreciation in the same financial year 2006 than the performing life span of the asset contradicting the periodicity and marching concepts (PML Annual report 2007). For the institution to be financially sustainable, the interest income curve must run above the total cost curve with the after tax income curve positive (Figure 1).

Table 2:   Operational & financial self sufficiency and portfolio at risk 2004-2008.

Financial year	2004	2005	2006	2007	2008
Particulars/ Parameters.	%ge	%ge	%ge	%ge	%ge
Operating self sufficiency.	89	102	80	91	88
Financial self sufficiency.	63	84	63	67	61
Portfolio at Risk rate (PAR)	1.03	1.00	0.00	0.06	0.10
Recovery rate.	93.6	99.1	95.0	99.6	99.7

Source; Final Accounts, PML 2004 – 08.

Table 2 above dipicts that PML first reached operational self sufficieny in 2005 but suddenly declined towards 2006 and has barely recovered at an average OSS 90%. The

Operational self sufficiency curve runs almost parrarrel above the financial self sufficiency curve in all the years implying that there is a gap to be checked (figure 8)

1.3   Statement of the Problem

PRIDE Microfinance Ltd experienced low profitability for the period 2004 - 08 with remarkable loss of UGX 0.7 billion in 2006 while charging 30% and 25% interest rates per anum on GGS, ILS and SLS products respectively. PML's internally generated interest income only covered average 90% operational self sufficiency (OSS) despite achieving a recovery rate 98% and trading on an average portfolio of UGX 28.9 billions (PML Annual report, 2007, p.15; MFPED, 2008, p. 27; AMFIU, 2005, p.13;Table 1). The interest rate charged did not generate sufficient interest income to cover the aggregate of costs as intended, and the flat interest rate application method used did not maximise interest income generation to achieve financial sustainability (FS).

The interest income generated from the interest rate charged while controlling the effects of grants, subsidies, … fees could not cover aggregate of operational costs, cost of funds, loan losses provision and capital growth and subsequently, the MFI was trading at a shortfall of 20% operational self sufficiency for the period 2006 - 08 respectively which was below 100% desirable for OSS and financial self sufficiency (Audited Accounts 2004 – 08; Table 2, p. 9; Figure 9, p.109). If PML's failure to achieve operational and financial self sufficiency, and low profitability trends 2004 - 08 continue unchecked, it may lead to gradual loss, reduction on portfolio, insolvency and eventual closure of business.

PML's low profitability trend 2004 – 08 was attributed to the interest rate policy on dimensions of interest rate determination, interest rate application and interest income

collection policies which were conceptualized to affect FS. The study therefore sought to establish the relationship between IRP and financial sustainability with interest rate policy and financial sustainability as independent and dependent variables respectively.

1.4   The Purpose of the Study

The purpose of the study was to establish the relationship between interest rate policy and financial sustainability of MFIs, PRIDE Microfinance Ltd as a case study.

1.5   Objectives of the Study

1.5.1   To establish the effects of interest rate determination policy on financial sustainability of PRIDE Microfinance Ltd.

1.5.2   To analyse the effects of interest rate application methods on financial sustainability of PRIDE Microfinance Ltd.

1.5.3   To examine the relationship between interest income collection methods and financial sustainability of PRIDE Microfinance Ltd.

1.5.4   To establish the influence of clients response to interest rate policy on the relationship between interest rate policy and financial sustainability of PRIDE Microfinance Ltd.

1.6   Research Questions

1.6.1   What is the relationship between interest rate determination policy and financial sustainability of PRIDE Microfinance Ltd.?

1.6.2   What is the relationship between interest rate application methods and financial sustainability of PRIDE Microfinance Ltd.?

1.6.3   What is the relationship between the interest income collection method and financial sustainability of PRIDE Microfinance Ltd.?

1.6.4   What is the influence of clients' response to Interest rate policy on the relationship

between interest rate policy and financial sustainability of PRIDE Microfinance Ltd.?

1.7   Hypotheses of the Study

1.7.1   Interest rate determination policy positively affects financial sustainability of PML.

1.7.2   Interest rate application methods significantly affect financial sustainability of PML.

1.7.3   Interest income collection methods are positively related to financial sustainability.

1.7.4   Clients' response to interest rate policy positively influences the relationship between

interest rate policy and financial sustainability of PML

1.8   The Conceptual Framework on interest rate policy and financial sustainability.

The conceptual framework to establish the relationship between interest rate policy

and financial sustainability was modified from the CGAP (2002) institutional model on

interest rate determination policy (IRDP) that suggested that financial sustainability was

derived from determining sustainable interest rate, *R*, which is a function of administrative

expense rate *(AE)*, loan loss provision rate *(LL)*, cost of funds rate *(CF)*, Capitalisation rate

(K) and adjustment of Grants, subsidies, treasury bill income,… fees and fines *(II)*. The

interest rate determination function based on the CGAP Model 2002 before modification is

shown below;

$$IRDP \;=\; R_1 \;=\; \frac{AE + LL + CF + K - II}{1 - LL}, \quad (CGAAP,\ 2002) \qquad (i)$$

Considering the cost of *II* at Treasury bills rate in the *CF* modifies the *R* function to

$$IRDP \;=\; R_2 \;=\; \frac{AE + LL + CF + K}{1 - LL}, \qquad modified. \qquad (ii)$$

The model is further modified to include interest rate application methods *(IRAM)* with indicators on declining balance and flat rate application methods, interest income collection methods *(IICM)* with indicators on upfront collection methods, interest income due and interest income in arrears method of the interest rate policy that financially sustains the MFI. The model is further conceptualized to include the intervening variable whose effects are controlled by *(II)* in the *IRDP = R₁* and client's response as a moderating variable whose influence affects financial sustainability. The modified conceptual framework on IRP and financial sustainability is re written to include interest rate determination policies *IRDP = R₂* interest rate application methods *(IRAM),* interest income collection methods *(IICM)* moderated by client's response to interest rate policy *(CR)* as below;

$$FS = [R_2 + IRAM + IICM] \quad CR$$

Financial sustainability was conceptualized as a dependent variable, comprising of dimensions of cost coverage with operating costs, loan losses, and imputed costs as indicators, interest income generation with interest income due, interest income collected and interest income in arrears as indicators, management efficiency with credit officers workload, yield gap, recovery rate and portfolio at risk as indicators and finally profitability with operational and financial self-sufficiency indicators.

Grants, subsidies, Treasury Bill Interest income, stationery fees, ledger fees and fines were conceptualized as intervening variable (IV) because they offer an MFI a substitute solution to finance operations and was controlled by factoring it in the cost of funds (Shylendra, 2006, p.1).The moderating influence of client response (CR) was conceptualized to affect the relationship between interest rate policy and financial sustainability

Figure 2 below is a diagrammatic representation of the conceptual framework on interest rate policy and financial sustainability of PRIDE Microfinance Ltd.

Figure 2. **Conceptual framework: Interest rate policy and financial sustainability.**

INTEREST RATE POLICY (IV)   **FINANCIAL SUSTAINABILITY (DV)**

Intervening variable

Interest rate determination

policy.

- Administration expenses

  rate

Grants, subsidies, fines, stationery fees and Treasury bill

- **Cost coverage.**
  - Operating costs
  - Loan losses
  - Imputed costs of capital

Interest rate application

methods

- A declining balance method

- **Interest Income generation**
  - Interest income due
  - Interest income collected
  - Interest income in arrears

Interest income collection

methods

- Upfront collection method.

Client's response.

ting Var

- **Management efficiency**
  - Credit Officer Workload
  - Yield gap
  - Recovery rate
  - Portfolio at risk

Source: Modified CGAP (2002).

1.9   Significance of the Study

These study findings inform governance and management of PRIDE Microfinance Ltd, (MDI), on the positive linear relationship between interest rate policy and financial sustainability of the MFI; the resulting effects of chosen interest rate application methods and interest income collection policies to wards financial sustainability; the need to document, and update the interest rate policy towards financial sustainability and the influence of clients' response to the interest rate policy as a stimuli. The study adds knowledge by stating the magnitude of relationship between interest rate policy and financial sustainability, how sustainable interest rates are determined, creating awareness; informing the critics and stakeholders of MFIs on the need for financial sustainability through charging sustainable interest rates. This will enable avoiding loss through preventive, detection and corrective measures as recommended by MDI Regulations Act 2004, to meet costs profitably to achieve the dual mission of institutional sustainability and outreach by the MFIs.

1.10   Justification of the Study

Study findings inform PRIDE Microfinance Ltd of the relationship between the variables, to prioritize document and update an interest rate policy and determine a sustainable interest rate to avoid any further loss arising from excess of costs over internally generated interest income and to manage the MFI on sound business principles. PML must recover from low profitability trends and achieve financial sustainability.

1.11   Scope of the Study

The study is in the field of Microfinance taking PRIDE Microfinance Ltd (MDI) as a case study. Interest Rate Policy and financial sustainability are the independent and dependent

variables studied, respectively. The study covered the period 2004 - 2008 because in this period, interest income barely covered the operational costs and loan loss provision sufficiently. Audited accounts of PML are available for that period to support the research)

The study population comprised of Officials of Apex Institutions; AMFUI located at Najjanankumbi, MSCL located at Kololo, Bank of Uganda located at Kampala road and MFPED located at Speke road in Kampala; Officials of PML (senior executives, Finance and branch Managers) and repeat borrowers of PML located in the Kampala Region.

Geographically the study covered PRIDE Microfinance Ltd with its head Office located at Plot 8- 10, Entebbe Road, Kampala and its 29 Branch Office network in Uganda namely; PML branch offices and locations are namely; Nakawa, Kabalagala, City Centre Kampala, Kasubi, Kawempe, Wandegeya, Natete, Katwe, PRIDE head Office branch offices are under Kampala region. Other branch Offices are Mukono, Lugazi, Jinja, Buwenge, Lira, Soroti, Mbale, Iganga, Bugiri, Masaka, Mbarara, Bushenyi, Ishaka, Rukungiri, Kabwohe, Kasese, Fortportal, Hoima, Kabale, Arua and PRIDE Head Office Kampala (Appendix 1).

1.12   Assumptions and Limitations

It was assumed that the study elements at PML responded earnestly to the questions. The researcher was also assumed to have ensured that research instruments collected valid and reliable data to maximize quality of findings. The respondents as a limitation considered that information on the topic of study was classified information for PML; not to be given out. The researcher however ensured rapport, justified the research to PML and respondents, and used a suitable pre tested questionnaire to overcome all those assumptions and limitations satisfactorily. Some of the case study elements were sampled to overcome cost constraint. Branch Managers

outside Kampala region were randomly sampled while repeat clients in 7 branch offices under Kampala region were systematically stratified and sampled. The researcher budgeted appropriately to finance the research besides operating in a limited time frame.

1.13   Operational Definitions

1.13.1 Interest Rate Policy – These are formal objectives and guidelines set by the Institutional governance of PRIDE Microfinance Ltd (MDI) to determine and implement pricing for obtaining and using its financial services preferably loans and savings by its clients or from a financial institution other than liberalization and Usury operating environment (Sec 3, 1-10, MDI Regulations Act, 2004).

1.13.2 Interest Rate – A price quoted for using a financial service expressed as a percentage on principal amount of loan or savings as applicable determined by the interest rate policy as a best practice. Interest is excess amount paid or received on acquiring, using or renting out money or capital (Dwivedi, 2000).

1.13.3 Best Practices – Acceptable performance standards for MFIs in the industry both internationally and nationally (AMFIU, 2006, p. 8).

1.13.4 Financial Sustainability – The ability of the PML (MFI) to generate sufficient interest income from its operations to Cover all costs profitably at two levels of Operational self sufficiency and financial self sufficiency (Adongo , (2005), p.19; Morduch, (1999), p 1588).

1.13.5 Microfinance – Microfinance means accepting deposits in case of "MDIs" and providing short term loans to small and micro enterprises and low income households and other microfinance support activities (The MDI Act 5, 2003).

1.13.6 Operational Self Sufficiency –A ratio of interest income to the sum of operational costs and loan loss. This refers to the ability of the MFI to generate sufficient interest income to cover operational costs and loan loss provision but not necessarily the Imputed cost of capital (Morduch, 1999).

1.13.7 Financial Self Sufficiency – A ratio of interest income to the sum of operational costs, loan loss provision and imputed cost. This is the ability of the MFI to generate sufficient interest income to cover operational costs, loan loss provision and the imputed cost of capital (Morduch, 1999).

1.13.8 The imputed cost of capital is the cost of maintaining the net worth of the institution by adjusting inflation and keeping the real value of the portfolio growth (CALMEADOW, 1995, p. 25).

1.13.9 Clients' response - Is reaction by the customers of PML (MFIs) in reply by words or action on the stimulus of the interest rate policy which may affect financial sustainability.

1.13.10 Officials of PML in the study include Senior executives, finance officers and branch managers who were respondents. Officials of Apex institutions are officials of Apex institutions namely; Bank of Uganda, AMFIU, Microfinance support centre Ltd and Uganda Institute of Bankers.

CHAPTER TWO

LITERATURE REVIEW

2.1   Introduction.

This chapter discuses the related literature on interest rate policy, financial sustainability, client's response, intervening variable (grants, subsidies, Treasury bill interest incomes , fees and fines) which are the independent, dependent, moderating and intervening variables of the study respectively;   following the conceptual frame work , financial sustainability, $FS = [R_2 + IRAM + IICM] \, CR$ and related literature on the study objectives. The objectives of the study were to establish the effects of interest rate determination policy (IRDP), to analyse the effects of interest rate application methods (IRAM), to examine the relationship between interest income collection methods (IICM) and to establish the influence of client's response to interest rate policy (IRP) on the relationship between interest rate policy and financial sustainability of PRIDE Microfinance Ltd. This review was an in depth inquiry of the relationship between interest rate policy and financial sustainability of a microfinance institution.

2.2   Theoretical Review

The conceptual frame work on the study of the relationship between interest rate policy (IRP) and financial sustainability (FS) was modified from the interest rate determination function for a financially sustainable MFI by Consultative Group to Assist the Poorest (CGAP , 2002). CGAP is a microfinance window constituted by the World Bank to guide MFIs to financially sustainable best practices that will enable the institutions to achieve financial sustainability using

the institutional approach as opposed to the welfare approach. The welfare and the institutional approaches are two paradigms that explain the approaches that activists of microfinance institutions are following to deliver the services to the active poor across the continents characterized by continuous reforms (Robinson, 2001, May, p. 8).

2.2.1 The welfare approach and financial sustainability of MFIs.

The welfare approach is a poverty alleviation strategy which both Governments of LDCs and MFIs advance to justify pushing the microfinance service to the active poor. The argument holds that the active poor need subsidized or interest free micro credit in order to stimulate employment, accumulate savings and reduce poverty hence customer welfare focused strategy (Yaron, Mcnold, Benjamin, Gerda and Pipreck , 1996, p. 3). The result of this justification is the intensive mobilisation for subsidies and grants to MFIs for both capital and operations in order to deliver the service to the active poor from the social welfare point of view. Associated with this approach is the high cost of the service to MFIs, especially when grants and subsidies cease, which lead to closure of business or product lines.

The welfare approach does not guarantee continued access to financial services by the active poor caused by eventual closure or deletion of product lines when grants cease, which has led to the agitation for the institutional approach by the world Bank, MFIs and the Apex institutions for microfinance institutions The Poverty Alleviation Project, (PAP) Uganda, 1998 is an example of a credit scheme which closed due to dependence on operational and capital grants from Africa Development Bank (ADB); which were time bound. Besley, 1994 in Schreiner (2001, p. 13) placed this theory to be suitable in an environment where the market mechanism fails to allocate resources equitably and as a transition to liberalisation.

2.2.2 The institutional approach and financial sustainability of MFIs.

The institutional approach was built on the premise of Adam Smith in Pandey, (2000, p.11) on the simultaneous role of price mechanism in a free market economy to satisfy both financial sustainability needs of business firms and service delivery to society. Accordingly, microfinance products should be demand driven from the active poor who are ready to receive the service at sustainable interest rate on a sustainable access basis and that the MFI should deliver the service while trading on either equity, commercial debts, consessional grants or deposits while charging cost covering and profitable interest rates in the interest rate policies and in a liberalized environment to be financially sustainable (Otero & Rhyne 1994; Christen , 2000; Yaron et al)

The institutional approach aims to avert the traditional demand push and directed outreach approaches where MFIs have depended on Subsidies, consessional loans and Grants on humanitarian grounds to meet the costs with possible regulated environments or Usury rates but are instead argued to generate interest income that financially sustains the institution as well as outreach through charging sustainable interest rate in the interest rate policy to attain financial sustainability (Youssoufou, 2002, p3). The model argues MFIs to design interest rate policies which would provide to cover the administrative and operational costs, loan losses provision, cost of funds and capital growth to attain financial sustainability(CGAP, 2002; Shylendra, 2006).

2.2.3 Conceptualization of the interest rate policy and financial sustainability.

To modify the CGAP, (2002) interest rate function, the researcher conceptualized that the cost of using grants, subsidies, Treasury bills income, charging stationery fees, ledger fees and penalties by the MFI should be considered in the cost of funds at the prevailing Treasury

bills rate hence, IRDP comprise   administrative expense rate, Loan loss provision rate, Cost of fund rate and Capitalisation rate. Those are the key constructs on which interest rate determination policy was conceptualized in addition to introducing interest rate application methods and interest income collection methods to constitute the interest rate policy as the independent variable in the study. Income generation, costs coverage, managerial efficiency and profitability are key dimensions of financial sustainability, the dependent variable. Clients' response to interest rate policy is a moderating variable in the study while grants, subsidies, Treasury bill interest income, stationery fees, ledger fees and fines on defaulters are the intervening variables. The literature is reviewed per objective before reviewing literature on financial sustainability, intervening variable and the moderating variables.

2.3   Interest rate policy and financial sustainability.

Interest rate policy is comprised of formal objectives and guidelines of an MFI to determine and implement a price (interest rate) for obtaining and using its financial services preferably, loans and savings by its clients other than liberalization and Usury operating environment (MDI Regulations Act, 2004 , sec 3, par. 1-10). Dimensions of interest rate policy reviewed in this study include interest rate determination policy (IRDP), interest rate application methods (IRAM) and interest income collection methods (IICM). Indicators of interest rate determination policy were the administration expense rate, loan loss provision rate, cost of funds rate and capitalisation rate which are reviewed in relation to the dependent variable as conceptualized. Indicators of interest rate application methods were declining balance method and flat rate interest rate application methods and indicators of interest income collection methods conceptualized were upfront collection method, interest income due method, and interest income in arrears method as they affect financial sustainability.

2.3.1   Interest rate determination policy on financial sustainability

Interest rate determination policy is part of the interest rate policy that comprise components of the sustainable interest rate for financial sustainability. An MFI that puts in place criteria for determining interest rate is more likely to cover costs profitably and hence be financially sustainable. CGAP (2002) considers administrative expense rate (AE), Loan Loss provision rate (LL), Cost of Funds rate (CF), capital growth rate (K), grants, subsidies, Treasury bills interest income, stationery fees and fines (II) as elements in a function to determine the annualized sustainable interest rate expressed as a percentage of average outstanding loan portfolio**.** The modified sustainable interest rate function R_2 as conceptualized in the study defines factoring the cost of grants, subsidies … and fines at a treasury bill rate into the cost of funds to control the intervening variable in the study and thus restating the formulae

$$R_1 = \frac{AE + LL + CF + K - II + II}{1 - LL}\ (CGAP,\ 2002), \qquad R_2 = \frac{AE + LL + CF + K}{1 - LL}\quad modified.$$

The interest rate determination function is modified to eliminate the effects of grants, subsidies in the welfare approach where MFIs need subsidies and grants to meet costs of providing financial services to the active poor (Yaron, 1994 in Youssoufou, 2002). In this research, the effects of grants, subsidies are conceptualized as controlled by factoring the cost of grants and subsidies, … as part of commercial capital under the cost of funds in the interest rate calculation. MFIs may receive as much grants and subsidies but they ought to include the cost of those grants in the interest rate function at market Treasury bill rate for FS.

Baseka (2007) observed that MFIs that do not want to identify themselves with sustainable interest rates 'classified as high' in the market place   suppressed interest rates by soliciting for grants, charging other fees and commissions besides the quoted interest rate which

was rated as lower. For this cause, the CGAP institutional model opts for a one sustainable

interest rate inclusive of all costs and a profit to be charged by MFIs also known to be the break

even interest rate. It is expected that each MFI determines the interest rate charged to comprise

the administration expenses rate, loan loss provision rate, cost of funds rate and Capitalisation

rate for financial sustainability.

2.3.1.1   Administration expenses rate on financial sustainability.

Administration expenses rate (AE) in the interest rate policy includes personnel and

operational costs that comprise salaries, staff benefits, rent, sundries, utilities, transport and

depreciation among others. Best practices of MFIs suggest that AE should not exceed 15-25% of

the portfolio per annum (Christen, 1997; Ledgerwood 2000, p.149) and further recommend that

AE ought to be on a reducing trend for financial sustainability. If AE exceed 25%, then the likely

interest rate will be high. Likewise, ≤ 0.25 of Interest rate charged should be *AE*. There are no

studies that condemn high interest rates other than mere criticism. Rosenberg (2007) hold the

view that the AE rate should also "depend on size of the portfolio and that managerial

inefficiency may affect level of administrative expenses rate" (pp. 11, 12). Accordingly, Banco

Compartamos, an MFI / (MDI) in Mexico, said to have achieved financial sustainability had

policies that controlled its administrative expenses at 36.4% compared to 15% worldwide

average of other MFIs in 2005. Keeping the credit officer's workload high at a reducing cost per

loan made was one of the approaches to control administration costs (figure 5).

2.3.1.2 Loan loss provision rate on financial sustainability.

Loan loss provision rate is a ratio of delinquent loans to the portfolio to which the MFI

makes a provision to the Loan Loss reserve which is made part of the interest rate charged.

LL = <u>Annual loan loss reserve amount ,</u>   (USAID PRESTO PROJECT, 2000).
             Outstanding portfolio.

Loan Loss provision (none cash) is expensed accounts to increase or reduce loan loss reserve. Sections 10.3,a-c and section 11d(i – iv) with Part four of schedule 6 of the MDI Regulations (2004) displays guidelines for determining amounts that are subjected to loan loss provision rates by aging report for all MFIs (The MDI Regulations Act, 2004, p 456, schedule 6; Table 4). Section 14 empowers directors to analyse, detect any risk inherent that may cause loss. The study points out that interest rate policy may inhibit a risk of loss if its provision is not anticipated in the interest rate determination. The Act suggests that the MDI should at least provide 1% of the outstanding portfolio net of PAR and this should be incorporated in a function of interest rate determination. It is also possible that an MFI provides for bad loans but does not pass over the expense to clients in the interest rate charged which compromises financial sustainability. If the loan loss provision component is not anticipated in the interest rate determination, then the MFI may resort to alternative ways of raising revenues for provision , charge other fees and the portfolio may be reducing automatically or choose to report losses.

2.3.1.3   Cost of funds rate on financial sustainability.

Cost of funds (CF) is a weighted average cost to the portfolio considering all sources of funding. Factoring CF in the interest rate determination enables the MFI to recover its costs of funds irrespective of the source whether concessional, conditional grants or equity. CGAP, (2002) argues MFIs to use CF or Treasury bill rate whichever is higher when calculating a sustainable interest rate. Without the CF rate component in interest rate determination, the MFI could be giving out financial services below the market rates or subsidized and may eventually make losses. A cost of funds factored interest rate would enable a portfolio capital constrained MFI to trade on commercial funds (AMFIU, 2005 V. 5). Rosenberg (2007), a consultant for the

consultative group argues that the cost of funds should be reducing if the MFI is deposit taking or equity greater composition of funds. (p12). Otherwise, factoring the cost of funds is one way to solve portfolio funding constrained MFIs from depending on conditional and concessionary grants by obtaining commercial loans and passing on the interest expense to cost of operations sustainably (Fernando,2006; Anyanwu, 2004)

2.**3.1.4**   **Capitalisation rate on financial sustainability.**

Capitalisation rate (K) represents the real profit targeted by an MFI to gradually increase retained earnings, and may lower the cost of funds for financial sustainability in a long run. Eventually, higher dividends may be paid and subsidies kept reducing. A Capitalisation rate is expected to compensate inflation in a portfolio. An MFI that does not factor K in the interest rate may experience a persistent loss, declining real value in the portfolio and may run out of business in the long run. K is meant to cater for long term growth of equity, which is financial sustainability strategy in nature. Best practices in MFIs recommend 3-15% K as a component of interest rate and suggest including a tax factor in this rate (Legerwood, 2000 p.150; CGAP, 2002). Increase in retained earnings may indicate this best practice on K. Though for most MFIs, reported profits may be accidental and not pre determined in the interest rate composition, Banco Compartamos profit margin is included in the interest rate and is said to be the discretionary driver of its level of interest rate measured by increasing return on equity (ROE).

Fernando (2006) considers a wedge between operating costs of MFIs and an anticipated return to the investors and MFI institution for its financial sustainability which may have an effect on interest rate reduction from the demand side in the event of revision of interest rates towards equilibrium. The recommendation made is that innovation and efficiency through cost

reduction strategies would bare a strong relationship between interest rate policy and financial sustainability.

2.3.2   Interest rate application methods on Financial sustainability.

Methods of interest rate application among others include flat rate and declining balance interest rate application. The method chosen ought to maximize interest income generation for the MFI while at the same time easily understood by the clients and stakeholders besides maximizing their welfare. Though Ledgerwood and Victoria (2006) advise that an MFI can increase the interest income yield by changing the method of calculation than affecting the interest rate, MFIs that do not have sustainable interest rate policies in place charge other fees and commissions besides a quoted interest rate to cover shortfalls (CGAP, 2002). "Practices like applying a constant flat rate of interest application… upfront collection, charging other fees and using calculations not easily understood and considered as exploitative were the reasons for state closure of 50 MFIs in Krishna & Andra Pradesh in India in March 2006" (Shylendra 2006, May). Therefore, the method of interest rate application should be selected with caution.

2.3.2.1   A declining balance method on financial sustainability

A declining balance method is the application of the interest rate on the principal outstanding at any time in the loan period until the principal is fully repaid. It puts emphasis on the principal amount still in the hands of the client. Interest amount is best charted according to repayment schedule. Though commonly used by MFIs, it may not be simple to calculate or to be understood by clients as the amount keeps changing with changes in principal, increasing calculation task. CGAP (2002) observed that it was stated as a higher interest rate on the outlook but the resulting interest payable by the client was lesser unless in default of instalments due. Studies by Development Policy Division, New Delhi (2007) established that a higher rate of

interest on reducing balance is required to be equivalent to a much lower flat rate to yield the same interest income that the MFI requires (p 4\15). The uniqueness of this method is that it is associated with high customer retention which increases interest income for the MFI through increased numbers, outreach and reducing cost per loan to attain financial sustainability.

2.3.2.2 A flat rate method of interest application and financial sustainability.

A flat rate method of interest rate application refers to charging an interest rate R on the initial loan principal that will yield equal periodic interest income instalments to be collected irrespective of the changes in principal amount outstanding. While CGAP argues that the method yields a higher income with certainty to the MFI, easy to calculate and understood by stakeholders, critics of MFIs accuse institutions as robbers charging interest on principle amounts already paid (Development Policy Division, New Delhi, 2007, January).

For financial sustainability, interest income ought to be maximized and thus, a method that faces fewer critics and easily understood by stakeholders ought to be incorporated in the interest rate policies of MFIs. Table 3 below shows that it requires a higher rate on a declining balance method to derive the same yield as on the flat rate method or else, if the rates are the same, then the flat rate method be preferred to maximize interest income but this is not the case. According to Alamgir (2004), for the MFI to generate an interest income of USD 100, the MFI will either charge an interest rate of 10% on a flat rate or charge an interest rate of 19% on the declining balance accordingly. Note that those interest rate application methods have related effects to customer retention and drop out that influence the level of interest income generated though not depicted in the table.

Table 3.   **Comparison of Interest income yield using a flat rate and declining balance methods in a loan period of six months.**

Flate Rate %	Total Interest Income	Reducing balance %
10	$ 100.00	19
15	$ 150.00	29
18	$ 180.00	35
20	$ 200.00	38

Source, Wright DL and A H Alamgir (2004)

2.3.3   Interest income collection methods and financial sustainability

Interest income collection methods are policies on receivables whose administration aims at accelerating interest income for financial sustainability and the methods include upfront interest income collection method, the due interest income collection methods and a policy on interest income in arrears among others**.** The objective of the interest income collection policy is to accelerate interest income collected from payers. Pandey (2007) argues that there should be stringent policies on receivables for accelerated collection of revenues and prompt collection of incomes due for fast turnover at reducing cost of collection to enable raise working capital for financial sustainability (P. 431). This is said to be possible through short loan periods, repayment schedules, reminders to pay notices, besides prior repayment capacity appraisal on clients.

2.3.3.1 Upfront collection method and financial sustainability.

This is where MFI policy emphasize receipt cash from interest income at time of loan disbursement and recognize it as it falls due than waiting for the interest income to fall due before it is collected. The method takes the form of the MFI withholding part of the loan amount approved on the clients account or transferred to interest prepaid account. Though the method ensures that the MFI collects interest income in advance to finance its operations on time when

it falls due, the upfront collection method faces social, economic and political arguments by the welfarists, as unfair and robbery to hold part of the clients approved loan principal (Shylendra 2006, May). This takes on the value for money today argument and interest income prepayments can be re invested on treasury bills to generate more funds. This implies that interest income in arrears will not arise and the MFI should then cover all its costs. If the MFI was using this method, then, it would recover interest income at 100% for financial sustainability.

The Upfront collection method is associated with high yield gap which is strength on management efficiency. The study will compare the level of interest income in arrears; interest income prepaid and relates it to meeting of operational obligations (CGAP, 1998). A significant gap will imply uncollected interest income which needs to be recovered to improve financial sustainability.

2.3.3.2   Interest income due method and financial sustainability

These are policies that emphasise interest income collection based upon due amounts according to the repayment schedule date, usually weekly or monthly (Morduch 1998). Management reports on interest incomes due ought to be timely to enable asses portfolio at risk (PAR), make provisions and recognize incomes correctly to avoid loss. If the MFIs interest income due policies are not stringently implemented by management, financial un-sustainability may occur through un detected and other inherent risks such as accumulated interest income in arrears (USAID PRESTO Project, 2000). An on time loans recovery rate is a vital tool to ensure that the MFI recognises interest income due from interest income prepaid to meet periodic operation costs as they fall due to be in conformity with the matching and accrual accounting concepts where interest income due is recognised in the accrued interest income (Wood, 2000,p.89; Phnom, 2004). Credit officers in MFIs are charged to prepare due reports on routine

basis and to remind clients to effect repayments which eventually contributes to high recovery rates thus improving financial sustainability (PML credit manual , 2008).

2.3.3.3   Interest income in arrears method and financial sustainability

Interest income in arrears methods are zero default tolerance rules and regulations and incentives that are put in place to be followed in the implementation of the interest rate so that all the due interest incomes are collected on time. The zero tolerance rules are inbuilt in the interest rate administration procedures. The date of paying the instalment and the instalment amount is stated in the loan agreement and on the repayment schedule with emphasis to be paid on that date certain without fail and fines would be levied if the repayment is not effected as agreed with the clients. Likewise, incentives for prompt repayments are specified such as repeat loan, lesser interest rate to cite the Grameen Bank as reported by Piyush and Tiwari (nd) which ensure that clients do not default for financial sustainability of the MFI. On other hand, the interest income in arrears enforcing officer has to report and ensure that the fines are collected or else, staff rewards are punitive over the arrears rate (PML Credit policies and procedural manual, (2008).

2.4   Financial sustainability.

Financial sustainability is the ability of an MFI to cover its costs profitably with interest income earned from its operations of microfinance activity which represents internally generated revenue (Ledgerwood, 2000). Financial sustainability was the dependent variable in the study and its dimensions reviewed did include cost coverage, interest income generation, management efficiency and profitability. Each dimension of financial sustainability was conceptualized with indicators namely, operating costs, loan losses and imputed costs for cost coverage, interest income due, interest income paid and interest income in arrears for interest

income generation, credit officers workload, yield gap, recovery rate and portfolio at risk for management efficiency and operational self sufficiency and financial self sufficiency for profitability.

2.4.1   Cost coverage.

Cost coverage is the ability of the MFI to meet all direct and indirect costs related to microfinance products profitably using internally generated interest income. Key costs that must be covered by internally generated revenue for financial sustainability are operation costs, loan loss provision and the imputed cost of capital which were conceptualised indicators.

2.4.1.1   Operation costs.

Operation costs were defined to include administration expenses and cost of funds; Administration expenses are defined to include salaries, office rent and maintenance, office sundries, transport and maintenance of equipments, depreciation and legal expenses among others. Cost of funds include interest to acquire loan capital, interest on saving deposits, assumed cost of Grants and subsidies and bank charges (CALMEADOW , 1995).

The level of operation costs threatens financial sustainability of MFI to which Piyush and Tiwari, (nd) recommends MFIs to cut down costs and keep operational costs on a reducing trend to achieve financial sustainability. MFIs have big personnel and administrative costs besides staff turnover. Field managers and officers must undertake clients identification, Micro enterprises and house hold appraisal, loan disbursements, extension visits and loans recovery and collection. The costs associated to this are enormous and would result in cost price oriented interest rate classified as high. Besides, there are costs of funds, loan write offs, and a profit required to keep the MFI sustained all of which should be contained in the one interest rate charged by the MFI. Sighting a growing market, economies of scale, and the increasing

efficiency of management of MFIs, The Microfinance News Information authors promise cost coverage, reducing trends in operational costs and to eventually lower the interest rates charged by MFIs to achieve financial sustainability (http//www.microfinanceinfo.com ,12.20.2008). The challenge to keep operational costs on a reducing trend is the nature of small loan sizes and sparcely distributed clients of MFIs despite innovative methodologies and technology.

2.4.1.2 Loan losses.

Loan losses are a provision made against bad loans which reduce profitability of the MFI, there by lowering financial sustainability. Loan losses arise from loan loss which is a risk that a credit client fails to pay the due installment and subsequently the balances outstanding, aged 30-180 days as a best practice are declared bad loans and written off with corresponding loan loss provisions respectively against profits (Ledgerwood 2000, p.210; Table 3). Bad loans written off are persued till recovered and treated as other incomes.

Amrit & Dr. Kalkot (2008) summarised key costs of lending by MFIs to include mandatory provisioning of loan losses so that the loan portfolio capital is not corroded by the portfolio at risk past 180 days which are over stated compared to Bank of Uganda 90 days maximum for full loan loss provision.. Amrit & Kalkot argue that these indirect costs be incorporated in the cost structure and in the composition of the interest rate for MFIs resulting in a cost covering interest rate that financially sustains the institution. However, given that the MFI niche is characterised by none commercial collateral for the loans, if MFIs enforce this approach without controlling loan losses and reducing other inefficiencies in the industry, the resulting interest rate R may be so high and prohibitive to achieving the dual goals of microfinance (www.microfinancegateway.org, 20.12.08)

According to the conservative principle of accounting, loans out of the outstanding portfolio would go bad and deemed unrecoverable and consequently should be anticipated and provided for in the income statement out of the expected interest income and later in the balance sheet as loan loss reserves. Schreiner and Yaron (2001) strongly argued that loan losses were a normal part of a loan portfolio though should not go beyond tolerable levels of 5% of the portfolio and should be controlled on a reducing trend to improve financial sustainability.

According to Bank of Uganda regulations, all MDIs are expected to write off bad loans between 8 – 90 days of arrears against their profits for financial sustainability as specified in the MDI Regulations Act, 2004 (Table 4).

Table 4.   Loan loss provision schedule using the portfolio aging report in accordance with MDI Regulations Act 2004.

No.	Age of loans in arrears(Aging Report) as per MDI regulations Act 2004.	Sec10.3,a,b,c.Provision rate for (Current loans)	Sec11d(i-iv) provision on Rescheduled
1	8 days or below while in arrears.	Nil	5%
2	30 days to below 60 days in arrears.	25%	50%
3	60 days to below 90 days in arrears	50%	75%
4	90 days and above in arrears.	100%	100%

Source; MDI Regulations Act 2004, Uganda.

2.4.1.3   Imputed cost of capital.

.   The imputed cost of capital (IC) is the cost of maintaining the net worth of the institution by adjusting inflation and keeping the real value of the portfolio growth denoted by formulae as below ; Imputed cost of capital, (IC)

IC = <u>Inflation (Av net worth – Av fixed Asset) + (Inflation – Interest rate pd) concession loan</u>
Average Performing Asset.

 Imputed costs are calculated on quasi capital and concessional loans, grants and subsidies. Adongo (2006) recommended imputed cost of capital to be on a reducing trend for the institution to move towards financial sustainability. This cost is none cash adjustment in the income statement and leaves the institution with increasing reserves which is financial sustainability to which CALMEADOW (1995) commended as necessary for long term financial sustainability. The imputed cost of capital factored in the capitalisation rate and incorporated in the interest rate charged enables the MFI meet this cost adjustment for financial sustainability (CGAP, 2002).

2.4.2   Interest income generation.

This is the raising of internal revenue out of the interest rate charged on loans to meet both direct and indirect costs for financial sustainability of the MFI. Covering costs profitably using internally generated revenue is financial sustainability of the MFI. Interest income generation is at three levels; interest income due, interest income collected and interest income in arrears. The standards put in place to manage the income generation affect financial sustainability as explained in the indicators below.

2.4.2.1 Interest income due.

This is the interest receivable by the MFI on a date certain in accordance with the repayment schedules made with clients during contracting. The interest income due is ascertained by the realisation principle which states that a right of earning the revenue had occurred by the loaned client staying with the principal amount for a specific period of time whether cash had been received or not (ACCA, Paper 2.5, 2006). For financial sustainability, interest income due is monitored, ascertained and reported on time. Failure to ascertain and

monitor the due amounts encourages default, omissions and loss of interest income which threatens financial sustainability. According to USAID PRESTO PROJECT, (2000), the due amount once established provide a denominator against which performance is measured in terms of recovery rate. Therefore, the interest income due reports are key to establishing the extent to which the MFI generated interest income. Sources of amounts due are the analytical reports on repayment schedules. Note that only the interest income due portion of the repayment schedule is reported on as interest income receivable where as the principal amount is reported separately as loans receivable. According to Pandey, (2000), reports on due amounts enable design cash flows for the MFI which is necessary for planning financial sustainability. There fore, the MFI needs systems to monitor and generate portfolio reports have two details; principal due and interest income due to ensure safe guard of interest income due and loans outstanding.

2.4.2.2 Interest income collected.

Interest income collected refers to payments received out of the interest income due for collection. Sales in microfinance take the form of credit sales and therefore, recognition of interest income and collection of interest income occur simultaneously at time of recognition of interest income due and cash received being on time collection for a zero default tolerant MFI (ACCA, 2006, Paper 2.5, p. 12). Policies that accelerate interest income collection ensure that the due amounts is collected, reported as collected and cash made available to meet obligations. Interest income collected if not monitored leads to loss of revenue and therefore, a system to monitor and report interest income collected is strength for financial sustainability. In the accounting cycle, interest income received is receipted and credited to the cash account with corresponding debit to interest income received account prior to the income statement (Omunuk,1999). For financial sustainability to occur, the total interest income collected $\geq$ total

costs including adjustment of imputed costs. One way to ensure maximum interest income collected is the collection policy that emphasises loans towards micro enterprises, peer pressure, house hold collaterals and group guarantee as inbuilt in the methodology to ensure quality appraisal of repayment capacity as a basis for loan approval. Innovativeness to niche salary earners where repayments are effected by standing orders from source are also encouraged. Interest income collected must be analysed as income earned and income prepaid or bad debts recovered so that the MFI can correctly allocate funds for expenditure appropriately in accordance with accrual concept and periodicity (Ledgerwood, 2000)

2.4.2.3 Interest income in arrears.

Interest income in arrears refers to interest income amount due for collection that has not been received by the MFI. The institution has the right to receive the amount while the clients are obliged to pay to the MFI. The higher the level of arrears, the more the MFI is constrained financially. MFIs are recommended to have zero arrears tolerance policies that minimise arrears to zero for financial sustainability. MFIs are also innovative on insurance of loan advances and having a legal department that does collection of arrears for financial sustainability (PML credit and procedural manual, 2008). Interest income in arrears is reported as a current asset in the balance sheet and its recovery is crucial towards financial sustainability of the institution. The interest income in arrears rate indicates how policies are lenient or stringent towards collecting receivables (Ledgerwood, 2000; Pandey, 2000).

2.4.3 Management efficiency and financial sustainability.

Management efficiency is the ability of employees of the MFI to implement policies to achieve targeted productivity standards at the cost effective profitable measure with reducing

cost per unit trend. Management efficiency has implication to the fact that if the cost per unit is high and increasing, and productivity targets never achieved, then the MFI will be less profitable leading to reduced financial sustainability. Management efficiency was reviewed in terms of credit officer's workload, loans recovery rate, yield gap and portfolio at risk which are key indicators of financial sustainability.

2.4.3.1 Credit Officers workload

Credit Officers work load is the number of active clients per credit officer as a measure of management efficiency besides requirement to achieve 95% recovery rate on staff performance standards and customer retention as related to controlling administration expenses for financial sustainability ,   COW   = No. of active client

Number of credit officers   (CALMEADOW, 1995, p.31)

Schretner & Yaron (2001) are in agreement with the CGAP (2002) to the effect that decreasing administration expenses increases the financial sustainability ratio and therefore controls to reduce administration expenses in MFIs such as increasing credit officer's workload should be emphasized. While Christen (1997) recommends optimum caseload between 300 – 500 clients per credit officer on an increasing trend, Ugandan MFI best practices suggest credit officers workload of 250-500 clients (and to be increasing) using a relevant technology such as loan performer. Gibbons & Meehan (1999) in Youssofou (2002) established that the greatest part of administration expenses in MFIs is attributed to personnel expenses and therefore both management and staff efficiency is necessary to keep administration expenses on a reducing trend. Accordingly, it is suggested that personnel costs should not exceed 50% - 70% of the administration expenses on a reducing trend.

FerroLuzzi & Webber (2006) while emphasizing repeat loans, average and optimum loan size to achieve financial sustainability concluded that making a first loan was expensive while granting repeat loans to customers was profitable at a reducing cost per loan (CPL), hence customer retention was said to reduce administration costs through increasing COW.

CPL = Operating Costs/Total Amount Disbursed (Ledgerwood, 2000).

It should also be observed that if credit officers appraise very small micro loans, undertake extension visits to sparsely distributed clients, however high the interest rate and more the number of loans, the cost per loan would be higher than the interest income made, thus reducing financial sustainability. The interest rate ought to maximize income on an average loan while using an appropriate methodology without compromising the target group. If the interest rate policy is subjected to small portfolio, then the interest rate would need to be so high to yield income that would cover the cost at an increasing cost per unit (Piyush and Fahad, n.d, 8/8/008). It should be noted that the size of loans may also be dictated upon by the economic factors in a community and the methodology used to reach them. Client capacity to borrow and pay repetitively further determines credit officer's workload and cost per loan for financial sustainability.

2.4.3.2 Yield gap,

A yield gap is the difference between expected interest income also known as budgeted to the actual interest income received by the MFI. The method of interest income collection account for variation in the yield gap for example, the upfront collection method would be associated with 100% yield gap performance and makes interest income available to meet costs on time. While lenient collection policies accumulate arrears and constrain MFI expenditures. The yield

gap = Interest income budgeted - interest income received. From the cost control point of view, management ability to control of costs also increase the yield gap.

The difference between budgeted interest income and actual interest income best reveals management efficiency on income generation. Ratio 1 and increasing is recommended by MFI best practices, a level at which management interpret the interest rate policy and implement it to achieve financial sustainability. A significant gap may imply that high costs, fraud, delinquency, accounting errors, poor monitoring and loan tracking, compromised and inappropriate interest rate policies affect financial sustainability (CGAP, 1998). The yield gap measure of FS is in agreement with gap and scenario analysis monitoring policies by Bank of Uganda as mandated to control and monitor performance of MFIs (MDI Regulations 2004, sec 3.13,p. 375)

2.4.3.3 Loans Recovery Rate

Loans recovery rate is a ratio of principal and interest amount reported paid to the principal and interest amounts due. Interest income is collected concurrently where by MFIs deduct interest first and the principal amount residual. AMFIU (1997) MFI best practice suggests 95% loans recovery rate with zero tolerance policy on delinquency for financial sustainability. The Grameen Bank in India was able to record 98% recovery rate using the group guarantee methodology. If the repayment rate is less than 1, then the MFI may not be collecting all the interest income due to finance her costs as they fall due hence suffocating financial sustainability due to poor liquidity as a result of either management inefficiency or inappropriate methodology used. Note that a poor recovery rate will lead to a poor yield gap as a sign of financial un sustainability and clients may wish to negotiate to pay principal amounts and not interest income (USAID PRESTO Project, 2000, January). Even when interest income is collected upfront, the recovery rate would facilitate the recognition of interest rate income due from prepayments to

enable financing activities. Youssoufou, (2002) recommends an efficient management information system to increase reliability of the portfolio and accounts reports as a basis of monitoring recovery rates and interest income generated to ensure financial sustainability.

2.4.3.4   Portfolio at risk (PAR) and financial sustainability.

Portfolio at risk refers to the ratio of value of outstanding principal loans with arrears to the total value of outstanding principal loans which Stearns (1991) recommended to be ≤ 5% on a reducing trend for the MFI to be financially sustainable. An increasing portfolio at risk is a financial sustainability threat as the trade stock of the institution is at the risk of not being recovered towards depletion visavis increasing loan loss provision and CGAP recommends Portfolio at risk ratio (PAR) ≤ 5% of the total portfolio on a reducing trend. (USAID PRESTO PROJECT 2000, Version 1.1).   This requires that the on time recovery rate of the institution is ≤ 95% and increasing as a best practice and policies that ensure that PAR is minimal towards zero PAR reduce loan loss provision costs hence improving profitability. For the purpose of assessing the loan loss provision for each period, the portfolio at risk is aged accordingly (MDI Regulations Act, 2004; Table 3)

Portfolio at risk (PAR) =<u>Value of outstanding balance of principal loans with arrears</u> *100

Value of principal loans outstanding

Even when the interest rate policy is in place for financial sustainability, the portfolio at risk need to be minimised towards zero to achieve financial sustainability.

2.4.4 Profitability.

Profitability is a measure of the extent to which the operations of the MFI is providing a return on the invested resources. Robinson (2001) defined profitability to mean covering all costs and risks with controlled effects of subsidy and grants using internally generated interest income

and returning a profit to the institution. (p.10). There are proven MFIs such as BRI – Unit desa in indonesia among others in ASIA that have recovered from reporting losses through revising interest rate policies in the period 1984 – 1996 to which profitability doubled after covering all aggregated costs towards financial sustainability (Robinson S. 2002). The interest rate policy for MFIs operating on sound business principals is intended to raise operational income to sustain ably meet costs and growth of the institution at two levels of financial sustainability; operational self sufficiency (OSS) and financial self sufficiency (FSS). The OSS and FSS are paths of financial sustainability advocated for by the CGAP (2002) and support agencies with the thrust to reduce dependence on grants and subsidies to build owners equity besides commercial capital but yet ensure outreach (Shylendra, 2006, p.1961)

Although Youssoufou (2002) stated that subsidies and grants were inevitable for institutional capacity building, especially during creation of new branches, in the recommendations it was clear that subsidies keep interest rates low and cost controls ineffective in MFIs (p, 15), PRIDE Microfinance may justify failure to make profits in 2006 due to opening up of new branches but existing literature dismiss the claim because that is not part of operating costs for the year but an investment recoverable over time (PML Annual Report, 2007).

2.4.4.1 Operational self sufficiency

Operational self sufficiency is a level of financial sustainability where the MFI interest income covers all operation costs, loan loss provision and cost of funds to a ratio 1, increasing and positive (www.sadhan.net/Adls/microfinance, 19.11.08). It is argued that an MFI can still continue in business if it can generate interest income to cover OSS to ratio ≥ 1. At this level, the MFI could be advised to maximise and accelerate interest income collection, customer retention for reduced administration cost per repeat borrower, control costs, implement zero

delinquency besides considering revising the interest rate policy (USAID PRESTO PROJECT, 2000). Operational self sufficiency, OSS = $\underline{\text{Interest Income}}$ ≥ 1 ,

$$OC + LL + FC$$

For the MFI to be profitable, it must achieve 100% operational self sufficiency. This profitability level falls short of factoring the inflation and imputed costs of capital, but an MFI which will be profitable can be appraised to continue in business. Note however that Morduch (1999) sounded a warning on "eventual depletion of capital holdings over time", if operational self sufficiency is not shortly achieved by every MFI. This sends emphasis that PML failure to cover OSS over the years of study is a risk on financial sustainability (Figure 9).

2.4.4.2 Financial self sufficiency

Financial self sufficiency is the level of financial sustainability where the MFI interest income is able to cover costs above operational costs, loan loss provision, cost of funds and the imputed cost of capital while ensuring that the cost of funds include the contribution of grants and subsidies and income exclude grants and subsidies.

Financial self sufficiency , FSS = $\underline{\text{Interest Income}}$ ≥ 1
$$OC + LL + FC + IC$$

 FSS considers the none cash cost of capital such as effects of inflation on the portfolio and effects of subsidised capital with time (Christen, 1995 in Ledger wood, 2000 p.218). FSS ought to be ratio 1, increasing and positive indicating that an MFI can be independent of subsidies making profits and therefore financially sustainable. Inflation adds to the cost of MFI by eroding micro lenders equity. Accordingly higher inflation rates would contribute to high nominal credit interest rates through their effect on real value of equity (Fernando, 2006).

2.5 Clients' response to interest rate policy and financial sustainability.

Clients' response is a reaction by the customers of MFIs in reply by words or action on the stimulus of the interest rate policy which is conceptualised to affect financial sustainability. While findings by Namyalo (2007) had established that the rate of interest paid by the clients affected performance of their enterprises and the level of disposable incomes by nature of outflows. (p.54), the benefit derived from use of a microfinance credit was conceived to influence the behaviour of clients towards interest rate policy and subsequently affect the relationship between interest rate policy and financial sustainability.

Access to microfinance services by the active poor was said to remain a constraint because MFI outreach was Said to be low in LDCs while commercial banks required classified prohibitive collaterals which left the clients with limited access to financial services to which the MFIs were a saviour. It was believed that MFI clients would still take micro credit at whichever interest rate. Findings by Semboja (2004) revealed that even at 30% flat rate and increasing, clients in East Africa still continued to borrow hence the conclusion "interest rate insensitive". According to Anyanwu (2004, November), "The willingness of the active poor to borrow and repay at seemingly high interest rate and zero default tolerance collection policies confirms the view that their financial problem had more to do with access to microfinance services than the level of interest rates" (pp. 8,9). CGAP (2002) assumed that MFIs can charge as much interest rate to cover their costs while the clients insensitivity to interest rates suggested that microfinance to the poor was a giffen service , where more of the product would be purchased even when prices were high (Dwivedi , 1998 p.108).

Youssoufou (2002) in his inquiry on whether the active poor could pay institutional sustainable interest rate observed that a greater number of empirical studies had shown that what

was more valuable to the active poor was the access to microfinance services and not the interest rates they paid. This argument thus suggests that as much as MFIs target the active poor, the demand theory was not yet applicable because MFI "outreach was considered still very small compared to potential demand" (p.14). Note however, that MFI client's response to the interest rates under this study may affect the relationship. Clients faced with high interest rates and unfriendly collection methods if operating in a competitive environment may opt to drop out to other MFI sources. This threatens financial sustainability of the MFIs in terms of lost customers and interest income earnings out of client repeat borrowings. It would also be challenging to find and appraise alternative micro enterprises that can withstand the resulting sustainable interest rate charges and yet sustain the micro entrepreneur.

2.6 Grants, subsidies , Treasury bill income and fees on financial sustainability

Grants, subsidies, Treasury bills interest income, stationery fees, ledger fees and fines in the intervening variable were conceptualized to affect financial sustainability by providing substitute and alternative revenue to the interest income which needed were controlled through cost of funds in the study.

Grants, subsidies … and fees contribute to give false impression to the MFI of the ability to generate internal revenue to cover costs and profits. While CGAP (2002) recommended a deduction of this income (II) expressed as a percentage of the outstanding portfolio from the sustainable interest rate determination to control its intervening effect on financial sustainability, this study modified the approach by factoring the cost of funds on all grants, subsidies,… and fines at the Treasury bill rate so that financial sustainability is not compromised just as it was proposed by Schrener and Yaron (2001) that all other incomes need to be costed at Treasury bill rate to minimize dependency on grants and subsidies towards financial sustainability. Once

ignored may give a false impression of FS of the institution since it is identified as an intervening variable in this study. Microfinance institutions in ordinary course of reporting use this to inflate operations income to cover costs thereby reporting an incorrect profit level. Factoring the cost of those other income in the interest rate determination function enables the MFI to anticipate the cost of funds without subsidies. It does not deprive off the MFI profit but ensures that net performance on all resources is accounted for sustain ably than taking it for granted that it is risk free funds. According to Schrener & Yaron (2001), controlling subsidies and grants in interest rate determination enables to reduce inefficiencies, reducing per unit costs and restoring cost effectiveness towards financial sustainability (p.33).

2.7   Summary of literature review on interest rate policy and financial sustainability

Given that the core business of MFIs is micro financing, it is expected that the major source of income to meet aggregate of costs is internally generated interest income from operations to the extent of 100% financial sustainability (FS). The appropriately determined interest rate with a suitable interest rate application method and interest income collection policy on an optimum portfolio should yield cost covering, maximum revenue towards FS. Literature reviewed has revealed that Microfinance is a viable business despite high transaction costs and the risky market niche. While charging sustainable interest rate is emphasised, MFIs have not achieved financial sustainability, clients have been underrated to be interest rate insensitive. Use of grants and subsidies, …, other than interest income provides a short term solution to financial un-sustainability which would explode as the MFI folds on when grants and subsidies terminate. This study conceived to establish the relationship between interest rate policy on FS and how the clients' response to IRP affected the relationship so that recommendations are made on how to consolidate the relationship to achieve financial sustainability of PML.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This section introduces the research design, study population, sample techniques and sample size that was used and further specifies data sources, collection instruments used, validity, reliability, analysis and measurement of variables. The research design, Data collection methods and instruments ensured that valid and reliable data was collected and analyzed to answer the research questions as related to interest rate policy and financial sustainability.

3.2 Research Design

The research was a case study on PRIDE Microfinance Ltd in the period 2004 – 08 in a snap shot , which enabled the in depth study to establish the relationship between interest rate policy and financial sustainability as recommended by Denscombe (2000). The research used a quantitative approach integrated with qualitative aspects whereby correlation results from quantitative approach was substantiated by qualitative evidence as recommended by both Punch (2000) and Hurberman (1994). Quantitative approach refers to the use of standardized tools and analysis to generate numerical data which was used to explain and predict a phenomena under study including testing hypothesis while qualitative approach refers to getting to understand how respondents understand the phenomena in its natural setting through systematic inquiry, observation, … documentary review and data is generated in form of text and image as defined by Amin (2005). While numerical data from the quantitative approach explained and predicted relationships, data from qualitative approach was used to add meaning, clarity and objectivity in the interpretation of quantitative data in a triangulation.

3.3 **Study Population**

The case study population of 149 elements comprised; Officials of Apex institutions for MFIs who supervise and regulate the MFI operating environment , senior executives of PML, who are policy and decision makers, finance and branch managers of PML, who are implementers of interest rate policy and repeat borrowers from PML, are the micro entrepreneurs and who pay's the interest expense to the MFI (Table 5). A list of officials of PML subjects; senior executives, finance and branch managers and repeat clients, was obtained restrictively from PML to form a sample frame. A list of senior executives was obtained from the annual audited accounts report 2008, advertised. A list of branch managers was obtained by identifying a branch Office from an outreach map of PML (Appendix I). Credit Officers at the branch provided a record of active repeat borrowers from which repeat client subjects were chosen.

3.4 **Sample Size and Selection**

Table 5. **Summary of elements of a Sub Population and study population.**

Study elements	Study population	Sample population	Sampling techniques used
Officials of Apex institutions	4	4	Census
Senior Executives of PML	5	4	Purposive sampling.
Finance and branch managers	35	20	Random sampling.
Repeat clients of PML.	105	86	Systematic random sample
Total	149	114	

Source: Krejcie & Morgan ,1970 Table, cited in Amin (2005, p.545); Appendix X

From table 5 above, the study sample of 114 subjects were selected out of a study population of 149 elements following the roles and functions of the stratum; Officials of Apex institutions, senior executives of PML, finance and branch managers of PML and repeat clients of PML following a sample frame (Sekaran, 2003, p. 273). The Krejcie and Morgan , 1970 table (Appendix X) was used to determine the sample out of the study elements besides the researchers own judgment (Amin, 2005, p. 454). A total of 89 respondents were successfully selected from a sample of 114 subjects which represented a study population.

3.5   Sampling Techniques and Procedures

The study population was stratified on a heterogeneous stratum to enable derive homogenous sub populations from which sample population was selected. The strata were comprised of Officials from Apex institutions, senior executives of PML, finance and branch managers of PML, and   repeat clients of PML. This was in accordance with Sekaran (2003, p.273) who suggested that a study sample could be stratified on a heterogeneous stratum to enable focus and access to respondents with similar characteristics (Table 5).   Sampling techniques used varied in each sub population including census, purposive sampling, random sampling, and systematic random sampling.

3.5.1   Census.

Census was where all subjects in a stratum were considered respondents. The technique was used on Officials of Apex institutions because of the small size of the strata, accessibility and regulatory role, which required all to be included as guided by the Krejcie & morgan 1970. Census technique was recommended to be used on small accessible sub sample by Mugenda & Mugenda, (2000, p. 44).

3.5.2   Purposive sampling.

Purposive sampling is where the researcher applied judgment to include a subject in the study sample. Senior executives were selected by purposive sampling because of their position and key role in policy formulation and strategic governance of PML. The researcher's common judgment was also used to persuade senior executives to respond to the questions as they had the necessary information required for the research. Purposive sampling was recommended by Amin (2005, p. 242) who stated that some of the officials would well be aware of what was taking place in their institutions besides accessibility than others.

3.5.3   Random sampling.

Random sampling was a design in which all elements in a study population were made eligible with equal chance but selected by probability to generalize findings to the study population. Finance and branch managers were reached by random selection because they were sparsely distributed in the 29 branch offices in Uganda and held similar information. Random sampling in this strata gave each manager a chance to be a respondent besides saving costs and time (Sekaran, 2003; Amin, 2005; Mugenda, 2000; Table 5)

3.5.4   Systematic random sampling.

Systematic random sampling was a design in which every nth element in a large sub population was selected to form a sample frame after selecting the first element by random. Repeat clients at PML were reached by systematic random sampling because of the big size of the stratum. The researcher was mainly interested in repeat borrowers because they had experience on the interest rate policy of PML having related with the institution for long time

through repeat borrowings. Every 3rd repeat borrower on the list of a micro enterprise group (MEG) was selected into the sample after the first element by random. The method was recommended Amin, 2005, p.251, who stated that it enabled to achieve a spread and generalization of results in a large population.

3.6 Data Collection Methods

The researcher used self and researcher administered questionnaires, face to face interviews, documentary review and observation as key data collection methods in the study.

3.6.1 Questionnaires

A questionnaire is a set of questions and statements soliciting responses, covering the study variables to which responses are written if open ended or checked for coded questionnaires to generate data. The questionnaire can be self administered if the respondents are literate or researcher administered if the respondents are illiterate. The researcher used both self and researcher administered questionnaires.

3.6.1.1 Self-administered closed-ended questionnaire was used to collect data from senior executives, finance and branch managers of PML. The method was suitable because the respondents were literate and sparsely distributed. Each item in the questionnaire related to a research question and hypothesis and the responses were obtained in a usable form to suit quantitative design as recommended by Mugenda and Mugenda (1999, pp. 71).

3.6.1.2 Researcher administered closed ended questionnaire to repeat clients was used because some of the repeat clients were illiterate besides the need to get immediate feed back from this very busy time conscious stratum of micro entrepreneurs. The research assistant found repeat clients at a routine meeting termed the micro enterprises group (MEG) to access the

client respondents which saved costs and time in accordance with Sekaran (2003, p.236). The administered questionnaire was coded to ensure that data was in uniformity to the self administered questionnaire for compatibility and quality processing and analysis.

3.6.2   Interviews.

Interview is the use of oral questioning to the respondent to generate responses in form of spoken word which are recorded as data. The researcher used face to face interviews with each of the selected official of both Apex Institutions and PML senior executives and branch managers to obtain responses which were recorded in a note book as data.

3.6.3   Documentary review.

Documentary review refers to the use of a database of a case study institution to read reports, and other related documents available to generate qualitative data through making of notes and analysis of financial and statistical information that is then used to support answer research questions. The researcher used documentary review on Procedural manuals, repayment schedules, Final Accounts, portfolio reports and annual reports of PML   A documentary review check list guided the researcher on important documents that must be reviewed for the success of the research (Appendix XIII).

3.6.4   Observation.

Observation is a visual experience on an activity as events happen without asking questions where by the observations relevant to the study are recorded as data (Sekaran, 2003, p. 252). The researcher made unstructured observations on the flow of business at PML Offices,

activities of the client's micro enterprise group and conduct of interviewee officials of PML, which the researcher wrote as part of qualitative data and findings are used to enrich the study.

3.7   Data Collection instruments.

The researcher used a set of data collection instruments namely questionnaires, interview guide, documentary check list and an observation checklist.

3.7.1   Questionnaires.

The researcher used two types of questionnaires namely self administered and researcher administered questionnaires as data collection instruments to officials and clients of PML respectively. Mugenda & Mugenda (1999) recommended that a response rate of 50% returned filled questionnaires was adequate enough, 60% good enough and 70% very good to be acceptable as successful tool of data collection (p.83).

A self administered questionnaire designed on a likert scale, (Appendix IV) was used to collect data from senior executives, finance and branch managers of PML because it enabled reach a sparse population in PML Branch Offices in Uganda, was time saving, to both researcher and the respondents, cost saving to the researcher and especially that the respondents could read and write besides ensuring confidentiality. The instrument was coded on a likert scale and simplified to read and to be checked by the respondent. It was also necessary to enable use of registered mail to sparsely distributed respondents at PML branch offices with pre addressed return mail enclosed envelope for reply.

A researcher administered questionnaire designed on a likert scale, (Appendix V) was used to collect data from repeat clients of PML because the stratum was large, needed immediate feedback to save time and to solve language barrier and multiple interpretations of questions by

this category. Both the self-administered and researcher administered instruments had merits of confidentiality (Mugenda & Mugenda, 1999, p.257).

3.7.2   Interview guide.

An interview guide (Appendix VI and VII) were a schedule with pre-determined set of questions which was followed during interview to enable cover the variables under study. The instrument was followed by the researcher to ask questions prompting responses from Officials of Apex institutions and PML respectively. These instruments were recommended by Mugenda & Mugenda (1999), p.86 to enable the interviewer to be exhaustive and focused on the subject.

3.7.3   Documentary review checklist.

A documentary review checklist (Appendix VIII), was a schedule specifying the content required from secondary data of PML with focus on the study variables. The instrument was used in guiding the researcher to review newsletters, Final Accounts, Annual Reports, Portfolio reports, operational and procedural manuals and repayment schedules at PML in order to enable collect data required to answer research questions (Punch, 2000, p.10).

3.7.4.   Observation check list.

Observation checklist is a schedule of events on work flow, clients activities in a micro enterprise group, flow of business in banking halls and conduct of officials of PML for attributes that depict the study variables which the researcher visualized as they happened. Those were used to explain the relationship between IRP and financial sustainability of PML.

3.8   Pre testing of data collection instruments.

3.8.1   Validity.

The researcher used Content validity which refers to the degree the instrument   enabled to collect data that measured the concept under study as designed (Sekaran, 2003, p.206). Questionnaires were designed according to the study variables in the conceptual frame work to ensure content validity as recommended by Amin (2005, p. 286). Four (4) experts in the field of Microfinance and research academia namely AMFIU, Makerere University Business School, The Microfinance Support Centre Ltd and FAULU, Uganda gave expert opinion on the questionnaires   on content validity using a four point scale of very relevant, relevant, quite relevant and not relevant. Content validity index (CVI) was then computed as a ratio of relevancy question scores to total questions. The calculated CVI $\geq$ 0.6 was considered valid enough to assure that it enabled collect valid data during the research.

Content Validity Index   (CVI)   = $\dfrac{VR + R + QR}{VR + R + QR + NR.}$ x 100   (Amin, 2005, p.288)

Where VR = very relevant, R = relevant, QR =quite relevant and NR = not relevant.

CVI , Q1   = $\dfrac{121 + 92 + 78}{121 + 97 + 78 + 19}$ x 100   = 94%, calculator.

CVI, Q2   = $\dfrac{53 + 56 + 28}{53 + 56 + 28 + 15}$ x 100   = 90%., calculator.

Given that the calculated content validity index for both self administered, (Q1) and the Researcher administered questionnaire, (Q2), was 94 % and 90 % respectively, above the required test of 60%, the questionnaires were valid to collect data for the study.

3.8.2   Reliability

Reliability is the degree a data collection instrument is depended upon to measure the content it is intended to measure and was calculated using Cronbach alpha coefficient with the aid of SPSS (Amin (2005, p.293).

Table 6.   Cronbach alpha reliability test results on questionnaires.

No.	Objective/ dimension.	Number of questions.	α
1	IRDP on FS	14	0.7568
2	IRAM on FS	6	0.6142
3	IICM methods on FS	10	0.7844
4	Cost coverage	9	0.8029
5	Income generation	6	0.8129
6	Management efficiency	11	0.6783
7	Profitability.	5	0.7064
8	Clients response	10	0.6121

Source: Primary data.

The questionnaires were pre tested for reliability to similar study population at Finance Trust (U) Ltd. Questions had coded choices to be ticked, Pre test results weighted and reliability tested from responses using Cronbach's coefficient alpha (α) as recommended by Amin (2005, p.302). The computed alpha was to be compared to the recommended α ≥ 0.6 to qualify reliability in accordance to Sekaran (2003, p 331.)

A reliability test using Cronbach's alpha coefficient $\alpha = \dfrac{N*\epsilon}{\nu + (N-1) *\epsilon}$ with support

of SPSS was tested focusing on the four study objectives (table 6). In the formulae above, α = alpha coefficient, N = number of items tested, ϵ = average covariance of all items sampled, and ν = average variance in the sample (http://en.wikipedia.org, 24.12.2009)

Since the Cronbach alpha coefficient per objective was > 0.6 on average (table 6) the questionnaires were considered by the researcher to be internally consistent and reliable to the study. Pre test results and experiences were used to improve on the questionnaire design and administration skills which ensured reliability (Mugenda & Mugenda, 1999, p.186.)

3.9   Procedure of Data Collection

Data collection procedures used in the study did include questioning while using self administered and researcher administered questionnaires and face to face interviews, taking notes from documentary review and visual on occurrences under observation. In all data collection procedures, protocol was observed in PRIDE Microfinance Ltd (PML) by obtaining and presenting authority and permission letters to collect data both from UMI, The awarding institution and PML, the case study institution to enable access to study elements in the institution and to convince them to give the data (Appendix IIa, IIb and III).

3.9.1   Self-administered Questionnaires

The researcher used closed ended questions and statements in the SAQs which were coded on a likert scale to collect data from senior executives, finance and branch managers of PML (Appendix IV). Self administered questionnaires are recommended to collect data from study elements who can read and write and especially when they are sparsely distributed. (Mugenda & Mugenda ,1999, p. 80)

Ten (10) self administered questionnaires were sent by registered mail using DHL Express to PML Branch Offices which were sparsely distributed outside Kampala region (Apendix I) together with an enclosed prepaid return mail fully addressed to the researcher and earmarked to be collected by the DHL agents on behalf of the researcher for ensuring follow up and return of questionnaires within 30 days. DHL courier agents delivered and collected filled questionnaires from the branch managers back to the researcher at a prepaid fee. Thirteen (13) SAQs were delivered to four (4) senior executives and nine (9) PML finance and branch managers in the Kampala region by the researcher and an appointment to collect the filled questionnaire was made to be concurrent with the timing of face to face interview. The researcher collected filled questionnaires from the managers accordingly.

The respondent read the introductory remarks and guiding instructions attached to the questionnaire to create rapport and for the respondent to understand the objectives of the research and his role in providing data. The respondent read the question and inserted a tick ($\sqrt{}$) against the likert scale to indicate his opinion through out the questionnaire. The respondent sealed the filled questionnaire in a prepaid mail back to the DHL courier agent addressed to the researcher for mailed questionnaires while the researcher collected the filled questionnaire from the official on appointment within Kampala region. DHL collecting agents in addition went to the 10 branch Offices outside Kampala region with reminders to collect the questionnaires from the managers and to keep tracking the questionnaire filling and return progress until the 30 days time limit was reached. The researcher telephoned and also emailed the respondents to monitor the progress of completing and returning the questionnaire.

Subsequently, the researcher expected 70% response rate while using a self administered questionnaire in the study to accept results.

3.9.2   Researcher administered questionnaire.

The researcher used closed ended questions and statements in the RAQs which were coded on a likert scale to collect data from repeat clients of PML (Appendix V). Researcher administered questionnaires are recommended to collect data from study elements who are either illiterate, large study population or where instant feedback is required.

The researcher met the respondent face to face at a micro enterprise committee venue room and after introducing to the respondent the purpose of the research with assurance on confidentiality, convincingly read to the respondent a question, statement and corresponding alternative opinions and response to stimulate a response, one after the other question was responded to. Occassionally, the researcher interpreted the questions and opinions in Luganda, Runyakitara , Swahili or adopted an interpreter from the group members. The researcher inserted a tick (√) against the likert scale to indicate respondent's opinion to a suitable code and besides, wrote in a note book additional information mentioned or observed. Credit officers at each PML branch Office guided the researcher to access the repeat client's ear marked as respondents on a sample frame which saved time. Punch (2000), p.104 recommends a researcher to administer a questionnaire to study elements who may not be able to read and write and who are not sparsely distributed to ensure 100% response rate on the questionnaires.

3.9.3   Face to face interview.

Face to face interviews were held with each of the targeted official of Apex institutions, senior executives, finance and branch managers of PML as targeted to collect qualitative data respectively (Table 5). Sekaran (2003) recommends face to face interviews as suitable method to collect qualitative data on questions that need explanations on facts that the quantitative

questionnaire may have omitted or that will be required to corroborate empirical findings during the interpretation of research findings (p.231).

The researcher created rapport at a meeting with the interviewee, read while asking open ended questions simultaneously following an interview guide, one after a response is made and the relevant responses from the interviewees were recorded in a note book by the interviewer as the interview was taking place. Further prompting questions were asked from either party for clarity or for more information resulting into an in depth discussion on the topic of the study.

3.9.4   Documentary review.

The researcher carried out documentary review secondary data of PML which has supported the stating of the problem, and in drawing conclusions on quantitative outcomes. Major documents reviewed at PML were financial statements 2004 – 2008, operational manuals, PML annual reports 2007-9 and newsletters. The researcher read the document with particular reference to study variables and extracted facts, figures and statistics that were used to generate maps, financial data, tables, ratios and trends and qualitative patterns on costs, interest income and financial sustainability coefficients depicting the current status of financial sustainability. Those were   corroborated with the empirical findings during discussion, interpretation and making conclusions.

3.9.5   Observation.

Un-structured observation was used to collect additional data on the study. According to Sekaran (2003), this is where the researcher through the time of the study, keeps an eye on events and aspects that are seen important to supplement facts on the study variables (p. 253). The researcher in this study observed clients activities related to interest income collection

methods, loans recovery and conduct of business and made notes on what he saw. Those observations were summarized as qualitative data on the IRP and financial sustainability which was used to support in the writing of findings, conclusion and recommendations.

3.10   Measurement of Variables in the study.

To measure the variables in a quantitative approach, is to transform attributes of the conceptual framework of variables studied into numerical quantities. Both nominal, lirkert and ratio measurements were used

3.10.1 Nominal scale.

Respondent's Nominal details were measured on a nominal scale in section A of the questionnaires (Appendix IV and V). The nominal scale assigned numbers to represent labels other than intrinsic values, without absolute zero for the purpose of calculating frequencies and percentages. Nominal data measurement related to position and experience for officials of PML and collateral for the loans and type of micro enterprises loaned for repeat borrowers. This aided in referring to the frequencies studied as relates to quality of data, distribution trend, and in further analysis, interpretation and discussion on findings (Mugenda & Mugenda, 1999, p.66).

3.10.2 Likert scale.

The Likert is a form of an interval scale measurement which was designed to measure how strongly subjects agree or disgree with a question, statement or an opinion on a five point scale and has the same difference in response between any two points (Sekaran, 2003, p.197). Data on key variables in the self and researcher administered questionnaires (Appendix IV and V) were measured on the likert scale (5,4,3,2,1) for strongly agree, agree, not decided, disagree

and strongly disagree respectively. The measurement had an advantage that enabled data to be subjected to further manipulation in order to generate descriptive statistics and latent values.

3.10.3   Interval scale.

Interval scale is a measurement scale that allows data from respondents to be subjected to further arithmetical operations while measuring points between the scale. This was derived from the component factor matrix and used to perform a correlation with the aid of SPSS being contrast and real measurement as condition to fit a Pearson , Part and partial correlation and a hierarchical multiple regression (Denscombe, 2000; Table 27). Summarised data in the likert scale was transformed to interval scale in form of latent values using the coefficients of component rotational matrix (Apendix XIIa and XIIb) to enable measurement of parameters and opinions on the constructs of variables (Rosenberg 1979 p. 291 in Punch, 2000, p. 90). The interval scale using latent values was a requirement to run a Pearson correlation, part and partial correlations and a hierarchical multiple regression to establish the strength and direction of relationship between the variables and the influence of client response to interest rate policy on the relationship between interest rate policy and financial sustainability.

3.10.4   Ratio scale.

A ratio scale is a measurement with an absolute zero to a variable stating the magnitude. Data from documentary review and financial sustainability were measured in form of ratios (Appendix XIIa, XIIb and XIIc) Financial sustainability was measured at two level, ratios; Operational self sufficiency and financial self sufficiency. The ratio standards that guide conclusions are the accepted industrial performance measure by MFI best practices in Uganda and internationally (AMFIU, 2005; CALMEADOW, 1995).

3.11   Data Analysis.

Data was checked and recorded into a computer with the aid of SPSS ready for analysis following the quantitative and qualitative research approaches.

3.11.1 Quantitative data analysis.

Data from both self administered and researcher administered questionnaires were analysed quantitatively using a Pearson correlation coefficient, Part and partial correlation and a hierarchical multiple regression tools of analysis.

a) Pearson correlation coefficient, denoted by r, was used to analyse data from questionnaires to establish the relationship between interest rate policy and financial sustainability, which, Amin (2005, 9.379) recommended as a useful tool for measuring the degree and direction of relationship between variables.

A value of the Pearson correlation r between -1 and +1, indicated the direction and strength while the coefficient of determination, r^2, indicated the strength and magnitude, of the relationship (Danford L, n.d). Pearson correlation coefficient is calculated as per formulae below although the researcher used a statistical package for social scientist (SPSS) to generate the r coefficients.

$$\text{Pearson Corrélation Coefficient, } r = \frac{n\left(\sum XY\right) - \left(\sum X\right)\left(\sum Y\right)}{\sqrt{\left(n\left(\sum X^2\right) - \sum(X)^2\right)\left(n\left(\sum Y^2\right) - \sum(Y)^2\right)}}$$

X = number of items of the independent variable, the interest rate policy.

Y = number of items of the dependent variable, Financial sustainability.

n = number of elements sampled. (Amin 2005, p.379).

∑ = Sum of.

Given that the researcher had used the likert scale on the questionnaires, data from questionnaires was transformed by component factor rotation matrix to obtain coefficients on an interval scale of measurement as a requirement to run a Pearson and a regression (Amin , 2005, p.384). The transformation yielded latent values that linearly related the study variables. The Interest rate policy variables are the x and financial sustainability variables the y respectively.

b)   Part correlation is the square root of R^2 change, denoted by r_1 was used to establish the overall relationship between the interest rate policy and financial sustainability by interpreting the r_1 at its level of significance (sig.) while holding clients' response constant. This was used to answer the research question, the relationship between interest rate policy and financial sustainability.

c)   Partial correlation was defined as R square change that revealed by how much the relationship will change when a predictor which is controlled in Part correlation r_1 was introduced to yield a proportional reduction or increase in result r_2 (Amin, 2005, p. 412). Partial correlation coefficient was used to establish the change in R^2 change from r_1 (Part Correlation) to r_2 when the predictor client's response was introduced in order to establish the influence of client's response to IRP on the relationship between IRP and financial sustainability. The influence was established by interpreting the proportional reduction in R^2 change when the predictor (client's response) was introduced. Change in R^2_{change} denoted by r^2_c is an index that measures a proportion of unexplained variance where $r^2_c = r_1 - r_2$, (Amin, 2005),   where

$r_1 =$ R^2 change when all variables but the predictor (clients' response) are included.

$r_2 =$ Change in R^2_{change} when all variables including the predictor (clients' response)

The researcher use d SPSS to derive the part and partial correlation result.

d)   A hierarchical multiple regression (HMR) was fitted using data obtained from both questionnaires and the results were used to answer the hypotheses. R^2 change result was used to answer the fourth hypothesis which was stated in the study. Andyfield (2008) suggested a hierarchical multiple regression as suitable to evaluate the relationship between a set of independent and the dependent variable while initially controlling the predictor in model 1 and later taking into account the impact of a moderating variable in model 2 (htt:// www.statisticshell.com /multireg.pdf, 22.12.2009). Factor analysis and descriptive statistics (Appendix XIII, XIV, and XV) , skew ness, kurtosis and standard deviation were established as a condition to establish normality and linearity prior to running a hierarchical multiple regression in order to generate coefficients that were used to test the hypotheses $H4_1$.

The hierarchical multiple regression excluded model was made up of the first block with variables of the interest rate policy namely interest rate determination policy, interest rate application methods and interest income collection methods whose Part and partial correlation results and significance levels (sig.) were used to answer hypothesis $H1_1$, $H2_1$ and $H3_1$. Two models of variables which were a set of control variables entered in the first model 1 and a set of predictor variables added to the first model 1 to derive a second model 2 are used to answer hypothesis $H4_1$ where by R^2 change from model 1 to model 2 when predictor variable is added and its statistical level of significance (sig.) is interpreted and used to conclude on hypothesis $H4_1$. The change in R^2 is the effect of predictor power on the relationship under study when the moderating variable was added to the first model and is stated as a percentage (http://www.nursing.ucdenver.edu .pdf, 22.12.2009). The researcher used SPSS to perform a hierarchical multiple regression.

3.11.2   Analysis of data from documentary review.

Data from documentary review was categorized using a researcher's notebook   as part of qualitative data. Text was recorded and ratios were generated in accordance to IRP and FS and analyzed alongside the correlation matrix to corroborate in making conclusions, inferences and determining relationships between variables. The correlations were corroborated by ratios and trend graphs being continuous data to accept or reject hypotheses and answering the research questions as recommended by Rosenberg (1968) as in Punch, (2000).

3.11.3 Analysis of data from face to face interviews.

Data from face to face interviews was recorded, summarized and analyzed using a generalization table to establish patterns without omissions as recommended by Denscombe (2000). Interviewee responses were categorized using frequencies to establish the number of times an attribute is mentioned for pattern formation before translation into text form (Appendix XV and XVI).The summarized responses from interviewees were presented in text and used to corroborate the empirical findings during interpretation, and discussion of findings and in constructing recommendations.

3.11.4 Analysis of data obtained by observation.

Observed data on events related to interest income collection methods and FS were written in the researchers note book as they occurred in the researcher's presence. Observable data was recorded, sorted and presented according to study variables that were observable in form of summarized text. Observations were related to the conduct and flow of business at PML by Officials and clients activities in a micro enterprise group was recorded, summarized and referred to during data interpretation, discussion and in making recommendations.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

4.0   Introduction

This chapter summarizes, presents, analyses and interprets findings on the study. The response rate, nominal data , descriptive and inferential statistics from questionnaires are presented using percentages, pie charts, graphs, frequencies, Pearson correlation, part and partial correlation according to objectives and hypotheses besides appending additional tables and figures. A hierarchical multiple regression was fitted, tested and used to analyse and interpret results on the research hypotheses which seeks to substantiate influence of a moderating variable, client's response to IRP on the relationship between interest rate policy and financial sustainability. Qualitative data from interviews, documentary review and observation are presented, analysed, interpreted and triangulated with quantitative data after inferential statistics per objective to interpret data on the relationship between IRP and financial sustainability.

4.1   Response rate.

The researcher received a total of 85 returned questionnaires out of 110 questionnaires distributed comprising; senior executives (4/5), finance and branch managers (11/20) and repeat clients (70/86) respectively. A total of 85 questionnaires received indicated a response rate of 77% as per calculation below (Figure 3).

Response rate   =   received questionnaires and responses   x   100, =   85   x 100   = 77%.

Total questionnaires distributed   110

The response rate of 77% compared with $\geq$ 50% response rate recommended by Mugenda & Mugenda (1999) was satisfactory to undertake data analysis.

Figure 3:   **Response rate by category of respondent.**
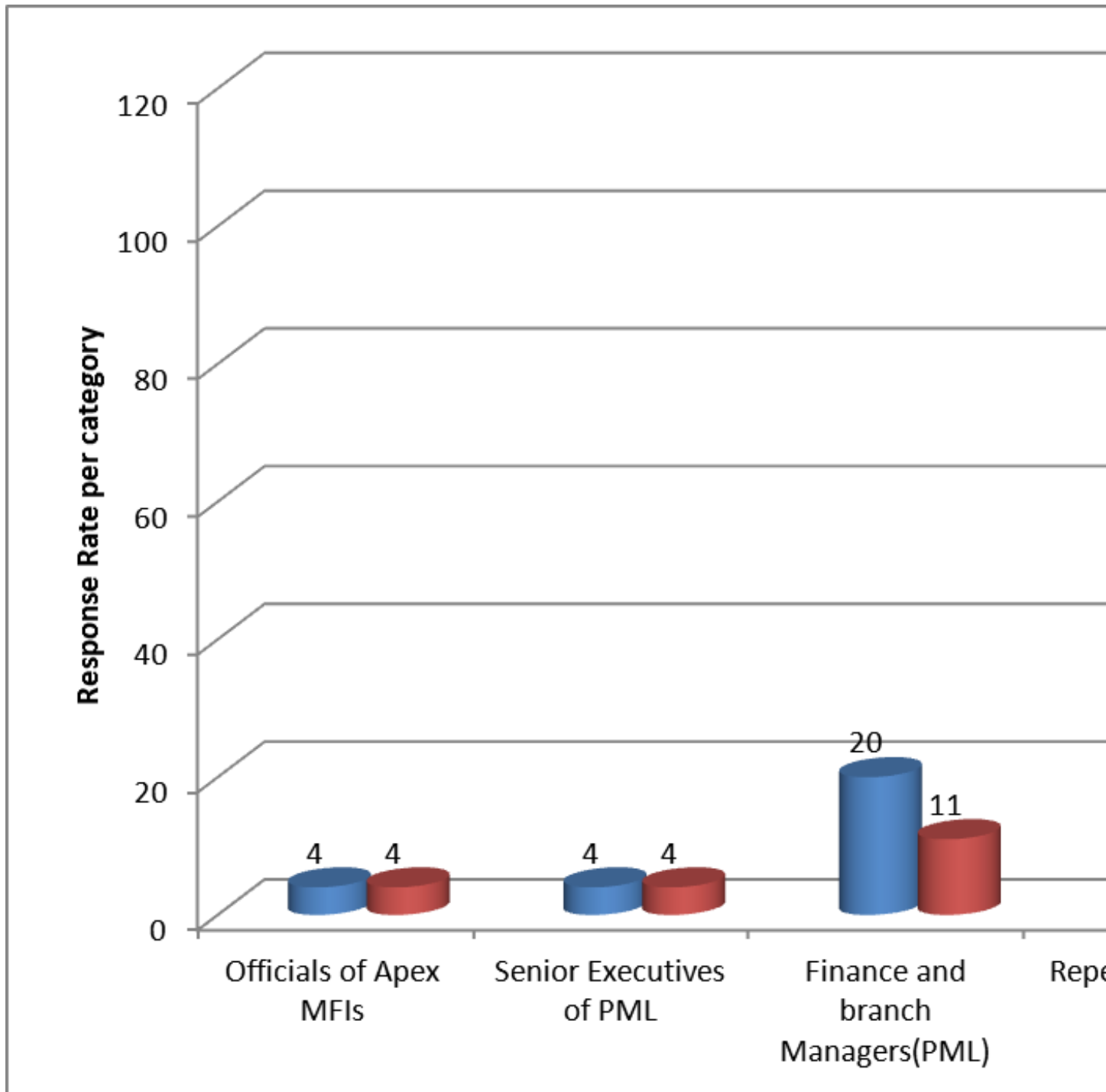
Source: Primary data, (PML).

4.2   Nominal data from the study elements.

This section explains key attributes of the respondents; officials of PML and repeat clients of PML according to position held in the organization, experience in years in management and governance of PML, type of micro enterprise and loan cycle for repeat clients, all of which are believed to affect the relationship between interest rate policy and financial sustainability and the results are interpreted as related to study variables.

Table 7:   Officials of Apex instit, senior executives of PML by position and experience.

Category of respondent. / Nominal item measured	7a) Office position.					7b) Experience in years.				
	Board	Senior execut.	Finance	Branch	Total	≤ 2	2-4	≥ 5	Missing	Total
Officials of Apex Institutions.	-	4	-	-	4		1	3	-	4
Senior Executives (PML).	1	3	-	-	4			3	1	4
Branch Managers (PML).	-	-	2	9	11	2	2	5	2	11
Total	1	7	2	9	19	2	3	11	3	**19**

Source: Primary data, (PML).

4.2.1   Senior executives, finance and branch managers of PML by experience.

Out of the 19 respondents (table 7), who were Officials of Apex institutions, Senior executives, finance and branch managers of PML, five, 5(33 %) of the officials had experience

above 5 years in management and governance of the MFIs. The other 33 % had 2-4 years experience in management and governance of MFIs while 2(13%) had management and governance experience below 2 years. The officials who responded to the self administered questionnaires and interviewees had significant management and governance experience on the job and this explained quality management efficiency indicators such as 98% recovery rates, increasing credit officer's workload, reducing portfolio at risk and clients retention at PML which indicated that management experience contribute to improve the relationship between interest rate policy and financial sustainability.

4.2.2   Senior executives, finance and branch managers by position held.

Out of 15 respondents who were officials of PML, the Board of Directors comprised 1(7%), senior executives 3 (13%) and 11(73 %) were finance and branch Managers respectively. The 60% respondents were branch managers, distributed in branches of which 20 were targeted but 10 returned the questionnaires on time. It is believed that since data was collected across the top and middle structure, all representative data to answer research questions on interest rate policy was collected (Table 7). There was distributed involvement by all key officials of PML; Board members, senior executives, finance and branch managers in interest rate policy matters and implementation which is a pillar of financial sustainability of an institution.

4.2.3   Figure 4: Clients' respondents by Loan cycle and financial sustainability.
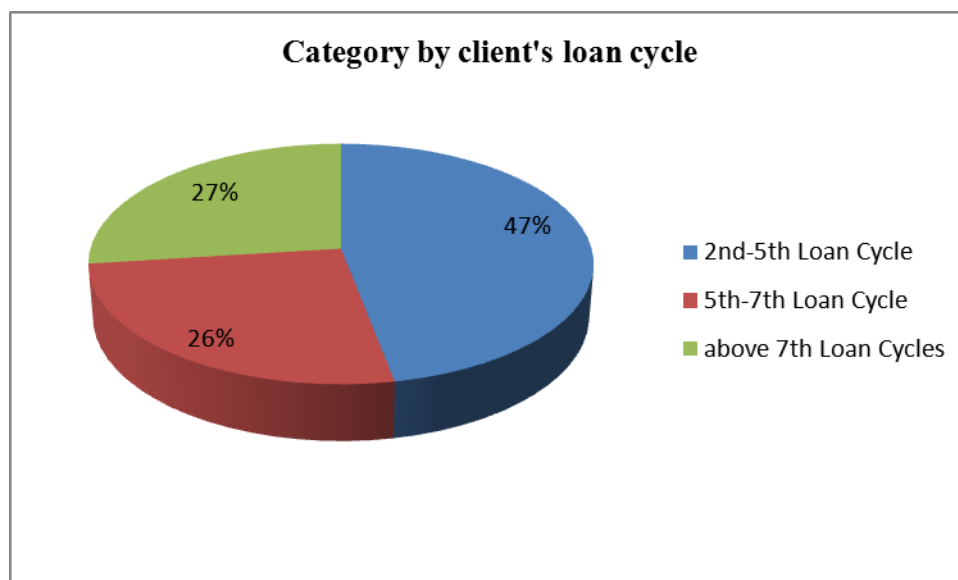
Source: Primary data. (PML)

Figure 4 above showed that 33 (47%) of the client respondents were in the second to forth loan cycles, 18 (26%) of the clients respondents were in the fifth to seventh loan cycle and 19 (27%) of the clients respondents had borrowed over seven times. These statistics meant that client retention was high, and therefore, cost per loan made was reducing as loan cycles increased due to economies from repeat borrowings such as increasing loan size, hence the administration expense was reducing which improved financial sustainability of PML.

Table 8: Client respondents by type of collateral pledged to PML.

No.	Collateral pledged.	Frequency (f)	Percentage.
1	House hold chattels	43	61
2	Investment Assets and business stock	11	16
3	Land and other assets with title.	8	11.5

4	Mandatory savings & co guarantee.	8 (70)	11.5
	Total.	**70.**	**100.**

Source: Primary data on PML (2009).

According to statistics (Table 8), 43(61%) of clients respondents had pledged house hold chattels to access loans. Another 11(16%) repeat clients had pledged micro enterprises business stock and farm assets as their business were progressive. Eight 8(11.5%) of the clients had pledged land and investment assets with tittles. Although all the repeat client respondents had to have mandatory savings in order to access loans, 8(11.5%) repeat clients respondents had only mandatory savings and co guarantors to access a loan at PML without pledging any other asset. As much as peer pressure and co guarantee are the basis of loan decisions, the MFI still required pledged collateral of both household nature and commercial to fully secure the portfolio in order to minimize loan losses which ensured financial sustainability in the event of default.

4.2.4 Distribution of client respondents by micro enterprises loaned.

Table 9 below shows the frequency of client respondent by micro project loaned. Cumulatively, 70(100%) of the client respondents had borrowed towards varied micro enterprises for income generation. The major categories of micro enterprises are retail services, animal husbandry, tailoring and cloth vendors, food stocks and restaurants, transport, and

services and scrap vendors. A financially sustainable MFI lends more towards promoting micro enterprises which yield a reliable routine income to the client from which subsequent loan repayments are made and the interest rate policy was found more effective on small scale enterprises (SME) that generate the interest income other than paying from other sources. This explained the high repayment rate above 98% at PRIDE Microfinance Ltd.

Table 9:   Repeat clients respondents by type of micro enterprise loaned.

	Type of Micro Enterprise loaned to the client	Frequency (f)	Percentage.
1	Retail shops and services	25	36
2	Animal husbandry and products retailing	3	4.5
3	Tailoring and cloth vendors services	14	20
4	Food vendors, food staffs and restaurants	15	21
5	Transport service, newspapers and secretarial	10	14
6	Scarp vendor services	3	4.5
	Total	70	100

Source: Primary data.

4.3   Findings on the interest rate policy and financial sustainability

This section presents both quantitative and qualitative data per study objective following the data collection methods used namely questionnaires, face to face interviews, documentary review and observation.

4.3.1   Interest rate determination policy and financial sustainability.

The objective was to establish the effects of interest rate determination policy on financial sustainability of PML. Interest rate determination was studied according to dimensions of the administration expense rate, loan loss provision rate, cost of funds rate and Capitalisation rate against selected financial sustainability dimensions and indicators. The section presents empirical data to support answer the research question on the relationship between interest rate determination policy and financial sustainability of PRIDE Microfinance Ltd.

4.3.1.1   Descriptive statistics; questionnaire on interest rate determination.

Table 10 below shows the frequency distribution of responses by senior executives, finance and branch Managers of PML (officials of PML) on interest rate determination policy and financial sustainability of PML. The frequency was analysed according to the dimensions and indicators of the interest rate determination variable below.

Out of 3 questions administered on the administration expense rate as a component in the interest rate policy for financial sustainability , the average frequency was 11 (73%) agree, 2(13.3%) undecided and 2(13.3%) disagree on whether the administration expense rate when included in the determination of the interest rate in the interest rate policy improved financial sustainability. The frequency on agree in table 10 on administration expense rate is in agreement with the mean distribution 3.7 close to the median, and mode of 4 implying agree along the likert scale used as per the descriptive statistic on interest rate determination which respondents opinion meant that the administrative expense rate in the IRDP improved financial sustainability.

Three questions were set to measure the response on loan loss provision rate in the interest rate determination policy. Average frequency on loan loss rate variable tallied 9 (60%) agree, 2(13%) undecided and 4(27%) disagree by the officials of PML respectively. This implied

that the variable loan loss provision rate when included in the interest rate determination in the interest rate policy improved financial sustainability. The frequency result of 9(60%) agree was close to 4 on the likert scale and equal to the mode and median. Accordingly, 60% of the respondents agreed that the loan loss rate component in the interest rate policy improved FS.

From table 10 below, the cost of funds component was measured by four questions of which, the average frequency result were 12 (80%) agree, 2(13%) undecided and 1(7%) disagree respectively. The 12 (80%) agree was close to the mean of 3.7 and mode and median of 4 on a likert scale which implied that officials agreed that the cost of funds rate variable when included in the interest rate determination in the interest rate policy   improved financial sustainability.

Four questions were administered on the Capitalisation rate and the average frequency on the Capitalisation rate variable in the interest rate determination was 10 (67%) agree, 2(13.3%) undecided and 2(13.3%) disagree respectively by senior executives, and branch managers of PML ,which implied that the Capitalisation rate in the interest rate determination policy improved financial sustainability.

Table 10: **Frequencies on interest rate determination policy, Officials of PML.**

Interest rate determination policy	Measuring scale						Descriptive statistic		
Number of respondents = 15	AGREE		UNDECIDED		DISAGREE		Mean	Standard deviation	Skewness
Average indicator and dimension	Freq. (F)	%ge	Freq. (F)	%ge	Freq. (F)	%ge			
Administrative expense rate	11	73	2	13.3	2	13.3			
Loan loss provision rate	9	60	2	13	4	27			
Cost of funds rate	12	80	2	13	1	7			
Capitalisation rate	10	67	3	20	2	13			
Average on interest rate determination policy.	11	73.3	2	13.3	2	13.3	3.7	0.560	0.357

Source: Primary data

Standard error = 1.121, Kurtosis = 0.580, Mode = 4, Median = 4, Sum F = 58

Strongly agree and agree analysed as agree, dis agree and strongly disagree analysed as disagree, undecided and none response analysed as undecided.

The aggregate and cumulative frequency on interest rate determination policy considering all its constructs as conceptualized in the study was 11 (73.3 %) agree, 2(13.3%) undecided and 2(13.3%) disagree by senior executives, finance and branch managers of PML . The average result of the frequencies, 11(73.3%) agree (Table 10) is in agreement with the descriptive statistic mean of 3.7 which is close to 4 on the likert scale used as agree, and equal to the mode and median of 4 . The standard deviation 0.560, skewness of 0.357 and kurtosis of 0.560 were all within a range -1 to 1, which suggested that data was a normal distribution that supported a Pearson correlation to be performed so as to establish the relationships. The frequency was also in agreement with the rotational component factor matrix whose percentage variance indicated that interest rate determination policy contributed 18.07% in the interest rate policy which improved financial sustainability (Appendix XIIa and XIIb). Accordingly, senior executives finance and branch managers of PML agreed that the interest rate determination policy in the interest rate policy improved financial sustainability.

4.3.1.2   Pearson correlation: Interest rate determination policy and financial sustainability

 The research sought to establish the effects of interest rate determination policy on financial sustainability (FS) of PML. Both dimensions and indicators of the interest rate determination policies and financial sustainability variables were correlated using the Pearson product moment correlation as in tables 11 and 12.

From table 11 below, the aggregated Pearson correlation coefficient was r = 0.685**, sig. = 0.002. The result showed that interest rate determination policy in the interest rate policy had a positive and linear relationship with financial sustainability and its calculated coefficient of determination was $r^2 = 47\%$.

Table 11:   **Pearson Correlation on interest rate determination and financial**

sustainability.

Particular	Variable	Financial sustainability	r^2
Pearson Correlation (r)	Interest rate determination	.685**	
Sig. (1- tailed)	Interest rate determination	.002	47%
N		15	

**   Correlation sig. at 0.01, r^2 = Coefficient of determination.

Source: Primary data.

The coefficient of determination r^2 = 47% implied that interest rate determination policy r = 0.685, sig. = 0.002, had a positive linear relationship and significantly accounted for 47% variations in FS of PML. Financial sustainability was low when the interest rate determination policy was not tailored, but when the interest rate determination policy (IRDP) was in place and implemented, financial sustainability improved.

4.3.1.2.1   **Pearson correlation on interest rate determination indicators**

Table 12 below are the Pearson correlation results on the indicators of the interest rate determination policy and financial sustainability in depth and are used to present detailed findings below on the relationship between IRDP and financial sustainability.

Table 12:   **Pearson correlations on interest rate determination indicators and financial sustainability indicators**

Variable/indicator IRP / Variable/Indicator FS		Admin Expense rate (AE)	Loan Loss Provision rate (LL)	Capitalisation rate (K)	Cost of funds rate (CF)
Operating costs,	Pearson	.214	.554*	.472	.221
,	Sig.	.440	.032	.075	.429
Loan Loss Provision.	Pearson	.088	.416	.363	.116
	Sig	.755	.123	.183	.681
Imputed costs of Capital.	Pearson	.130	.479	.473	.176
	Sig	.645	.071	.075	.529
Interest income due.	Pearson	.274	.358	.106	.220
	Sig	.323	.191	.708	.430
Interest income collected	Pearson	.274	.358	.106	.220
	Sig	.323	.191	.708	.430
Interest income arrears.	Pearson	.523*	-.259	-.105	-.092
	Sig	.045	.350	.710	.743
Credit Officers workload.	Pearson	.227	.727**	.419	.461
	Sig	.416	.002	.120	.084
Yield gap.	Pearson	-.226	.245	-.262	.084
	Sig	.418	.378	.346	.766
Recovery rate.	Pearson	-.650*	-.319	-.217	-.901
	Sig	.009	.246	.438	.496
Portfolio at risk.	Pearson	-.180	.600*	.172	.344
	Sig	.521	.521	.539	.209
Operational self sufficiency .	Pearson	-.030	-.148	.058	.051
	Sig	.915	.598	.837	.856
Financial self sufficiency.	Pearson	-.026	-.378	-.414	-.064
	Sig	.927	.165	.125	.820
Number of respondents,	N	15	15	15	15

** correlation significant at 0.01,

* Correlation significant at 0.05.

 Source: Primary data,

The administration expense rate correlation result to operating costs, r = 0.214, sig. = 0.440 (Table 12) showed that administration expense rate was moderately positive and linearly related to operating costs. Its coefficient of determination r^2 = 4.6, implied that administration expense rate accounted for 4.6% variations in operating costs on financial sustainability. This

meant that when the administration expense rate was factored in the interest rate policy during the interest rate determination, the resulting interest income covered the operating costs of the MFI and improved financial sustainability. Out of 15 Officials who responded to questionnaire, 8(53%) agreed that the administration expenses rate should be considered in the interest rate determination, 7(46%) of the respondents agreed that the administration expenses rate was below 4(25%) of the portfolio and reducing which was a best practice for financial sustainability

The loan loss provision rate correlation on loan loss provision in cost coverage was, r = 0.416*, sig. = 0.123 (table 12). The result showed that there was a moderately positive linear relationship between loan loss provision rate in the interest rate determination policy and loan loss provisions in the cost coverage of the MFI to be financially sustainable. The coefficient of determination, r^2 = 18% indicated that loan loss provision rate in the interest rate determination policy explained 18% variations in financial sustainability though insignificant. When loan loss provision rate was factored in the interest rate determination, the interest income generated profitably covered the loan loss provision and improved financial sustainability. From frequencies, 11(73%) of the respondents agreed that loan loss rate should be considered in determining the interest rate at PML.

The Capitalisation rate as an indicator of interest rate determination on imputed costs correlated the Pearson r = 0.473, sig. = 0.075, (Table 12). This showed that the Capitalisation rate in the interest rate determination policy was positive and linearly related to the imputed costs of the MFI and its coefficient of determination r^2 = 23% implied that Capitalisation rate explained 23% in variation of financial sustainability as a result of the imputed costs though it was insignificant. The Capitalisation rate in the IRDP on financial self sufficiency correlated r = - 0.414, sig. = 0.125, with its coefficient of determination r^2 = 17.2. This showed that the

Capitalisation rate in the interest rate determination had a negative linear effect on the imputed cost of capital to the MFI and explained 17.2% variations on financial self sufficiency though insignificant. It therefore implied that when the Capitalisation rate was factored in the interest rate determination, the imputed costs on capital were provided for against the portfolio corrosion which improved financial sustainability.

The cost of funds rate in the IRDP on operation costs correlated r = 0.221, sig. = 0.429, which was moderately positive, linear and explained 5% variations in operation costs. This implied that when the cost of funds rate was factored in the interest rate determination policy, then the resulting interest income covered financing costs which are part of the operation costs and thus the MFI was able to trade on commercial loans, recover the cost of funds invested and account for the cost of grants and subsidies accordingly which improved financial sustainability.

The cost of funds rate in the IRDP further correlated to operation self sufficiency on profitability with the Pearson r = 0.051, sig. = 0.856, which was positive and linearly related while accounting for 2.6% variations on operational self sufficiency though very insignificant. This showed that the cost of funds rate had a positive effect on operational self sufficiency which improved financial sustainability of the MFI.

The Pearson for cost of funds rate in the IRDP on financial self sufficiency was negative with its correlation, r = -0.064, sig. = 0.820, and its coefficient of determination, r^2 = 0.4%. This further showed that the cost of funds rate had a counteracting negative effect on the forces of inflation towards the capital of the MFI and the cost of funds must be reducing to improve financial sustainability though the result was insignificant. 93% respondents on questions 7, 8 and 82 had agreed that the cost of funds should be considered in determining the interest rate

and that the cost of funds at PML were on a reducing trend and less than 15% of the loans portfolio.

4.3.1.4   Hypothesis H1$_1$: Interest rate determination policy positively affected financial sustainability.

The alternative hypothesis conceptualized by the researcher stated that interest rate determination policy positively affected financial sustainability of PML denoted (H1$_1$). The null hypothesis denoted by (H1$_o$) stated that there was no relationship between interest rate determination policy and financial sustainability of PML at significance level, alpha (α) = P (Ho) = sig. 0.05. Using an excluded model and regression result on the self administered questionnaire (Table 23), the partial correlation result was r = 0.662, sig. = 0.010 which was less than the stated α = P (Ho) = 0.05. Since the tested null hypothesis was 0.010, less than the stated level of significance, the null hypothesis was rejected while the alternative hypothesis that stated that interest rate determination policy positively affected financial sustainability was upheld. The coefficient of determination from Pearson   correlation supported to accept the alternative hypothesis result as true by triangulation that found that the interest rate determination policy significantly accounted for   47% variations in financial sustainability in a positive direction at sig. = 0.010.

4.3.1.3   Face to face interviews with Officials of Apex Institutions and Officials of PML on interest rate determination.

Unstructured face to face interviews with officials of selected Apex institutions namely AMFIU, Microfinance Support Centre Ltd, Bank of Uganda and Uganda Institute of Bankers and the officials of PRIDE Microfinance Ltd comprising of senior executives, finance officers

and branch managers were conducted. The Apex institutions kept record and monitoring of conduct of MFI business besides regulating the operating environment and microfinance best practices and therefore were vital to be interviewed while the senior executives of PML designed policies and its implementation at the PML institution of case study.

4.3.1.3.1   **Interviews with Officials of Apex institutions on interest rate determination and financial sustainability**.

The objective of interviewing officials of Apex institutions was to establish the interest rate determination criteria and composition by PML from the Apex institutions point of view.

From Appendix XV, Each of the 4 (100%) interviewees representing the Apex institutions on interest rate determination, stated that each MFI determined its own interest rate charged in a liberalized environment but added that the MFIs in Uganda did not have fully documented cost composing interest rates and have no precisely detailed documented interest rate policies in place that could be shared. This implied that though MFIs/MDI had the choice to determine interest rate to their institutions for financial sustainability in a liberalized environment and under the current MDI Act 2004 regulation, PML hadn't undertaken interest rate determination and composition and yet it would reverse the financial un sustainability trends.

Interviewee Officials of Apex Institutions revealed that it was mandatory that each MFI/MDI submits the interest rate charged on loans and further displays it in the public as a supervisory and regulatory requirement.

4.3.1.3.2 **Interviews with senior executives, finance officers and branch managers of PML on interest rate determination and financial sustainability.**

The objective was to establish whether the PML had interest rate determination policy and its composition rates in place from the officials of PML. Interviewees, 2(20%) representing senior executives in the treasury at PML (Appendix XVI) disclosed that the treasury bill rate and weighted risk of capital formed a basis of interest rate determination at PML but at the same time were among the 10 (100%) interviewees who stated that the interest rate composition following the cost analysis of the MFI was not known and similarly stated that there was no detailed interest rate determination policy, shared nor in place at PML.

The interviewees 10(100%) at PML further revealed that the treasury bill rate was the base that guided interest rate charged and was 100% supported by a similar response in interviews with officials at apex institutions who had stated that no MDI was charging below treasury bill rate. The interviewees at PML further admitted that there has never been a revised interest rate at PML since 2004 despite basing on the fluctuating Treasury bill rate as a base. The interest rates charged namely 30% per anum and 25% per anum were quoted for GGS and ILS loan products.

Senior executives and branch managers interviewed declared that there was no interest rate determination policy neither documented nor shared and they did not know the composition rates of the interest rates charged.

Officials explained in an interview that due to recruitment of new officers in an expansion and transformation proces to take off, the credit officers workload was tending to reduce to 350 clients per credit Officer in 2008 and was on a declining trend.

4.3.1.4 Documentary review on interest rate determination and financial sustainability.

Documents reviewed on interest rate determination include portfolio reports, operational manual and credit guidelines at PML, financial statements 2004 – 2008, economic trends (MFPED) and literature review on the report of the working group on micro credit market in India DPDPC, (2007) and repayment schedules.

The documents relating to interest rate determination at PML were not available to be reviewed and it was explained that they were not yet in place. In the operational manual, the interest rate was quoted and stated but doesn't show its determination. In the financial statements, composition of incomes over costs generated internally was established and trends derived. The treasury bills rates, inflationary trends were also analyzed as per figure 6. The credit officers workload was analyzed as it affected administration expense rate (Figure 5).

The Credit Officers workload at PML which contributed greatly to the level of the admnistration expense rate in the interest rate determination policy was analysed to be on an increasing trend from 200 clients per credit officer in 2004 to 400 on average in 2007. Though it was still within the microfinance best practice and an indicator that there was a significant level of management efficiency, the ratio ought to be increasing tending towards 500 clients per credit officer given advancement in technology and methodology (Christen, 1997). The ability of credit officers to have an increasing number of repeat borrowers besides customer retention reduced cost per loan made hence reducing admintration expence rate to achieve financial sustainability (Youssofou ,2002; figure 5).

Figure 5.   **Credit Officers workload on PML, 2004 – 2008.**
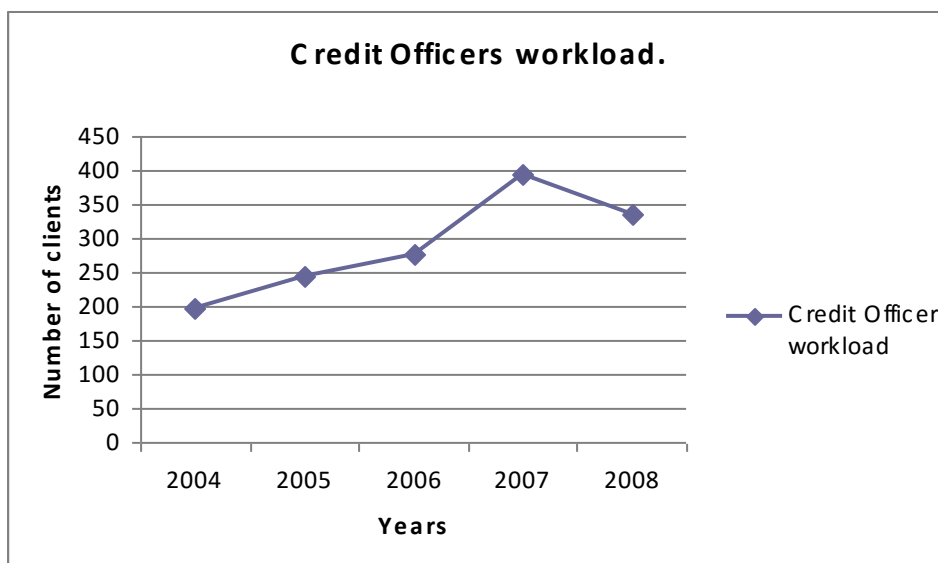
Source: Secondary data. PML Final Accounts, 2004 – 2008, Appendix XIc

Documentary review 2004 – 2008 on operational manuals and MFPED background to the budgets in relation to the cost of funds rate in the interest rate determination policy showed that while the Treasury bill rate had been changing over the period from 4% in 2004 to 13% in 2008, the interest rate charged by PML was constant at 30% and 25% GGS and ILS respectively. This implied that PML in practice did not utilize the prime rate for the interest rate determination as depicted in figure 6 below (Fernando, 2006; PML Final accounts 2004 – 2008). Section 3.13 of MDI regulations Act 2004 mandates MFIs to carry out a gap analysis of such trends to detect and avoid loss to improve financial sustainability but this has not been done.

Figure 6.   **Economic Trend; Inflation rate and Treasury bill rate, 2004 - 08**
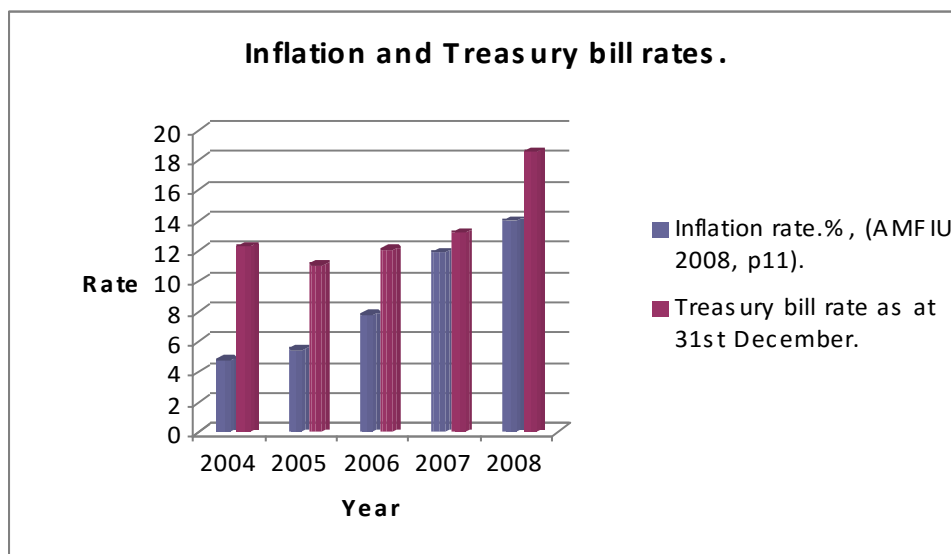
Source: Secondary data. Final Accounts(2004 – 08); MFPED, 2004/5 – 2008/9.

        While it was also analysed from notes to accounts that the net interest income over costs

was a loss position in 2005 – 2008, while controlling the effects of operational grants, subsidies

and other   investment incomes in the statistics (Figure 1 ,p.8; Figure 7, p. 87).   The cost

structure was graphically analysed to be constant depicting good cost control policies by

management over the years 2004 – 2008. It implies that the low profitability trend was caused

by the conceptualized interest rate policy of PML which made interest income generated and

collected lower than the costs.

Figure 7:   Cost analysis and imputed cost of capital for PML, 2004 – 08.
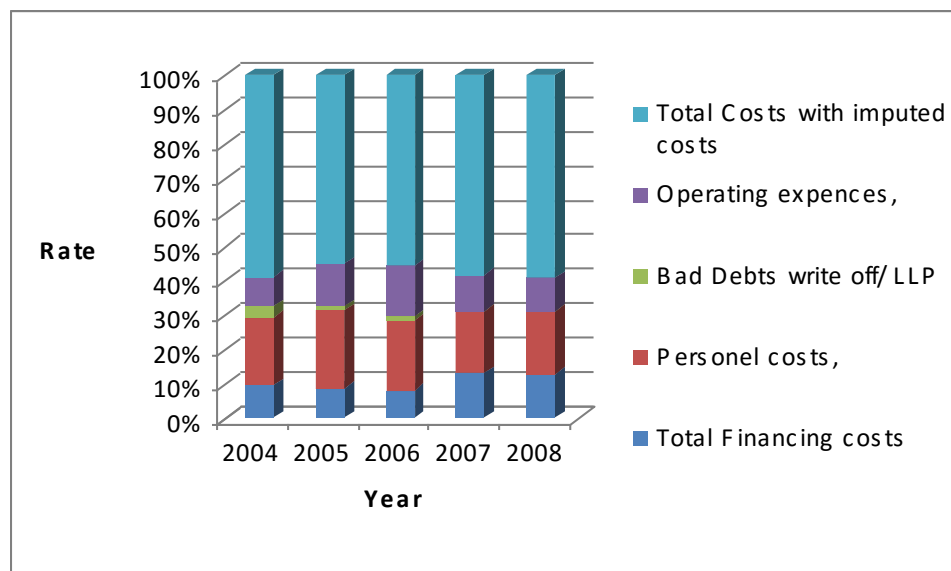
Source: Secondary data. Notes to accounts 2004 – 2008, PML, Appendix XIa

Figure 7 depicts cost analysis with consideration of cost of inflation (imputed cost of capital) in the capitalisation rate. Financing costs were analysed to be less than 10% of the total costs, personnel costs the most direct costs accounting for 20% operational costs in the cost coverage average. The provision for loan losses was analysed to be 5% and reducing while operating expenses accounted for 10 – 15% of the total costs. The MFI would only achieve financial sustainability if the interest rate policy generated sufficient interest income to cover the aggregate of costs including the imputed cost of capital. From the analysis, there is evidence that the PML had effective cost controls depicted by a constant trend in costs above which could have improved financial sustainability had it generated sufficient interest income (Figure 7).

4.3.1.6   **Integration of quantitative and qualitative data on interest rate**

determination policy and financial sustainability.

In the descriptive statistics, the aggregate frequency on interest rate determination was 11(73.3%) agree by officials of PML that the interest rate determination policy had an effect on financial sustainability of PRIDE Microfinance Ltd. The mean frequency was 3.7 on a likert scale of 5 tending to agree, and standard deviation = 0.560, skew ness = 0.357 and kurtosis = 0.580 were all between -1 and 1 which implied that data was a normal distribution that supported a Pearson correlation. Nominal data revealed that educated and experienced personnel were necessary to design and implement policies that financially sustained the institution through management efficiency (Table 7).

The aggregate Pearson correlation coefficient r = 0.685, sig. 002 and r^2 = 47% implied that the interest rate determination policy in the interest rate policy had a positive linear relationship with financial sustainability and explained 47% FS of PML. Pearson correlation coefficient results for indicators of interest rate determination policy; Administration expense rate, loan loss provision rate, cost of funds and Capitalisation rate were positive and linearly related to financial sustainability. This result was in agreement with the descriptive statistics of 11(73.3%) agree and the mean response close to 4, agree that interest rate determination policy affected financial sustainability.

Interview results from Officials of Apex institutions revealed that although the operation environment was liberalized on interest rates, the Microfinance deposit taking institutions(MDIs) in Uganda to which PML was among, had not documented interest rate determination policies and the composition rates for the interest rate charged were lacking. The interest rate charged at PML was revealed 30% and 25% for GGS and ILS respectively. This was in agreement with

interviews from senior executives, finance officers and Branch managers of PML who stated that the interest rate determination policy and composition rates were neither documented nor available but there was mention of interest rate in the operational manuals. Lack of documented interest rate determination policy was supported by saddened facial behaviour exhibited by interviewees at PML implying that they did not know about it or it wasn't in place.

From documentary review, the interest rate determination policy was not available for review. In the operational manual, the interest rate charged was quoted and in all banking halls of the MFI, interest rate charged were displayed on the walls. In the final accounts, composition of incomes and costs were analysed and used to guide the study on the administration expense rate, loan loss rate, cost of funds rate and Capitalisation rate. The credit officer's workload, Treasury bill rates and inflation trends were analysed to guide the study. The cost structure was analysed to be constant (Figure 7) as opposed to the required reducing trends in administration costs, loan loss provision, and cost of funds for FS to be achieved.

From the results, it is noted that interest rate determination policy had a positive linear relationship, accounting for 47% variations in financial sustainability. Financial sustainability is low when the interest rate determination policy is not tailored, but when the interest rate determination policy was in place and implemented, financial sustainability improved. Interview and documentary review results revealed that the interest rate determination policy and its composition rates were not yet in place nor documented lead the researcher to conclude that the interest rate determination policy accounted for low profitability in the period 2004 – 08.

4.3.2   **The effects of interest rate application methods on financial sustainability.**

The objective was to analyse the effects of interest rate application methods on financial sustainability of PML. Interest rate application methods studied were the dimensions of the declining balance method and flat rate application methods on financial sustainability and its indicators. The section presents empirical data to support answer the research question whether interest rate application methods affect financial sustainability of PML.

4.3.2.1 Descriptive statistics on interest rate application methods

Table 13 below shows the frequency distribution of responses by senior executives, finance and branch managers of PML on whether the interest rate application methods in the interest rate policy affected financial sustainability of MFIs. The interest rate application methods were measured by two indicators, the declining balance method and the flat rate application method. The frequencies are analysed according to the dimensions and indicators of the interest rate application methods and the average (Table 13).

The declining balance method was measured by 4 questions which, the average frequency result was 8(53%) agree, 3(20%) undecided and 4(27%) disagree by the senior executives, finance and branch managers of PML respectively. The result was of 8(53%) agree on a likert scale implied that the officials agreed that the declining balance method once applied in the interest rate policy improved financial sustainability of the MFI. There was 15(100%) disagree as to whether the declining balance method was in use at PML which implied that the declining balance method is not the implemented (question 17). The agree result was above the mean of 3.67 on the likert scale in the descriptive statistic which was close to mode and median of 4.

Table 13:   Descriptive statistics on interest rate application methods and financial sustainability

Interest rate application methods	Measuring scale						Descriptive statistic		
Number of respondents = 15	**AGREE**		**UNDECIDED**		**DISAGREE**		**Mean**	**Standard deviation**	**Skewnes s**
Average indicator and dimension	Freq. (F)	%ge	Freq. (F)	%ge	Freq. (F)	%ge			
Declining balance method	8	53	3	20	4	27			
Flat rate application method	12	80	1	7	2	13			
Average on interest rate application method.	10	67	2	13	3	20	3.6444	0.54869	-0.183

Source: Primary data

Standard error = 1.121, Kurtosis = 0.580, Mode = 4, Median = 4, Sum F = 55

Strongly agree and agree analysed as agree, Disagree and strongly disagree analysed as disagree, Undecided and none response analysed as undecided.

Three 3(20%) of the officials respondents were undecided that the reducing balance method in the interest rate policy would improve financial sustainability because on the outlook, it generated lesser interest income. The other 4(27%) frequency disagreed that the declining balance in the interest rate policy would improve financial sustainability. Since the majority agreed that the declining balance was preferred, it remained contentious to establish its effects on financial sustainability using Pearson correlations.

The flat rate interest rate application method was measured by four (4) questions and the average frequency of 12 (80%) agree, 1(7%) undecided and 2(13%) disagree by senior executives, finance and branch managers of PML showed that it was the method in use. The flat rate method of interest rate application is the method in use and would improve financial sustainability. 1(7%) of the respondents were undecided as to whether the flat rate method of interest rate application in the interest rate policy improved financial sustainability. The other 2(13%) of the officials disagreed that the flat rate interest rate application method in the interest rate policy will maximize interest income to improve financial sustainability.

The aggregated frequency for the declining balance method and flat rate application methods on agree and strongly agree by officials of PML tallied 10 (67%). This is above the mean of 3.67 and close to the mode and median of 4 as depicted in the descriptive statistic (Table 13). The mean deviated from standard deviation by 0.54 which was less than 1 which implied that data was a normal distribution to support a correlation. The descriptive result are in agreement with the 18.4 percentage variance that suggested that the interest rate application methods contributed 18.4% of the interest rate policy that financially sustained the MFI (Table 25; Appendix XIIa). This implied that interest rate application methods in the interest rate

policy were variables that explained variations on financial sustainability of the MFIs. The Pearson correlation results are used to further analyse the effects of interest rate application methods on financial sustainability.

4.3.2.2   Pearson correlation on interest rate application methods and financial sustainability.

Table 15 below presents Pearson correlation result on   interest rate application methods and financial sustainability. The objective was to analyse the effects of interest rate application methods on the financial sustainability of PRIDE microfinance Ltd.

Table 14:   Pearson correlation: Interest rate application methods and FS.

Particular.	Variable	Financial sustainability	r^2
Pearson Correlation (r)	Interest rate application.	.864**	
Sig. (1- tailed)	Interest rate application.	.000	75%
N		15	

** Correlation sig. at 0.01, r^2 = Coefficient of determination.

Source: Primary data. (PML)

The Pearson correlation result on interest rate application methods on financial sustainability was r = 0.864**, sig. = 0.010. The calculated coefficient of determination was $r^2 = 75\%$. The Pearson correlation results showed that there was a very strong and positive linear relationship between interest rate application methods and financial sustainability. The coefficient of determination $r^2 = 75\%$ implied that the interest rate application methods in the interest rate policy significantly explained 75% variations in financial sustainability. This

result implied that financial sustainability is low when the interest rate application method is not tailored, but when the interest rate application method   were tailored, financial sustainability improved. The in depth Pearson correlation coefficients for indicators of the interest rate application methods; the declining balance and flat rate application methods on financial sustainability indicators are additionally presented in table 15.

4.3.2.3   **Relationship between interest rate application method and financial sustainability indicators.**

Table 15 below presents a detailed Pearson correlation result by indicators of the interest rate application methods and financial sustainability.

The declining balance method of interest rate application on interest income due correlated a Pearson correlation coefficient, r = 0.134, sig. = 0.635 on both interest income due and collected by the MFI. This implied that the declining balance method in the interest rate application methods had a moderately positive linear relationship to interest income due and collected for the MFI. The calculated coefficient of determination r^2 = 2% implied that the declining balance method explained 2% variance in the interest income due and collected. The declining balance method correlated a Pearson, r = 0.365, sig. = 0.182 with its coefficient of determination r^2 = 13.4% on interest income in arrears. With a higher Pearson correlation coefficient than on interest income due and collected, this showed that the declining balance method of interest rate application had a moderately positive linear relationship in the interest rate policy and explained 13.4% variation in interest income in arrears for financial sustainability. This implied that the declining balance method in the interest rate policy reduced interest income in arrears to improved financial sustainability.

Table 15: **Pearson correlations for interest rate application method indicators and financial sustainability indicators.**

Variable/indicator IRP		Declining balance method	Flat rate application method.
Operating costs,	Pearson	.315	.303
	Sig.	.253	.272
Loan Loss Provision.	Pearson	.371	.372
	Sig	.174	.172
Imputed costs of Capital.	Pearson	.303	.094
	Sig	.272	.738
Interest income due.	Pearson	.134	.681**
	Sig	.635	.005
Interest income collected	Pearson	.134	.681**
	Sig	.635	.005
Interest income arrears.	Pearson	.365	.292
	Sig	.182	.291
Credit Officers workload.	Pearson	.093	.321
	Sig	.743	.243
Yield gap.	Pearson	.134	.272
	Sig	.635	.327
Recovery rate.	Pearson	.033	.263
	Sig	.906	.343
Portfolio at risk.	Pearson	.194	.201
	Sig	.489	.473
Operational self sufficiency.	Pearson	.306	-.067
	Sig	.268	.811
Financial self sufficiency.	Pearson	.453	-.232
	Sig	.090	.405
Number of respondents	N	15	15

**, correlation significant at 0.01,   * Correlation significant at 0.05.

Source: Primary data.

The declining balance method in the IRAM on operational self sufficiency rated a PCC, $r = 0.306$, sig. $= 0.268$, and $r^2 = 10\%$, which implied that the method had a positive linear relationship with OSS and explained 10% of variations and consequently improved FS. The declining balance method further more loaded a Pearson correlation , $r = 0.453$, sig. $= 0.090$ and coefficient of determination $r^2 = 21\%$ on financial self sufficiency of the MFI, implying that the declining balance method had a positive linear relationship to FSS and explained 21% variations in financial self sufficiency of the MFI though insignificant.

The flat rate application method of interest rate application on interest income due and collected correlated a Pearson of $r = 0.681^{**}$, sig. $= 0.005$ with its coefficient of determination $r^2 = 46.4\ \%$ which implied that there is a strong positive linear relationship between the flat rate application method and income generation and significantly explained 46% variations in income generation for financial sustainability. This implied that the flat rate application method had a strong positive linear relationship on interest income due. The flat rate method of interest rate application on interest income in arrears correlated a Pearson, $r = 0.292$, sig. $= 0.291$, with $r^2 = 8.6\%$. This implied that the flat rate method had a moderately positive linear relationship and explained 8.6% variations in interest income in arrears in the MFI though not significant.

The flat rate application method on operational self sufficiency (OSS), correlated a Pearson $r = -0.067$, sig. $= 0.811$ and its calculated coefficient of determination was $r^2 = 0.5\%$. The result implied that the flat rate application method in the IRP had a negative linear relationship on OSS of the PML. PML could not achieve operational self sufficiency using the flat rate application policy..

The flat rate application method on financial self sufficiency (FSS) correlated a Pearson, r = -0.232, sig. = 0.0.405 and its calculated coefficient of determination was $r^2 = 5.4\%$. The flat rate application method in the interest rate policy explained 5.4% variation and failure to achieve financial self sufficiency by PML. This meant that since the flat rate application method was the policy in place, financial self sufficiency was negatively affected which reduced financial sustainability.

The result implied that the flat rate application method in the IRP has a negative linear relationship on financial self sufficiency of the PML and if the flat rate application method is the policy in use, then FSS is negatively affected while the declining balance method had a positive linear relationship and improved OSS and FSS for financial sustainability.

4.3.2.4   Hypothesis H2$_1$: The interest rate application methods significantly affect financial sustainability of PML.

The alternative hypothesis on interest rate application methods as conceptualized by the researcher stated that the interest rate application methods significantly affected financial sustainability of PML. The null hypothesis (H1$_{o)}$ stated that the interest rate application method did not affect financial sustainability of PML at significance level, alpha (α) = P (Ho) = sig. 0.05. Using an excluded model of the regression result on the self-administered questionnaire (Table 23), the partial correlation result of the regression was r = 0.858, sig. = 010. The calculated coefficient of determination $r^2 = 74\%$ implied that interest rate application methods significantly accounted for 74% financial sustainability in a strong positive linear direction at sig. = 0.010 which was far less than the stated $\alpha = $ P (Ho) = 0.05. Since the tested null hypothesis was 0.010, less than the stated level of significance, the null hypothesis was rejected while the alternative hypothesis that stated that interest rate application methods

affected financial sustainability was upheld as true. If the interest rate application methods and its effects in the interest rate policy maximised interest income, operational and financial self sustainability, it affected financial sustainability positively and the reverse is true.

4.3.2.5 Face to face interviews with Officials of Apex Institutions and Officials of PML on interest rate application methods and financial sustainability.

Interview results for unstructured face to face interviews with officials of selected Apex institutions and the officials of PRIDE Microfinance Ltd are presented below.

4.3.2.5.1 Interviews with Officials of Apex Institutions on interest rate application methods.

The objective was to establish the effects of interest rate application methods on financial sustainability of MFIS/MDIs from Apex institutions point of view.

Interviewees, 2(50%) of the Officials of Apex institutions revealed that the interest rate application methods were liberalized, and were being applied by MFIs competitively against each other. 2(50%) of the officials stated that PML was implementing a flat rate application method .

Interviewees, 3(75%) Officials of Apex institutions stated that the flat rate application method faced criticism from the public that it robes off client's welfare in form of high interest expense and reduced investment income. While the reducing balance method faced a mathematical calculation problem to clients to understand and appreciate (Appendix XV)

4.3.2.5.2 Interviews with senior executives, finance and branch managers of PML on interest rate application methods and financial sustainability.

The objective was to establish the effects of interest rate application methods on financial sustainability of PML. Ten, 10(100%) out of 15 response from senior executives of PML on interest rate application methods stated that the flat rate interest rate application method was implemented. The interviewees further stated that the flat rate application method was not maximizing interest income generation to sustain the institution and that the method was facing negative criticism from the public that it deprived off clients welfare and investment income through constant interest expense instalments through the loan period (Appendix XVI).

Officials of Apex institutions and senior executives of PML were in agreement that the interest rate application methods are a competitive tool in MFIs and that the flat rate application methods was under high criticisms that it leads to low customer retention and had affected the financial sustainability of PML negatively.

4.3.2.6.   Documentary review on interest rate application methods.

From the operational manuals of PML (2008), the flat interest rate application method is stated as the interest rate application method in use and guidelines besides client's repayment schedules show that the interest rate application of the policy yields equal interest income instalments (receivables) per loan cycle. From the repayment schedules of repeat clients obtained from the credit officers of PML and at the micro enterprise group, which are followed by group members to effect payments, the interest expense instalments are equal through the loan period. From figure 1, the financial statements 2004 – 2008, analysis of interest incomes to costs show that the flat rate interest rate application method in place does

not maximize interest income charged to enable PML achieve financial sustainability but instead, total costs overrode total interest income hence causing low profitability and loss.

4.3.2.6 Integration of quantitative and qualitative data on interest rate application methods and financial sustainability.

From the descriptive statistics, the aggregate frequency on interest rate application methods was 10(67%) agree by senior executives and branch managers of PML that the interest rate application method affected financial sustainability of PML. The mean was 3.6 on a likert scale of 5 which confirms the agree response. The standard deviation, 0.548, skewness of -0.183 and kurtosis of 0.580 were all between -1 and +1 which implied that data was a normal distribution which supported to perform a Pearson correlation and the officials of PML agreed that the interest rate application method in the IRP affected FS (Appendix XIII).

The Pearson correlation result, r = 0.864**, sig. = 000 and its calculated coefficient of determination r^2 = 75% implied that interest rate application method in the interest rate policy had a strong positive linear relationship and explained 75% variations in financial sustainability of PML. The Pearson correlation for indicators of the declining balance application method was positive and linear while the Pearson correlation for the flat rate application method was negatively linear to financial sustainability. This was confirmed by the descriptive statistic where 10(67%) of respondents agreed with the mean = 3.6 on a likert scale that interest rate application methods affected financial sustainability. The alternative hypothesis $H2_1$ was approved at sig. = 0.000 which was less than 0.05 to confirm that the interest rate application method affected financial sustainability.

Results from interviews revealed that the flat rate application method was implemented and it did not maximize interest income to improve FS of PML besides facing

negative criticism from stakeholders that the interest paid was high as stated by the interviewees. The interview result was confirmed by evidence of Pearson correlation r = -232 for flat rate application method on FSS and failure of internally generated revenue to cover aggregated cost for OSS and FSS in documentary review. The declining balance method which was not implemented by PML correlated moderately positively with OSS and FSS suggesting that if it was implemented, PML would have achieved FS (Table 16).

The result found that financial sustainability was low when the flat rate application method was the policy in use, but when the declining balance method was implemented, financial sustainability improved.

4.3.3   Examining interest income collection methods and financial sustainability.

The objective was to examine the relationship between interest income collection methods (IICM) and financial sustainability of PML. Interest income collection methods dimensions had indicators; upfront interest income collection method, interest income due method and the interest income in arrears method against financial sustainability indicators. The section presents empirical data to support answer the research question on the relationship between interest income collection methods on financial sustainability.

4.3.3.1   Descriptive statistics on interest income collection methods.

Table 17 below shows the frequency distribution of responses by senior executives, finance and branch Managers of PML on whether the interest income collection methods in the interest rate policy affected financial sustainability of PML.

Table 16: **Descriptive statistics on interest income collection methods and financial sustainability.**

Interest income collection methods	Measuring scale						Descriptive statistic		
Number of respondents = 15	**AGREE**		**UNDECIDED**		**DISAGREE**		**Mean**	**Standard deviation**	**Skewness**
Average indicator and dimension	Freq. (F)	%ge	Freq. (F)	%ge	Freq. (F)	%ge			
Upfront interest income collection method.	10	67	4	26	1	7			
Interest income due collection method.	13	86	1	7	1	7			
Interest income in arrears method	10	67	4	26	1	7			
Average on interest income collection methods.	11	73	3	20	1	7	4.08	0.705	-0.162

Source: Primary data

Standard error = 1.121
 Kurtosis = 0.580
 Mode = 4.
 Median = 4,
 Sum F = 61

Strongly agree and agree analysed as agree, undecided and none response analysed as undecided, dis agree and strongly disagree analysed as disagree,

From table 16 above, the upfront interest income collection method as a variable in the interest rate policy was measured by 4 questions and the average responses are 10 (67%), agree , 4 (26%) undecided and 1(7%) disagree by senior executives, finance and Branch managers of PML respectively. The agree frequency at 67% though high was less than the mean of 4.08 which is above the mode and median of 4 as in the descriptive statistic on interest income collection methods and implied that the method improved financial sustainability on the outlook (Table 16). However according to 1(7%) disagree, respondents, upfront interest income collection method reduced client's welfare by depriving them off earlier investment income and hence did not improve the financial sustainability.

The interest income due collection method was measured by 4 questions and its average frequency are 13(86%) agree, 1(7%) undecided and 1(7%) disagree by senior executives, finance officers and Branch managers of PML respectively. There was 100% strongly agree that the interest income due was the method in use at PML and that the method in the interest rate policy improved financial sustainability. It implied that this method was suitable in the interest rate policy to improve financial sustainability.

The interest income in arrears collection policy was measured by 4 questions and the average frequency was 10(67%) agree, 4(26%) undecided and 1(7%) disagree respectively by senior executives, finance and branch managers of PML. This implied that the interest income in arrears collection policies in the interest rate policy improved financial sustainability. There was 100% agree to question 35 (Appendix IV) that zero tolerance on arrears policy at PML was implemented and effective.

The aggregated average frequency on the interest income collection methods in the interest rate policy and financial sustainability was 11 (73%) agree, 3(20%) undecided and 1(7%) disagree respectively by officials of PML. The mean response to this category of Officials was 4.08 tending to strongly agree (5) along the likert scale used. This was above the mode (4) and median (4) response (table 17). The interest income collection method in the component rotational factor matrix rated interest income collection methods highest contribution to the interest rate policy that financially sustained the MFI with percentage variance of 26.232 which implied that interest income collection methods form 26% of the interest rate policy that sustained the institution (Table 25; Appendix XIIa). Responses on questions 28, 29 and 30 (Appendix IV) were 15(100%) agree, 12 (80%) agree and 13 (86%) agree respectively. This implied that officials of PML strongly agreed that the interest income due method and interest income in arrears collection policies were implemented and improved financial sustainability.

4.3.3.2   Pearson correlation on interest income collection methods and financial sustainability.

The research objective was to examine the relationship between interest income collection methods in the interest rate policy and financial sustainability. Table 17 below presents the Pearson correlation result on interest income collection methods and financial sustainability of PML.

Table 17: Correlation table; Interest income collection methods and financial

sustainability.

Particular	Variable	Financial sustainability	r^2
Pearson Correlation (r)	Interest income collection.	.833**	
Sig. (1- tailed)	Interest income collection.	.000	70%
N		15	

** Correlation sig. at 0.01, r^2 = coefficient of determination.

Source: Primary data (PML).

From Table 17 above, the interest income collection methods on financial sustainability correlated a Pearson result, r = 0.833, sig. = .010. The result implied that interest income collection methods in the interest rate policy had a very strong positive linear relationship on financial sustainability. From r = 0.833, sig = .010. The coefficient of determination was r^2 = 70% which implied that the interest income collection methods in the interest rate policy significantly explained 70% variations in financial sustainability of PML.

The result meant that financial sustainability was low when interest income collection methods were lenient to default, upfront and did not accelerate collections of due interest income, but when the interest income collection methods that were stringent to default and that accelerated collection of interest income due were incorporated in the interest rate policy and implemented, financial sustainability improved.

4.3.3.3   Interest income collection methods and financial sustainability indicators.

The Pearson correlation results on indicators of interest income collection methods (IICM) in the interest rate policy and financial sustainability correlation results are presented

in table 18 below to supplement in depth study of the relationship between the variables and

its respective indicators.

Table 18:   Correlations for indicators of interest IICM and financial sustainability.

Variable/indicator IICM Variable/Indicator FS		Upfront collection method	Interest income due method	Interest income in arrears policy
Operating costs,	Pearson	.288	.498	.369
	Sig.	.299	.059	.176
Loan Loss Provision.	Pearson	.358	.326	.426
	Sig	.190	.235	.113
Imputed costs of Capital.	Pearson	.136	.529*	193
	Sig	.628	.042	.491
Interest income due.	Pearson	.603*	.394	.784*
	Sig	.017	.146	.001
Interest income collected	Pearson	.603*	.394	.784*
	Sig	.017	.146	.001
Interest income arrears.	Pearson	-.071	.605*	.147
	Sig	.800	.017	.602
Credit Officers workload.	Pearson	.349	.342	.449
	Sig	.202	.212	.093
Yield gap.	Pearson	.541*	-.297	.618*
	Sig	-.037	.282	.014
Recovery rate.	Pearson	.062	-.077	.201
	Sig	.826	.785	.474
Portfolio at risk.	Pearson	.509	-.103	.508
	Sig	.053	.714	.053
Operational self sufficiency .	Pearson	-.014	.438	.008
	Sig	.959	.103	.976
Financial self sufficiency.	Pearson	-.050	.149	.029
	Sig	.861	.597	.918
Number of respondents	N	15	15	15

 **, correlation significant at   0.01 ,

*,   Correlation significant at 0.05.

Source ;   Primary data,

The upfront collection method on operating costs correlated a Pearson, r = 0.288, sig. = 0.299 on operating costs. This implied that there was a moderately positive linear relationship between upfront interest income collection methods to meeting operation costs of the MFI though not significant. The coefficient of determination r^2 = 9% implied that the method explained 9% variations in operational costs of the MFI.

The correlation of upfront interest income collection method was r = 0.358, sig. = 0.190 on loan loss provision which implied that there was a moderately positive linear relationship between the upfront collection method and loan loss provision, when the upfront interest income collection method was applied, loan loss provisions reduced while paying only principal instalments and this improved financial sustainability.

The upfront collection method further loaded r = 0.681, sig. = 0.005 on both interest income due and interest income collected implying that there was a strong positive linear relationship between the upfront collection method and income due and collected for financial sustainability. When the upfront interest income collection method was applied, interest income due was equal to interest income collected at 100% recovery rate which improved financial sustainability. The coefficient of determination r^2 = 46% showed that the upfront collection method significantly explained 46% variations in interest income due and collected on financial sustainability.

The upfront collection method on the yield gap correlated r = 0.541*, sig. = 0.037 and the calculated coefficient of determination r^2 = 30%. This implied that the method had a positive linear relationship on the yield gap and significantly accounted for 30% variations on the yield gap of the MFI.

The upfront collection method on operational self sufficiency and financial self sufficiency indicators correlated r = -0.014, sig. = 0.959 and r = -0.050, sig. = 0.861 on operational and financial self sufficiency respectively. This implied that the method related inversely with OSS and FSS although the result was at very insignificant level. The coefficient of determination of upfront collection method on OSS and FSS was r^2 = 0.1% and r^2 = 0.3 % for OSS and FSS respectively which showed that the 0.1% and 0.3 % variations in the OSS and FSS were explained by the upfront interest income collection method . When the method is implemented, it indirectly reduced financial sustainability.

The interest income due method on operating costs correlated the Pearson r = 0.498, sig. = 0.059 and the r^2 = 24%. This showed that there was a positive linear relationship between the interest income due collection method and the interest income due which explained 24% variations in meeting operating costs of the MFI.

The interest income due collection method further correlated a Pearson r = 0.326, sig. 0.235 and a calculated r^2 = 11% on loan loss provision implying that the method had a positive linear relationship to loan loss provision and explained 11% variations in loan loss provision though not significant.

The interest income due collection method is however inversely related to the yield gap, recovery rate and portfolio at risk of the MFI given the resulting r = -0.297, sig. = 0.282, r = -0.077, sig. = 0.785 and r = -0.103, sig. = 0.714 respectively. This implies that the interest income due method has a negative linear relationship on income generation in financial sustainability. The methods keep the level of interest income due reducing to improve   the yield gap, recovery rate, PAR and financial sustainability in general.

The interest income due collection method on OSS and FSS correlated a Pearson, r = 0.438, sig. = 0.103 and r = 0.149, sig. = 0.597 with their coefficient of determination r^2 = 19.2% and r =2.3% OSS and FSS respectively. This implied that the due method was positively related to operational self sufficiency and financial self sufficiency of the MFI. The result further implied that interest income due method accounted for 19.2% variations in operational self sufficiency and 2.3% variations in FSS of the MFI although at insignificant level.

The interest income in arrears collection policies related a Pearson correlation, r = 0.369, sig. = 0.176 on operation costs to imply that it was positively related to the operation costs of the MFI and improved financial sustainability. If the policy minimized arrears through aggressive collection policies, the operation costs of the MFI reduced and vise verse. Interest income in arrears collection method further correlated a Pearson of 0.426, sig. 0.113 on loan loss provision. This implied that there was a strong positive and linear relationship between level of income in arrears and loan loss provision. When the methods was lenient to arrears, loan loss provisions increased hence reducing the level of financial sustainability.

The interest income in arrears collection methods on interest income due and interest income collected related with a correlation, r = 0.784, sig. = 0.010 and a calculated coefficient of determination r^2 = 62%. This implied that the interest income in arrears collection policies had a very strong positive linear relationship with interest income due and collected. When the interest income in arrears policies are zero tolerance, the interest income due was recovered to 100% and interest income collected at maximum. The interest income in arrears collection methods explained 62% variation on FS.

The interest income in arrears method on interest income in arrears correlated $r = 0.147$, sig. $= 0.602$ with coefficient of determination $r^2 = 2.2\%$. This implied that interest income in arrears method had a moderately positive linear relationship to interest income in arrears. It also implied that 2% variations in interest income in arrears level was explained by interest income in arrears collection policies. When the methods minimized income in arrears, the interest income collected improved and the income in arrears decreased as the level of financial sustainability improved.

The interest income in arrears on credit officers workload, yield gap, recovery rate and portfolio at risk correlated with $r = 0.449$, sig. 0.093, $r^2 = 20\%$ on credit officer workload, $r = 0.618**$, sig. 0.014, $r^2 = 38\%$ on yield gap, $r = 0.201$, sig. 0.474, $r^2 = 22.5\%$ on recovery rate and $r = 0.508$, sig. 0.053 , $r^2 = 25\%$ on portfolio at risk. This implied that there was a moderately positive linear relationship between interest income in arrears policy and credit officer workload, yield gap, recovery rate and portfolio at risk. The coefficient of determination for COW, $r^2 = 20\%$ implied that interest income in arrears collection method explained 20% variations in credit officers workload. The coefficient of determination $r^2 = 38\%$ on yield gap implied that interest income in arrears collection methods explained 38% variation in the yield gap. The interest income in arrears had a significant positive and linear relationship on the yield gap, recovery rate, and portfolio at risk of the MFI. When the policy minimized the interest income in arrears, the resulting credit officers workload,, yield gap, recovery rate improved and portfolio at risk reduced as financial sustainability improved.

The interest income in arrears collection method on OSS and FSS correlated a Pearson, $r = 0.008$, sig. 0.976 and $r = 0.029$, sig. 0.918 on OSS and FSS respectively. The

coefficient of determination on OSS and FSS was, $r^2 = 0.1\%$. This implied that the interest income in arrears collection methods had a weak though positive linear relationship on financial sustainability and explained 0.1% variations in financial sustainability. When the interest income in arrears policy minimized arrears; the level of operational and financial self sufficiency improved.

4.3.3.4   Hypothesis H3$_1$: The interest income collection methods positively affected financial sustainability.

The alternative hypothesis H3$_1$ as conceptualized by the researcher stated that interest income collection methods positively affected financial sustainability of PML. The null hypothesis (H3$_o$) stated that there was no relationship between interest income collection methods and financial sustainability of PML at significance level, alpha (α) = P (Ho) = sig. 0.05. Using an excluded model and regression result on the self-administered questionnaire (Table 23), the partial correlation result of the regression was r = 0.832, sig. = 000. The Pearson correlation coefficient of determination in a triangulation had showed that interest income collection methods significantly predicted r^2 = 70% financial sustainability in a positive direction at sig. = 0.000 which was less than the stated α = P (Ho) = 0.05 (Table 17). Since the tested null hypothesis was 0.010, less than the stated level of significance, α = P (Ho) = 0.05, the null hypothesis was rejected while the alternative hypothesis that stated that interest income collection methods positively affected financial sustainability was upheld to be true. The interest income collection method significantly predicted 70% financial sustainability. Therefore the hypothesis that interest income collection methods positively affected financial sustainability was upheld and the null hypothesis rejected accordingly.

4.3.3.5   **Face to face interviews with Officials of Apex Institutions and Officials of PML on interest income collection method and financial sustainability.**

Interview results for unstructured face to face interviews with officials of selected Apex institutions and the officials of PRIDE Microfinance Ltd are presented below.

4.3.3.5.1   **Interviews with officials of Apex Institutions on interest income collection methods and financial sustainability.**

Interviewees, 4(100%) officials of Apex institutions on interest income collection methods revealed that the MDIs are implementing   zero tolerance policies; sale of clients collaterals pledged when in default, caveat, attachment of mandatory savings and co guarantor ship and as a result, 3(75%) interviewees stated that recovery rates were at 98 % average.

The interviewees added that since collaterals were sold and guarantors were made to pay loans in default, the MFIs income collection policies were zero default tolerant and accelerated interest income collection for financial sustainability (Appendix XV).

4.3.3.5.2   **Interviews with senior executives finance and branch managers of PML on interest income collection methods and financial sustainability.**

Interviewees, 8(80%) officials of PML stated that the zero default tolerance policies were incorporated into interest income collection policies such that the zero default tolerance policies were in place and implemented. Interviewees further stated that credit officers and branch managers with portfolio at risk increasing to 5% in there portfolio's are rewarded accordingly such as holding a salary toque, deducting salary to settle or dismissal and a bonus for no arrears. This explained the high recovery rates of 98% that PML had achieved and a reducing PAR which improved financial sustainability.

Interviewees, 9 (90%) of the officials of PML stated that collaterals pledged and guarantors peer pressure were used to accelerate recovery although they reiterated that the interest income collected at the moment did not cover the costs at PML. The interest income collection procedures were reported to be representative in the operational manuals. This implied that the collection policies in place ensured a high recovery rate (Appendix XVI).

Both interviewee officials of Apex Institutions and senior executives of PML were in agreement that the zero tolerance policy in the interest income collection methods was effective on reducing portfolio at risk, improving recovery rates, keeping the loan loss provision rate on a reducing trend and improved financial sustainability.

4.3.3.6   Documentary review on interest income collection methods.

Figure 8 below shows the recovery rate and portfolio at risk rate derived from documentary review of financial statements and portfolio reports (Appendix XIc).

Figure 8.   **Recovery rate and portfolio at risk trends in PML, 2004 – 08.**
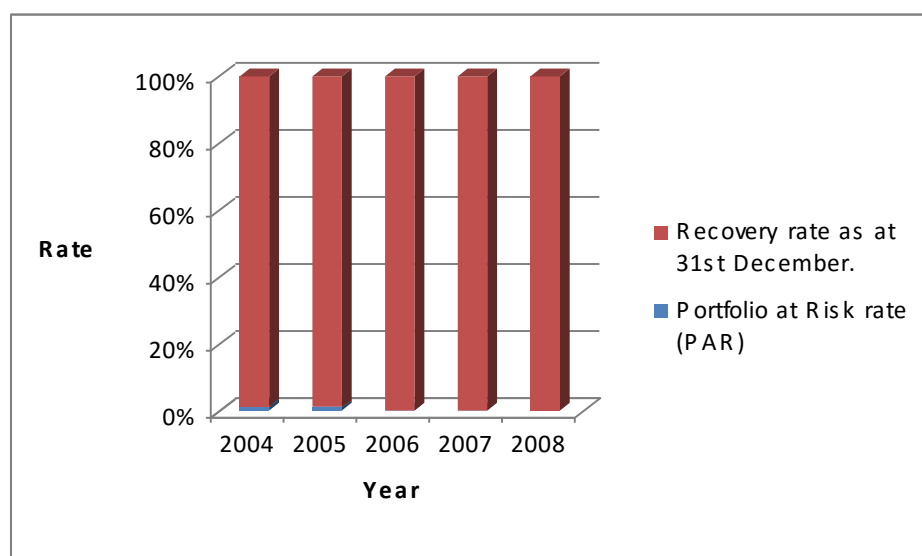
Source: Documentary review, Final Accounts 2004 – 08; Appendix XIc

The high loans recovery rate at 98% on average was recorded at PML and showed that the portfolio at risk was less than 3% of the total portfolio and reducing. This implied that the interest income collection policies in place were effective for financial sustainability. PML was found to have an effective zero default tolerance policy as evidenced in figure 8 above where portfolio at risk tending to zero.

Total interest income collected to aggregated costs in the income generation and proffitability of PRIDE Microfinance Ltd was anlysed from the income statements over the years 2004 – 08 (Appendix XIc), and trends of operational and financial self sufficieny derived to show the financial sustainability level of PML as in figure 9 below.

Figure 9: Operational and financial self sufficiency of PML, 2004 – 08
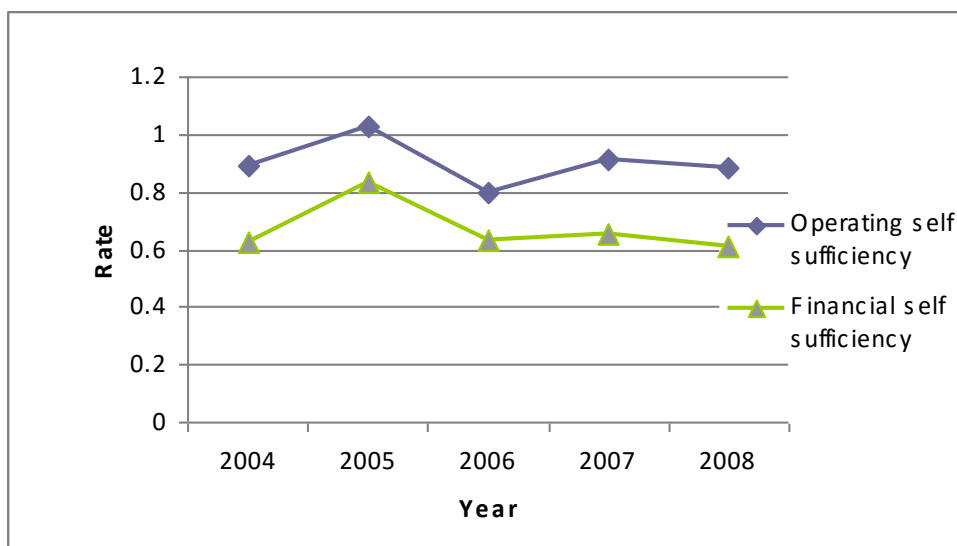
Source: Documentary review, Final Accounts ,PML (2004 – 08); Apendix XIc.

It was analysed in   figure 9   above that PML had not yet reached operational and financial self sufficiency level, 88% OSS and 60% FSS which were paparell to each other at

less than ratio 1. respectively in 2008. This implied that PML internally generated interest income did not cover the aggregate costs when measured using internally generated revenue. Note that to cover all costs proffitably using internally generated funds on the core activity of microfinance was defining financial sustainability of the MFI.

4.3.3.7 Observation on interest income collection methods on financial sustainability.

It was observed at the micro enterprise group (MEG) meetings that the clients of PML turn up for the meetings as mandatory because it was compulsory and an obligation to discus repayments. At this micro enterprise group meeting, it was further observed that collections for repayments were effected by clients to group treasures assisted by the peer pressure group guarantors. Each client counted and held cash representing the due amount in his hand and showed it to the group members at the meeting in a go round activity. Clients who had repayment difficulties were isolated and retained at the MEG by group leaders, co guarantors and assisted by credit officers while their respective co guarantors under took to pay defaulted instalments before the closure of business.

Some of the collaterals pledged (Table 8) were observed collected for attachment to default and kept at the MEG meeting venue by the peer pressure group members ready for sale to recover the defaulted instalment. It was also observed that the clients who completed loan repayments collected new forms to apply for repeat loans immediately as an incentive.This implied that interest income collection methods had zero default tolerance standards which enabled 98 % recovery rates which improved financial sustainability.

The group leaders and individual clients were observed in a queue in the banking halls at PML branch offices to deposit both savings and loan repayments on the Bank accounts

from where the automated deductions of interest income was made to complete the repayment circle.

4.3.3.7   Integration of quantitative and qualitative data on interest income collection methods and financial sustainability.

From the descriptive statistics, the aggregate frequency on interest income collection methods was 11(73%) which implied agree by officials of PML that the interest income collection methods affected financial sustainability of PML. The mean was 4.08 on a likert scale of 5 which confirmed the agree response. The standard deviation = 0.705, skewness = - 0.162 and kurtosis = 0.580 were all between -1 and +1 (Appendix XIII) which implied that data was a normal distribution which supported a Pearson correlation and regression.

The Pearson correlation result r = 0.833**, sig. = 000 and its calculated coefficient of determination r^2 = 70 % implied that interest income collection methods in the interest rate policy had very strong positive linear relationship and explained 70% variations in financial sustainability of PML (Table 17). The Pearson correlation for upfront interest income collection was negative on financial sustainability while the interest income due and in arrears methods had positive linear relationship on FS. This was confirmed by the descriptive statistic where 11(73%) senior executives and managers of PML agreed that IICM in the interest rate policy improved financial sustainability, with the mean = 4.08 on a likert scale. The alternative hypothesis $H3_1$ was accepted at sig. = 0.000 confirming that the interest income collection methods affected financial sustainability.

Results from interviews revealed that PML had a zero default tolerance policy in the collection methods, the repayment schedules were features of upfront determination of the interest incomes due and collaterals were attached and sold to recover defaulted amounts

besides peer pressure from co guarantors. The interview result was confirmed by evidence of Pearson correlation r = -0.050 for upfront collection method which had a negative effect on financial sustainability, and positive correlation for due and arrears methods on OSS and FSS respectively. Documentary review results showed that the recovery rate was 98% on average and PAR less than 3% of the portfolio which support the findings from empirical results that a zero default tolerance policy in the interest income collection methods improved FS.

The results showed that FS was low when interest income collection methods were lenient to defaulters and deprived off clients early investment cash in the upfront method, but when interest income collection methods were made stringent to defaulters, zero default tolerant while accelerating collections and minimizing arrears, improved FS.

4.3.4   Influence of clients' response to interest rate policy on the relationship between interest rate policy and financial sustainability

The objective was to establish the influence of clients' response to the interest rate policy on the relationship between interest rate policy and financial sustainability of PML. Clients' response was studied according to dimensions of the interest rate policy on financial sustainability and data collected using a researcher administered questionnaire was analysed to answer the research question, "the influence of clients' response to interest rate policy on the relationship between IRP and FS" of PML In this section, descriptive statistics on researcher administered questionnaire are presented; the part and partial correlation result of clients' response to the interest rate policy on the relationship between IRP and FS were used to establish the influence of clients' response. A hierarchical multiple regression was fitted and used to answer the hypothesis $H4_1$ that stated that "Clients' response to interest rate

policy positively influenced the relationship between IRP and FS of PML". Finally, results from face to face interviews, documentary review and observation were also presented.

4.3.4.1   Descriptive statistics: researcher administered   questionnaire on influence of clients' response to the interest rate policy on FS.

Table 19 below shows the frequency distribution of responses by repeat clients of PML using a researcher administered questionnaire (Appendix V) on "whether there was an influence of clients' response to interest rate policy on the relationship between interest rate policy and financial sustainability." Client's response was studied as a moderator.

From Table 19 below , repeat Clients' respondents on the dimensions of the interest rate determination policy had a cumulative frequency of 36(51%) agree that the interest rate determination policy in the interest rate policy affected them. This statistic was slightly less than the mean response of 2.81 tending to the mode and median of 3 on the likert scale, which implied undecided ness by the repeat clients on whether they influenced the relationship between IRP and FS. The other 32(46%) of the repeat clients disagreed that they influenced the interest rate determination policy. This indicated that 46% of the clients were more interested to accessing micro credit than interest rate determination policies that affect them.

Repeat clients responses on the interest rate application methods had a cumulative frequency of 33 (47%) agree that they influenced the interest rate application methods. The 35 (50%) disagreed on this matter which implied that the clients think they could not influence the interest rate application methods in place at the MFI.

Table 19:   **Descriptive statistic on interest rate policy by repeat borrowers of PML**

Influence of client's response to Interest rate policy.	Measuring scale						Descriptive statistic		
Number of respondents = 70	**AGREE**		**UNDECIDED**		**DISAGREE**		**Mean**	**Standard deviation**	**Skewness**
Average.	Freq. (F)	%ge	Freq. (F)	%ge	Freq. (F)	%ge			
Clients response and IRDP= 197	36	51	2	3	32	46			
Clients response and IRAM= 195	33	47	2	3	35	50			
Clients response and IICM= 207	30	43	3	4	37	53			
Average Client's response to IRP	33	47	2	3	35	50	2.9333	0.59362	-2.151

Source; Primary data

Standard error = 1.121, Kurtosis = 0.580, Sum F

Strongly agree and agree analysed as agree, undecided and none response analysed as undecided and strongly disagree analysed as disagree.

The mean score was 2.93 close to 3 = undecided on a likert scale used and given that the standard deviation of 0.59 which was less than 1, data was a normal distribution to support run a part, partial correlation and a regression (Table 19).

The average frequency of repeat clients of PML on interest income collection methods and financial sustainability had a 30(43%) agree that they had an influence on interest income collection methods that affected them. The majority of the repeat clients 37(53%), disagreed that that they had an influence on interest income collection methods that affected them. The minority of the repeat clients 3(4%) were undecided whether they could influence the interest income collection methods. The distribution implied that 53% of the repeat borrowers of PML felt that they could not influence the interest income collection methods in place at PML.

Summarily, the aggregated frequency of clients' response to interest rate policy and the relationship between interest rate policy and financial sustainability of the MFI was 43 (62%) agree which implied that the clients of the PML had influence on the interest rate policy that affected financial sustainability of the MFI.

4.3.4.2   Part and Partial correlation: Influence of clients' response to the interest rate policy and the relationship between interest rate policy and FS.

The objective was to establish the influence of clients' response to the interest rate policy on the relationship between interest rate policy and financial sustainability of PML. The influence was established using a part and partial correlation where the interest rate policy was the independent variable, financial sustainability the dependent variable and client's response, moderating variable (predictor). The R^2 change from r_1 to r_2 was interpreted at its significant level to show the direction and influence accordingly. Hypothesis $H4_1$ was tested using a hierarchical multiple regression by interpreting change in R^2 and significance level.

4.3.4.2.1   Part Correlation: Interest rate policy on financial sustainability while controlling the influence of clients' response.

Table 20 below is the part correlation using results from the self administered questionnaire to establish the relationship between interest rate policy and financial sustainability while holding client's response constant. The result is referred to as r_1.

Table 20:   Part Correlation: interest rate policy and financial sustainability

Control Variables		Interest rate policy	Coefficient of determination
Interest rate policy, Pearson Correlation		1	
Sig. (2 tailed)		.	
N		15	0.774
Financial Sustainability, Pearson Correlation r_1		**.880****	
Sig. (2 tailed)		.000	
N		15	

Source.   Primary data. (PML)

The part correlation result to establish the relationship between the interest rate policy and financial sustainability while controlling the influence of clients' response correlated Pearson $r_1 = 0.880$**, sig. = 000, with its coefficient of determination $r_1^2 = 77.4$ % (Table 20). The r_1 result above implied that interest rate policy had a very strong positive linear relationship with financial sustainability. This implied that an appropriate interest rate policy in place accounted for 77.4% financial sustainability of PML while holding clients' response constant. The interest rate policy affected financial sustainability in the same direction. This explained the relationship between IRP and FS as stated in the purpose of the study.

4.3.4.2.2   Partial correlation: influence of clients' response to the interest rate policy on the relationship between interest rate IRP and FS.

Partial correlation table, 21 below was used to establish the influence of clients' response to the interest rate policy on the relationship between interest rate policy and

financial sustainability. In this section, the results from the researcher administered questionnaire on repeat clients of PML (Appendix V) were introduced as predictor to independent variable in r_1 and correlated to derive r_2 where the influence of client response was established by interpreting R^2 change and its significance level.

Table 21:   Partial correlation: Influence of clients' response on interest rate policy

Control Variables		Interest rate policy	Coefficient of determination
Client response, Interest rate policy			
	Correlation	1.000	0.767
	Significance (2 tailed)	.	
	df	0	
Financial Sustainability	Correlation , r_2	**.876****	
	Significance (2 tailed)	.000	
	N	15	

Source.   Primary data. (PML)

From table 21 above, Partial correlation result r_2 when client's response predictor was introduced to r_1, a new correlation $r_2 = 0.876$, sig. ≤ 0.01 was obtained at 99% level of significance. The R square reduced from r_1 to r_2 by R^2 change $= r_1 - r_2 = 0.880 - 0.876 = 0.004$. The result showed that there was a reduction in R square by R^2 change $= 0.004$ at significance level sig. $= 0.000$ as a moderating influence of clients' response to the interest rate policy. The coefficient of determination reduced from 0.774 % to 0.767 % as a result of the influence. It was analysed that the predictor influenced the r_1 to reduce by 0.7%. This implied that clients' response to the interest rate policy influenced financial sustainability to reduce by 0.7% since r_1 was high at 0.880, sig. ≤ 0.01 compared to the presence of clients response where $r_2 = 0.876$, sig. 0.01, (Table 20 and 21.) This further implied that a reduction in financial sustainability by 0.7% was explained by client's response to the IRP.

4.3.4.3   Hypothesis H4$_1$: Clients' response to Interest rate policy positively

influenced the relationship between interest rate policy and FS.

.   The alternative hypothesis H4$_1$ stated that clients' response to IRP positively influenced the relationship between interest rate policy and financial sustainability. The null hypothesis H4$_0$ stated that there was a negative influence of clients response to the interest policy on the relationship between interest rate policy and financial sustainability at significance level, alpha (α) = P (Ho) = sig. 0.05.

The R square = 0.775 and R^2 change = 0.716 for model 2 posted a negative change in R square 0.058 at statistical insignificance level sig. = 0.614 (Table 24). When clients' response was predicted on the interest rate policy, R square reduced from 0.775 to 0.716 with a negative effect of change in R square = 0.058, The relationship was insignificant at a statistical level 0.948 which was greater than the acceptable level of significance sig. $\leq$ 0.05 (Table 24). Since the tested null hypothesis was sig. = 0.614, which was far greater than the stated level of significance, sig. = 0.05, the alternative hypothesis that clients' response to IRP positively influenced the relationship between IRP and financial sustainability was rejected and the null hypothesis was upheld. The variation, 5.8% reduction in financial sustainability was explained by the influence of clients' response to interest rate policy.

This guided the decision to reject the hypothesis that client response to interest rate policy positively influenced the relationship between interest rate policy and financial sustainability. With Statistical significance far greater than 0.05 as shown in the two regression models (Table 23 and 25). The partial correlation result (Table 21) corroborates to accept the null hypothesis that stated that client response to interest rate policy has a negative influence on the relationship between interest rate policy and financial sustainability.

Table 22:   The Hierarchical Multiple regression model

Model	Unstandardized coefficients.		Standardized coefficients nts	t	Sig.	R-Square	Adj R-Square	R-Square change	F-change	F	Sig F
	B	Std. error.	Beta.								
1 (Constant)	3.111	.704		4.419	.001	.058	-.014	.058	.801	.801	.387
Client response	.206	.230	.241	.895	.387						
2 (Constant)	.393	.603		.652	.527						
Client response	.061	.125	.072	.490	.633	.751	.709	.693	33.363	18.080	.000
Interest rate application.	.864	.150	.849	5.776	.000						

Durbin – Watson = 2.580.

a. Dependent variable.

Source.   Primary data. (PML)

Table 23:   Collinearity statistics

Variables excluded from the hierarchical. model

Model	Beta In	t	Sig.	Partial Correlation	Colliniarity statistics		
					Tolerance	VIF	Minimum tolerance
1. Interest rate determination.	.702[a]	3.060	.010	.662	.837	1.195	.837
Interest rate application.	.849[a]	5.776	.000	.858	.960	1.041	.960
Interest income collection	.816[a]	5.200	.000	.832	.981	1.020	.981
2. Interest rate determination	.260[b]	1.390	.192	.386	.552	1.813	.552
Interest income collection	.369[b]	1.409	.187	.391	.280	3.568	.275

Source.   Primary data. (PML)

a. Predictors; (Constant), Client response.

b. Predictors; (Constant), Client response and interest rate policy.

c. Dependent Variable; Financial Sustainability.

Partial correlation result and their significant levels table 23 are used to answer the hypothesis questions $H1_1$, $H2_1$ and $H3_1$.

Table 24: **The Hierarchical Multiple regression model, coefficients[a].**

Model	Unstandardized coefficients.		Standardized coefficients	T	Sig.	R-Square	Adj R-Square	R-Square change	F-change	.df2	Sig F change
	B	Std. error.	Beta.								
1 (Constant)	3.111	.704		4.419	.001	.058	-.014	**.058**	.801	13	.387
Client response	.206	.230	.241	.895	.387						
2 (Constant)	.300	.579		.518	**.614**	**.775**	.737	**.716**	38.135	12	.000
Client response	.800	.121	.009	.066	.948						
Interest rate policy	.895	.145	.878	6.175	**.000**						

Durbin – Watson = 2.324   .a. Predictors; (Constant), client response.   b. Predictors; (Constant), Client response and IRP

c. Dependent variable – Financial Sustainability.

Source.   Primary data. (PML

 The significance level, R square and R square change in model 2 result in table 24 above are used to answer the hypothesis $H4_1$.

4.3.8   Conclusion on data presentation analysis and interpretation.

The relationship between interest rate policy and financial sustainability was determined using a Pearson correlation matrix, and triangulated with Part and partial correlation, hierarchical multiple regression result besides testing hypotheses corroboration with qualitative results accordingly. Skew ness, kurtosis and standard deviation in the descriptive results were distributed between -1 and 1 with the range 0.5 – 0.85 from the mean for all variables, which implied that data was a normal distribution which enabled to perform a correlation and regression. The cumulative percentage using a rotational component matrix (Appendix XIIa) revealed that the interest rate policy studied accounted for 63% of the interest rate policy that financially sustained a microfinance institution.

The dimensions of the interest rate policy namely interest rate determination, interest rate application methods and interest income collection methods were found to be significantly strong, positive, and linearly related to financial sustainability. Interest rate determination policy with its composition rates;   administration expense rate, loan loss provision rate, cost of funds rate and Capitalisation rate when aggregated explained 47% variations in financial sustainability and when its composition rates were tailored and implemented improved financial sustainability. The interest rate application methods explained 75% variations in financial sustainability and its flat rate application method reduced financial sustainability while the declining balance method improved FS. The interest income collection methods explained 70% variations in financial sustainability with the upfront collection method reducing financial sustainability while the interest income due and interest income in arrears methods improved financial sustainability accordingly.

The aggregated interest rate policy was strong, positive, linear and significantly accounted for 77.4 % variations on financial sustainability of PML. The result show that financial sustainability was low when the interest rate policy was not tailored to financial sustainability, but when the interest rate policy was in place, tailored to financial sustainability and implemented, financial sustainability improved. The results further revealed that financial sustainability was high without client's response to interest rate policy, but when the influence of clients' response to the interest rate policy manifested, financial sustainability reduced by 0.7% in a negative and linear direction.

The findings supported to reject the alternative hypothesis that clients' response to the interest rate policy positively affected financial sustainability because the result was a reduction, negative and linear and when triangulated with part and partial correlation results guided to test and accept the null hypothesis that client's response to interest rate policy negatively influenced the relationship between interest rate policy and financial sustainability.

The results analysed, presented and interpreted in this chapter were used to discuss findings, make conclusions and recommendation on the study in chapter five.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSIONS AND

RECOMMENDATIONS.

5.0   Introduction.

The study sought to establish the relationship between interest rate policy and financial sustainability of microfinance institutions taking PRIDE microfinance Ltd as a case study. The chapter presents a summary on conceptualization of the problem, literature review, methodology, discussion of findings, conclusions, recommendations per objective and suggestions for further research accordingly.

5.1   Summary.

PRIDE Microfinance ltd had not achieved financial sustainability in the period 2004 – 2008 according to trends depicted in the background to the study (Table 2; Figure 9). Using a modified CGAP model (2002), it was analyzed that interest income generated by applying the interest rate on loans barely covered the aggregate of costs and thus the interest rate policy from which interest income is derived was conceived to affect financial sustainability. Using an institutional approach to microfinance, literature review was undertaken which found that interest rate was listed among the factors that affected financial sustainability; but there was a gap to demonstrate the relationship that existed between interest rate and financial sustainability of microfinance institutions and subsequently, the interest rate policy governing administration of the interest rate was conceptualized as the independent variable, financial sustainability as the dependent variable, clients' response as a moderating variable and

operational grants, subsidies, Treasury bill interest income, stationery fees, ledger fees, and penalties as the intervening variables.

The study to establish the relationship between interest rate policy and financial sustainability used a case study design, in a quantitative approach supported by qualitative aspects to corroborate the empirical findings. A questionnaire was the major method and instrument used to collect data supported by face to face interviews, documentary review and observation. The principal component analysis in rotational matrixes were used to generate interval data from the likert scale that supported a Pearson correlation , part and partial correlation and a hierarchical multiple regression which were used to generate values to support state the relationship between interest rate policy and financial sustainability and to answer the hypotheses in a triangulation.

The relationship between the interest rate policy and financial sustainability of PML was found to be very strong, positive and linear, interest rate policy accounting for 77.4% variations in financial sustainability and client's response to the interest rate policy having a negative influence on the relationship between interest rate policy and financial sustainability. From qualitative data, PML was found to lack a well documented interest rate policy and with no established composition rates for the interest rate charged despite the fact that management efficiency had enabled PML achieve 98% loans recovery rate, portfolio at risk was less than 5% best practice and clients had pledged collaterals for the loans outstanding besides peer pressure group guarantee and mandatory savings. The study found that PML was charging 30% and 25% interest rates on GGS, ILS and SLS products respectively while applying a flat rate application method which was tested and found to be negatively accounting for 0.5%

variations in financial sustainability; while the zero default tolerance policy was inbuilt in the interest income collection methods and improved financial sustainability.

Using a part correlation result of Pearson, $r_1 = 0.880$, sig. $= 000$, and $r^2 = 77.4\%$, it was found that the interest rate policy had a very strong positive linear relationship and accounted for 77.4% variations in financial sustainability of PML which implied that financial sustainability was low when the interest rate policy was not tailored, but when the interest rate policy was tailored to cover all costs and a profit, financial sustainability improved. The relationship between interest rate policy and financial sustainability was now enriched by empirical findings of the study, which added direction, degree and magnitude of the relationship, where the interest rate policy was very strong, positive linear and explained 77.4% variations in financial sustainability. Considering that MFIs derive interest income from interest rate charged on the portfolio to cover costs and retain a profit if any, the study concentrated on interest rate determination policy, interest rate application methods and interest income collection methods all of which were confirmed critical constructs of the interest rate policy as supported by related literature and 63% cumulative variance from component rotational matrix (Appendix XIIa & b). This implied that the dimensions; Interest rate determination policy, interest rate application methods and interest income collection methods contributed 63% of the interest rate policy that financially sustained the PML. Financial sustainability was studied in dimensions; of cost coverage, income generation, management efficiency, and profitability. Pearson correlation coefficients, interview results, documentary review trends and observations were used to support generate conclusions on the relationship between interest rate policy and financial sustainability of PML.

A partial correlation and the hierarchical multiple regression were fitted to establish whether clients' response to interest rate policy positively influenced the relationship between interest rate policy and financial sustainability. It was established that the influence was negative (reduction) , where the Pearson $r_1 = 0.880**$, sig. $= 000$ on the relationship between interest rate policy and financial sustainability reduced to $r_2 = 0.876**$, sig. $= 0.01$, with client response accounting for 0.7% reduction on financial sustainability when clients' response was introduced as a predictor. This implied that clients' response to interest rate policy had a negative influence on the relationship between the interest rate policy and financial sustainability and the influence was significant although it conflicted with the findings of Anyanwu (2004) and semboja (2004) who had reported that clients of MFIs were interest rate insensitive while arguing from the access to microfinance service point of view.

Other than client's response whose influence was found negative and significant, leading to reject the alternative hypothesis that stated that clients' response to interest rate policy positively influenced the relationship between interest rate policy and financial sustainability, other hypotheses in the study were supported and upheld and the research questions were answered.

5.2 Discussion of findings.

This section presents a discussion on findings following the study objectives, dimensions of the interest rate policy and its respective indicators on financial sustainability.

5.2.1 Interest rate determination policy and financial sustainability.

The objective was to establish the effects of interest rate determination policy on financial sustainability of MFIs. The modified CGAP (2002) interest rate determination function were employed where the interest rate was an aggregate function of administration

expense rate, loan loss provision rate, cost of funds rate and Capitalisation rate necessary to meet financial sustainability needs of the MFI as represented by PML case study.

The Pearson correlation on interest rate determination and financial sustainability was r = 0.685, sig. = 0.002, and calculated r ^{2} = 47%. This implied that the interest determination policy had a strong positive linear relationship, and accounted for 47 % variations of financial sustainability. It was found that financial sustainability was low when interest rate determination policy was not tailored, but when the interest rate determination policy in the interest rate policy was tailored towards financial sustainability needs of the PML, financial sustainability improved.

Interviews with senior executives and managers of PML established that the interest rate determination and composition policy was not fully documented to guide interest rate decisions and implementation. Subsequently, a copy of the interest rate policy was not available to the researcher for review because the MFI had not documented it. Interviews with officials of Apex Institutions for MFIs revealed that the interest rates charged by the MFIs were liberalized which meant that every MFI had a challenge of determining a sustainable interest rate to suit its business. Mention of interest rate in the procedural and operational manual by PML was considered not sufficient information to the MFI for financial sustainability. Interviews further revealed that the Treasury bill rate prevailing and the risk of capital were aggregated to arrive at the interest rate charged by PML. However, there were contradictions while triangulating with documentary review because despite the ever changing Treasury bills rates and inflation in the country, (Figure 6), the interest rates of 30% and 25% per anum for GGS and ILS respectively had never been revised since 2004. From ratio analysis, interest income generated covered only 60% financial self sufficiency 2004 – 2008

while considering the aggregate of operational costs, loan losses, financing costs and inflation hedge concurrently and accounting for operational grants, subsidies … fees and penalties under cost of funds, which is in conformity with performance analysis remarks on MFIs by Mirero & Hochschwender (1996) who had observed that MFIs interest incomes generated did not yet cover the aggregated costs for the MFIs to be financially sustainable. This guides the conclusion that the interest rate charged by PML was below sustainable requirement for PML due to lack of a tailored interest rate policy hence financial un-sustainability through the years 2004 – 2008 (CGAP, 2002; WIDER, 2002, Paper 2002/01).

From descriptive statistic (table 10), 11(73.3%) respondents agreed that the interest rate determination policy in the IRP affected FS of PML. The eigenvalue in the component matrix(Appendix XIIa) loaded 5.421 implying that interest rate determination was a highly rated dimension of the interest rate policy for MFIs that will achieve financial sustainability and it was confirmed by its percentage variance that interest rate determination accounted for 18% of the interest rate policy that financially sustained the MFI (Table 25).

The Pearson correlation r = 0.685, sig. 0.002 and calculated coefficient of determination $r^2 = 0.469$ implied that interest rate determination method had a positive linear relationship and accounted for 46.7% of financial sustainability. Once the interest rate determination policy was tailored to cover the costs profitably, then the resulting interest income improved financial sustainability. This result added direction and degree of relationship to related studies by Adongo (2001); Rosenberg (2002) and Robinson (2001) who recommended MFIs to charge sustainable interest rates for financial sustainability. Documentary review showed that despite the ever changing treasury bill rates and inflation over the years 2004 - 2008 (Figure 6); PML interest rates charged were not revised in the

period. Therefore, interest rate determination explained the barely financial un-sustainability trend at PML in the period 2004 to 2008 as shown in Figure 9. Note here that interest rate determination also related to how high or low the interest rate charged was. At a high interest rate, more financial sustainability was achieved assuming that clients of MFIs accepted loans at any level of interest rate charged classified as " interest rate insensitive" as suggested by Waterfield (1996) and Robinson (2001) though findings in this study disputed insensitivity by the Partial correlation triangulated with the accepted null hypothesis of this study which found that clients response to interest rate policy had a negative influence on the relation ship between interest rate policy and financial sustainability.

The Factor analysis table 25 identified 7 questions that loaded coefficients between 0.52 - 0.8 on average as constructs of the interest rate determination policy namely administration expenses rate, loan loss provision rate, cost of fund rate and capitalisation rate which includes a desired profit and imputed costs.   A modified interest rate policy proposed by CGAP (2002) in the study improved financial sustainability coefficient along a linear diagonal and an interest rate policy not tailored to cover costs profitably would result in financial un-sustainability of the institution as proven by related study in Namibia which attributed financial un-sustainability of MFIs on charging interest rates below breakeven while following the prevailing interest rate ceiling by the government Usury Act 1968 , which Adongo (2001) criticized as regulated below market rates and unsustainable.

The key cost components of cost coverage as analysed from documentary review namely administrative and operational costs, loan loss provision, financing costs, and imputed costs for PML were constant in percentage contribution through the years (Figure 7) as opposed to the best practice where the costs should be on a declining trend to enable improve

financial sustainability. The constant costs analysed for PML from documentary review (Figure 7), are contrary to Schreiner and Yaron (2001) views that administrative costs, loan losses, cost of funds that are due to managerial inefficiencies should be at a reducing trend for the determined interest rate to be effective on financial sustainability (Odengo & Ochanda, 2007). This under scores the importance of a well documented interest rate determination policy in MFIs to which interviews with officials of PML revealed that the interest rate determination policy was not yet in place.

5.2.1.1   Administration expense rate as an element in the interest rate policy.

The administration expense rate on operation costs correlated the Pearson r = 0.214, sig. = 0.44. This implied that the administration expense rate in the interest rate policy had a positive linear relationship and explained 5% variations on operational costs of the MFI when incorporated in the interest rate which improved financial sustainability. It was however suggested by christen (1997) and Ledgerwood (2000, p.149) that administration and operation costs be kept on a reducing trend so that the administration expense rate enabled coverage of all operation costs of the MFI in the interest rate charged towards FS.

Administration and operating expenses for PML 2004 – 2008 were analysed constant (Figure 7), which implied that   management inefficiencies   that affect the level of administration and operating expenses at PML were fairly under control for the policy to be effective although it was below the standard of a "reducing trend" as recommended by Schreiner & Yaron (2001) that MFIs administration costs should be on a reducing trend to improve financial sustainability. However, the standard was bellow the reducing trend on cost per loan through policies that keep the credit officers workload on an increasing trend as proposed by FerroLuzzi and Webber (2006). The conclusion that administration expense rate

improved fiancial sustainability was supported by 11(73%) out of 15 senoir executives and managers of PML who agreed that the administration expense rate in the interest rate determination policy improved financial sustainability.

5.2.1.2   Loan loss provision rate as an indicator in the interest rate policy.

The loan loss provision rate correlated a Pearson r = 0.416* on loan loss provision in the cost coverage dimension which, implied that there was a positive linear relationship to the loan loss provision adjustment in the income statements which accounted for 17% variations in financial sustainability. Financial sustainability was low when loan loss provision rate was not anticipated in the interest rate charged, but when loan loss provision rate was provided for in the interest rate determination, then any loan loss provision was fully covered by the loan loss provision rate in the interest rate charged and improved financial sustainability. PML inhibits a risk of loss if the IRP does not provide for loan loss rate in the interest rate charged as emphasized by the MDI Regulations Act, (2004).

From documentary review, it was analysed that loan loss provision was on a reducing trend which is a best practice if it was supported by the corresponding inclusion of the loan loss provision rate in the interest rate policy. Loan loss provision on a reducing trend was analysed and in agreement with Rosenberg (2002) recommendations that it should be on a "reducing trend" for the loan loss provision rate to be effective to improve FS. This result was confirmed by 9(60%) out of 15 senior executives and managers of PML who agreed that Loan loss provision rate improved financial sustainability of PML by providing for all bad loans.

 From documentary review, high recovery rates of 98%, on average, and reducing portfolio at risk less than 3% were analysed at PML (figure 8) and it was further substantiated by respondents that loan loss was on a reducing trend. This meant that, though anticipated and

charged in the interest rate, and in practice minimizing loan loss provisions increased the reported profits of the MFI. Loan loss provision rate correlated the Pearson r = -0.148 and r = -0.378 on OSS and FSS respectively, which implied that there was a negative linear relationship between OSS and FSS . This meant that financial sustainability was low if the loan loss provision rate was not anticipated in the interest rate policy, but when loan loss provision rate was provided for and loan loss provisioning on a reducing trend, a policy that was stringent on loan loss in the interest rate policy improved financial sustainability since loan loss provision was negatively related to OSS and FSS in financial sustainability. A loan loss provision rate in the interest rate policy while reducing loan loss provision improved financial sustainability. This was in agreement with the findings of USAID PRESTO Project (2000) which suggested that to improve financial sustainability loan loss provision should be declining to zero in practice.

5.2.1.3   The cost of funds rate as an indicator in the interest rate policy.

The cost of funds rate on operation costs correlated the Pearson, r = 0.221, sig. 0.429 and coefficient of determination r^2 = 5%. This was a moderately positive linear relationship explaining 5% variations in the operation costs of the MFIs though insignificant. The result implied that financial sustainability was low when cost of funds rate was not tailored in the interest rate policy, but when the cost of funds rate was factored in the interest rate policy, the resulting interest income covered the cost of funds which improved financial sustainability. AMFIU (2005) holds the same view that MFIs should charge interest rates that covered the cost of funds to be financially sustainable which the empirical result on cost of funds rate; positive linear supports as evidence. However PML cost of funds were analysed to be increasing (Figure 7) contrary to Rosenberg (2007, p. 12), who argued that the cost of funds

should be on a declining trend for financial sustainability and should be offset by revenue generated internally.

The cost of funds further correlated a Pearson, r = 0.051, sig. = 0.856 on OSS, moderately positive implying that the cost of funds rate was a necessary condition for the MFI to be operationally self sufficient or else the MFI would need subsidies and grants to continue in operation as emphasized by Anyanwu, (2004). This was however contested by Mahajan and Nagasri (basix@hd1.vsnl.net.in , n.d) who contend that there should be no subsidies and operational grants as a condition for financial sustainability unless the cost of subsidies are factored as part of cost of funds at treasury bill rate. It was however analysed from documentary review that PML was not receiving considerable grants and subsidies and hence was depending 90% OSS on internally generated revenue , which necessitates that PML should specify her cost of fund rate policy in the interest rate to be on a safe margin. The argument for charging interest rate while using the Treasury bill rate as a base does not offer a solution to specify the cost of funds rate in the interest rate policy. It also depicts that policies are not implemented appropriately given the analysis that the Treasury bill rates had changed over time without corresponding revision of interest rate at PML as established during interviews.

The cost of funds rate correlated the Pearson r = - 0.064, sig. = 0.820 and $r^2 = 0.5\%$ on financial self sufficiency. The result implied that the cost of funds rate has a negative linear relationship, and explained 0.5% variations in financial sustainability. This suggested that the cost of funds policies should keep cost of funds on a reducing trend to improve financial sustainability but it is on the contrary at PML where the costs of funds were analysed to

increase in the years 2007 – 0 8 due to trading on commercial funds (figure 7; PML Final Accounts, 2007- 08).

5.2.1.4   Capitalisation rate as an indicator in the interest rate policy.

The Capitalisation rate with a Pearson correlation, r = 0.473 and r^2 = 23%, showed a positive , linear relationship and explained 23% variations on the imputed costs for financial sustainability of the MFI. The result implied that financial sustainability was low without a Capitalisation rate in the interest rate charged, but when the Capitalisation rate was factored in the interest rate policy, the imputed cost of funds and profits were realized, which improved financial sustainability. The Capitalisation rate in the interest rate policy increased reserves which improved financial sustainability. The 23% variation on financial sustainability as a result of the Capitalisation rate concurs with Fernando (2006) who stated that imputed costs had a corroding effect on the portfolio and could deplete the portfolio of an MFI in inflationary seasons. Features of a Capitalisation rate include revolving profits back into the portfolio which is a true performance indicator at PML as revealed by 12(80 %) of the senior executives and managers of PML who agreed in question 12 (Appendix IV) that profits were revolved back into loan portfolio.

The Capitalisation rate correlated a Pearson, r = - 0.414 on financial self sufficiency which revealed that financial sustainability was low when the Capitalisation rate was not factored in the interest rate determination, but when the Capitalisation rate was tailored in the interest rate determination, and imputed costs managed on a reducing trend, financial sustainability improved.The Officials at PML however could not state the rate of Capitalisation for imputed costs due to lack of the documented interest rate policy in place.

MFI best practice indicator of imputed cost, 3% of the portfolio was used by the researcher to depict the imputed cost contribution to the total cost (Figure 7).

5.2.1.5   Hypothesis H1₁: Interest rate determination policy positively affected

financial sustainability of PML.

The alternative study hypothesis, $H1_1$ stated that interest rate determination policy positively affected financial sustainability of PML. The null hypothesis $H1_0$ stated that there was no relationship between interest rate determination policy and financial sustainability at alpha (α) = P (H1o) = sig. 0.05. Findings in the excluded model, partial correlation r = 0.662 (Table 23) confirmed that there was a positive linear relationship which was obtained at significance level sig. = 0.010 which was les than   alpha (α) = P (H1o) = sig. 0.05. The test result of the hypothesis showed that interest rate determination policy positively affected financial sustainability and thus the alternative hypothesis was substantiated while rejecting the null. The hypothesis test result and Pearson correlation has added direction and magnitude to qualify earlier studies in which Robinson (2001) strongly stated that the interest determination policies affected financial sustainability of microfinance institutions now to read thus, interest rate determination policy had a strong positive linear relationship and accounted for 47 % variations in financial sustainability.

5.2.2   Interest rate application methods on financial sustainability.

The objective was to analyse the effects of interest rate application methods on financial sustainability of MFIs. The mean of responses = 4 implied that seneor executives agreed that interest application methods affected financial sustainability and its skewness =, kurtosis and standard deveiation all between -1 and 1 revealed that it was a normal distribution

of responses. Interest rate application method was a highly rated component of the interest rate policy with 5.5 eigen value and percentage variance of 18% in component rotational matrix which suggested that it accounted for 18% of the interest rate policy which financially sustained the MFI (Table 25). The Pearson correlation result for interest rate application method was r = 0.864, sig. = 000, and r^2 = 75 % (Table 14). The result implied that the interest rate application methods had a very strong, positive linear relationship with financial sustainability and significantly accounted for 75% variations in financial sustainability. The result meant that financial sustainability was low when the interest rate application method was not tailored towards financial sustainability. But when the interest rate application method was tailored towards financial sustainability, the result improved.

The Pearson correlation result was supported by 10(60%) out of 15 senior executives and branch managers of PML who agreed that interest rate application methods affected financial sustainability (Table 13). This implied that financial sustainability was low if the interest rate application method in use did not maximize interest income directly or indirectly, but when a method of interest rate application in the interest rate policy and its related effects maximized interest income generation directly or indirectly, it improved financial sustainability. This findings in the study have added direction and degree of relationship to the findings of Ledgerwood & Victoria (2006) who had established that the interest income yield could be increased by changing the method of interest rate application but without necessarily affecting the interest rate level for the MFI to achieve financial sustainability. From 10 (100%) interviewee responses from senior executives and managers of PML, it was revealed that the flat interest rate application method which was being implemented affected financial sustainability. The 2 (50%) out of 4 interviewee Officials of Apex institutions stated that the

interest rate application methods were a basis of competition amongst the MFIs and had led to MFIs duplication of the interest rate application methods than putting in place an interest rate application method suitable for financial sustainability.

5.2.2.1 A declining balance method in the interest rate policy.

The Pearson correlation for the declining balance method on interest income due was r = 0.134, sig. = 0.635, and r^2 = 1.8%. This implied that there was a moderately positive linear relationship between the declining balance method and interest income due on financial sustainability and explained 1.8% variations in FS. The method improved financial sustainability while charging on the net outstanding principle and following the repayment schedules with clients. The declining balance method on interest income collected correlated a Pearson , r = 0.134, sig. = 0.635 where it had a positive effect on interest income collected by the MFI being a yardstick. The declining balance method correlated the Pearson r = 0.365 on interest income in arrears which explained 13.4% variations on financial sustainability.

The declining balance method (DBM) further correlated a Pearson, r = 0.306, sig. 0.268 on OSS and r = 0.453, sig. = 0.090 on FSS implying that declining balance method had a positive linear relationship and explained 13% variations in operational and financial self sufficiency of the MFI. The method was preferred by stakeholders because it depicted the MFI prudence on matters pertaining to interest rate application by calculating interest based on the outstanding loan principle. The reducing balance method had a wide acceptability, popularity among stakeholders and its uniqueness in meeting dual financial needs of both clients and PML for financial sustainability was as emphasized by CGAP (2002).

Though the declining balance method proposed may yield a lesser cash on the same loan amount in comparison to flat rate using the same interest rate, it left significant amount to

clients, hence locking them in. With such a policy, the MFI benefited from management efficiency, increasing workload through customer retention and reducing cost per loan made, which was one of the recommended strategy of achieving and maintaining financial sustainability by the Development Policy Division, New Dehli, (2007, p.15).

5.2.2.2   Flat rate application method in the interest rate policy.

A flat rate application method on the interest income due correlated a Pearson $r = 0.681^{**}$, sig. = 0.005 and was very significant implying that it was strong, positive and linearly related to financial sustainability of the MFI. The method maximized interest income charged to improve financial sustainability on the outlook. The method further loaded $r = 0.681$, sig. = 0.005 on interest income collected (Table 15). This implied that there was a strong, positive and linear relationship between the flat rate method and financial sustainability on the outlook. The method further related $r = 0.292$, sig. = 0.291 on interest income in arrears, explaining 8% of interest income in arrears on financial sustainability.

However, the Pearson correlation of the flat rate application method on operational and financial self-sufficiency was an inverse with $r = -0.067$ and $r = -0.232$ respectively. This meant that even though the flat rate method supported high generation of interest income on the original loan amount, its actual effect on financial sustainability was negative, by discouraging repeat loans, increasing client's response, and criticism of the MFI. In other words, using a flat rate application method would compromise and even lower financial sustainability as evidence in reduction by 5.4% coefficient of determination. The negative linear relationship between flat rate method was further explained by the effects the method had on clients disposable incomes, inability to lock in clients, and the resistance that the method faced among the public critics as reported by Shylendra (2006) and supported by

conclusions by Development Policy division in New Delhi (2007) which critique the method as compromising and minimizing financial sustainability. This result explains that PML inability to achieve financial sustainability over the period 2004 – 2008, was because they were using a flat interest rate application method which is associated with a low financial sustainability.

5.2.2.3   **Hypothesis H2$_1$: The interest rate application methods significantly affected financial sustainability of PML.**

The alternative hypothesis H2$_1$ stated that interest rate application methods significantly affected financial sustainability. The null hypothesis (H2$_o$) stated that the interest rate application method did not affect financial sustainability of PML at significance level, alpha (α) = P (Ho) = sig. 0.05. Findings in the excluded model, partial correlation r = 0.858 confirmed that there was a positive linear relationship which was obtained at significance level sig. = 0.000 which was les than alpha (α) = P (H2o) = sig. 0.05. Since the alpha for the null hypothesis was higher than the alternative alpha, it implied that the interest rate application method had a very strong positive linear relationship and when triangulated with Pearson correlation and its coefficient of determination r^2 = 75% sig, .000 (Table 14) implied that interest rate application methods accounted for 75% variations in financial sustainability which leads to the conclusion that interest rate application methods significantly affected financial sustainability and supports to accept the alternative hypothesis as correctly stated while rejecting the null. Just as the Pearson correlation between interest rate application methods and financial sustainability isolated the reducing balance method to improve financial sustainability than the flat rate interest rate application method, the result is in agreement with the conclusion of ledgerwood and Victoria (2006) who established that financial

sustainability for MFIs can be improved by changing the interest rate application method but without affecting the interest rate charged in the interest rate policy. The interest rate application method that maximized interest income either direct application of the rate for the flat rate or through high outreach for the declining balance methods improved financial sustainability.

5.2.3   Interest income collection methods and financial sustainability.

The objective was to examine the relationship between interest income collection methods and financial sustainability of MFIs. The mean of responses was 4.08 along the likert scale which implied that the officials of PML agreed that the interest income collection methods affect financial sustainability. Skew ness, -0.162, standard deviation of 0.705 all within -1 to 1 range implied that it was a normal distribution. With eigenvalue = 7.87 and the percentage variance of 26% rated the interest income collection methods as one of dimensions in the interest rate policy that influenced financial sustainability because it related to the recovery rate, a point at which interest income due must be realized either in cash or as income to enable the MFI meet obligations as they fall due which was one of the indicators of management efficiency (Appendix XIV; Appendix XIIa)

The Pearson correlation result for interest income collection methods on financial sustainability was r = 0.833, sig. = 000 and coefficient of determination = 70%. The result implied that the interest income collection method had a very strong positive linear relationship and accounted for 70% variations on financial sustainability of PML. The result meant that financial sustainability was low when the interest income collection methods were not accelerating collections and lenient to default, but when the interest income collection method in the interest rate policy accelerated collections, zero default tolerant and stringent,

financial sustainability improved which is agreement with both Youssofou, (2002, p. 11) and Pandey (2007) who suggested that income collection methods ought to accelerate interest income collection to improve financial sustainability.

The aggregate frequency distribution confirmed the result with the 11(73%) out of 15 senior executives and managers of PML who strongly agreed that interest income collection methods in the interest rate policy improved financial sustainability. The result was further confirmed by interview responses from the 10(100%) senior executives and managers who stated that the repayment rate was high above 95%, the zero default tolerance policy was in place and implemented, repayment schedules were followed and credit officers and branch managers of PML were rewarded by bonus on 98% recovery rate or reprimanded; withheld a salary cheque for staff, deducted staff salary to recover, terminated staff over arrears. As a result PMLs zero tolerance default policy at PAR = 3% and on a reducing trend which is in place and effective is commended (Figure 8). Interviewee opinions on zero tolerance were supported by observation of business at PML where clients with installment in default were held up at a MEG meeting by the peer guarantors including sale of collaterals to pay the defaulted instalment and this was a sign that the success of interest income collection relied on interest income collection policies in place.

5.2.3.1 Upfront Collection method in the interest rate policy,

The upfront collection method on operating costs, Pearson correlation coefficient was r = 0.288, sig. =0.299 and coefficient of determination = 8%.The result implied that upfront collection method was moderately positive and linearly related to operation costs and accounted for 8% variations on operation costs under financial sustainability. The method made interest income prepaid funds available in advance to meet obligations as interest

income falls due which improve financial sustainability with no arrears. Upfront collection method further related r = 0.372, sig. = 0.190 and COD = 14% on loan loss provision which meant that the method explained 14% variations on interest income loss accordingly though the result was insignificant. The Upfront method related the Pearson r = 0.681 on both income due and income collected implying that this strong positive linear relationship improved financial sustainability as it ensured all revenue was collected on time. The upfront collection method related significantly with the yield gap, r = 0.541, sig. 0.037. This had an implication of good budgetary performance in terms of revenue due and collected which improved financial sustainability in nature. This takes on time value for money today which can be re invested as suggested by Pandey (2007).

However, the upfront collection method negatively correlated to OSS with r = -0.14, sig. = 0.959 and FSS, r = -0.05, sig. = 0,861 respectively. The method was found to have an inverse relationship and would lower financial sustainability of the MFI when implemented. The method deprived clients off their business capital much earlier than they should pay and there fore does not lock the clients to continue borrowing in the MFI and as analysed by Robinson (2003), the upfront collection method had high client turnover and lesser retention. The upfront collection features at PML are applicable on processing fees and determining interest payable at the start as analysed on repayment schedules. Otherwise a purely upfront collection method was not applicable to PML given its sensitivity to compromise financial sustainability as stated by Rosenberg of CGAP (1998) and supported by Shylendra (2006). Though upfront collection of fees accelerates revenue, its effects on performance did not improve financial sustainability, hence, it would be a best practice if all fees were part and parcel of the determined and quoted interest rate termed sustainable interest rate.

USAID PRESTO PROJECT (2000) and Morduch (1998) complement the finding that upfront collection method reduced financial sustainability by supporting CGAP (2002) argument that the upfront interest income collection method deprived off clients earlier investment income causing massive clients drop out hence did not improve financial sustainability. Interview results however revealed an innovation to use the features of upfront collection method to improve financial sustainability by following repayment schedules in the determination of amounts due and payable.

5.2.3.2 The Interest Income due method in the interest rate policy.

The interest income due method in the interest rate policy correlated a Pearson r = 0.498, sig. = 0.498 on operating costs, r = 0.326, sig. = 0.326 on loan loss. This implied that the interest income due method had a moderately positive linear relationship and accounted for 25% variation in the cover of operation costs and 10% cover of loan losses respectively, which improved financial sustainability. Financial sustainability was low when the interest income due policies did not ascertain and report interest income due on time, but when interest income due methods ascertained and reported interest income due on time, financial sustainability improved. The result was confirmed by the findings and conclusion by Anyanwu (2004, p. 9) who stated that if the interest income due was not finally ascertained, reported and collected, then there was high level of loan loss and insufficient internally generated cash to meet operation costs which reduced financial sustainability of the MFI. As proposed by Mordurch (1999, p. 1584) that MFIs make use of repayment schedules to ascertain due incomes and improve collections, 86 (100%) of the client's respondents agreed that interest income due method enabled them follow up repayments and has a reputation of

screening out and detecting loan default on time by PML officials and MEG peers which improved financial sustainability.

The interest income due method further correlated negatively to the yield gap, recovery rate and portfolio at risk with Pearson result r = - 0.297, r = -0.077, r = - 0.103 respectively. This implied that as interest income due is recovered to zero arrears, the recovery rate improves towards 100%, the portfolio at risk reduces towards zero and the yield gap improves to ration 1:1. In measuring the recovery rate, portfolio at risk and yield gap, the interest income due was the denominator. A reducing interest income due if correctly compared on the income collected would improve the yield gap, recovery rate and portfolio at risk, and financial sustainability would improve accordingly (Wood, 2000, p.89).

The Pearson correlation for interest income due method was r = 0.438, sig. = 0.103, r = 0.149, sig. = 0.597 on operational and financial self sufficiency, respectively. The result showed a moderate positive linear relationship between interest income due in the interest income collection methods and financial sustainability. When the interest income due method in the interest rate policy was applied, financial sustainability improved along a linear diagonal. Interest income was timely calculated, recognized and reported accordingly. CGAP (2002) recommended this method due to its wide acceptability in the MFI industry, where repayment schedules were followed to enforce recovery.

Accordingly, 13(86%) out of 15 senior executives and managers of PML agreed that the interest income due collection method in the interest rate policy improved FS. These opinions were confirmed by 10(100%) interviewee response from the same officials of PML that repayment schedules supported improve recovery rates and interest income collected. Observation on the client behaviour showed that they were on tension, being reminded about

the due date for repayment while following repayment schedules due to the effects of zero

default tolerance in built in the IRP. Credit officers were also observed with tension to recover

all the due amounts on time or else they faced a "reward" for 98% recovery rate or

reprimanded for PAR $\geq 5\%$.

5.2.3.3 Interest income in arrears method in the interest rate policy.

The interest income in arrears method correlated a Pearson, r = 0.784**, sig. = 0.001

and coefficient of determination = 62% on both interest income due and collected. This

implied that interest income in arrears collection method had a strong positive linear

relationship with both incomes due and collected in income generation and explained 62%

variations on financial sustainability. Interest income in arrears method are stringent rules that

do not tolerate arrears and so when interest income in arrears was kept minimal, then the

income due and collected improved financial sustainability. The USAID PRESTO PROJECT

(2000) which suggested having zero default tolerant policies in built to financially sustain

MFIs supports this finding that interest income in arrear accounted for 62% variance in

financial sustainability.

Interest income in arrears method further correlated the Pearson r = 0.618**, sig. 0.14

on the yield gap, r = 0.201 on recovery rate, r = 0.0508 on portfolio at risk and r = 0.449 on

credit officers workload. This implied that there was a positive linear relation ship with the

yield gap since policies that reduce interest income in arrears level improved the yield gap and

subsequently financial sustainability. Reducing the interest income in arrears improved

recovery rates, portfolio at risk which simultaneously improved financial sustainability. From

PML operational manual (2008), Loan insurance, appropriate collaterals, house hold collateral

pledged, co guarantee peer pressure, compulsory savings and other form of best practice as

revealed by documentary review were also recommended by Mordurch (1999, p. 1585) that they insured that interest income in arrears was not tolerated to ensure financial sustainability. This was supported by 70 (100%) nominal data from clients that they pledged household assets, business stock besides co guarantee and mandatory savings to obtain loans from PML (Table 8) which were then fully secured against collateral for financial sustainability.

The interest income in arrears collection method related the Pearson r = 0.008 on operational self sufficiency, and r = 0.029 on financial self sufficiency respectively. This implied that interest rate policies that were stringent on arrears improved financial sustainability to which there was a moderately positive linear relationship. This result was confirmed by a significant 10(67%) out of 15 senior executrices and managers of PML who agreed that interest income in arrears policies in the interest rate policy improved financial sustainability. Basing on documentary review and indicators of recovery rate, PAR, COW, PML has a stringent interest income in arrears collection policy referred to as zero default tolerance such that the arrears level was tending to zero (Figure 8).

5.2.3.4 Hypothesis (H3$_1$): The interest income collection methods positively affect financial sustainability.

The alternative hypothesis H3$_1$ stated that interest income collection methods positively affected financial sustainability of PML. The null hypothesis (H3$_0$) stated that there was no relationship between interest income collection methods and financial sustainability of PML at significance level, alpha (α) = P (H3$_0$) = sig. 0.05. Using an excluded model and the partial correlation result was r = 0.832, sig. = 000 (Table 24). The regression result on r is supported by the Pearson correlation coefficient which implied that the interest income collection methods had a strong positive linear relationship. The relationship was found

significant at sig. = 000, 99% confidence level. The tested null hypothesis was 0.000, less than the stated level of significance to the alternative hypothesis. The alternative hypothesis was upheld to be true and the null hypothesis which stated that there was no relationship between interest income collection methods and financial sustainability was rejected. It was established that interest income collection methods that accelerated revenue collection (zero default tolerance) improved financial sustainability. This result was in agreement with Pandey (2007) who argues income collection policies to accelerate interest income collection because it is vital working capital of the MFI. When interest income is collected on time, the MFI is able to meet its operational and financial obligations using internally generated revenue.

5.2.4   Influence of client's response to the interest rate policy.

The objective was to establish the influence of clients' response to interest rate policy on the relationship between interest rate policy and financial sustainability. In order to establish the influence, a part and partial correlation was fitted where the difference between Pearson r_1 and r_2 was interpreted (Tables 20 and 21). A hierarchical multiple regression supported testing the hypothesis which stated that Clients' response to interest rate policy positively influenced the relationship between interest rate policy and financial sustainability.

Part correlation result between the interest rate policy and financial sustainability while controlling client response in block 1 correlated the Pearson r_1 = 0.880, sig. 000. The result implied that when client's response was under control, the interest rate policy had a very strong positive linear relationship at 99% level of significance. The interest rate policy accounted for 77.4% variations in financial sustainability of PML. The interest rate policy and financial sustainability moved in the same direction, hence linear.

Partial correlation result r_2 while clients response was introduced to the interest rate policy correlated a Pearson $r_2 = 0.876$, at 99% level of significance. The interest rate policy now accounted for 76.7% of financial sustainability and the other 0.7% un explained variance in financial sustainability was an influence of clients response to the interest rate policy. The correlation r_1 reduced from 0.880 to $r_2 = 0.876$ by R^2 change $= r_1 - r_2 = 0,880 - 0.876$. The resulting coefficient of determination $= 0.7\%$ implied that clients response to interest rate policy influenced financial sustainability to reduce by 0.7%. The 0.7% reduction in financial sustainability was not explained by the interest rate policy. The result revealed that client's response influenced financial sustainability by a reduction in 0.7% significantly, which was a negative reduction and did not improve financial sustainability and was in agreement with shylendra (2006) who reported that when clients in Andra Pradesh in India complained on the interest rates charged and collection methods used by MFIs to their detriment, the MFIs were closed down politically which was a worse scenario than 0.7% reduction. The partial correlation findings of a reduction in financial sustainability by 0.7% is supported by Namyalo (2007) who had concluded that clients of MFIs were affected by the interest rate policy which reduced their welfare and investment capital through the size of interest expense paid to the MFI.

The partial correlation result was further confirmed by the 43(62%) out of 70 repeat client respondents who agreed that client's response to the interest rate policy reduced financial sustainability which implied that they were interest rate sensitive contrary to earlier studies by Semboja (2004) and Anyanwu (2004) who had reported conclusively that the clients of MFIs were "interest rate insensitive". Interview result show that 2(50%) officials of apex institutions stated that clients of MFIs had reported that the flat rate methods of

application of the interest rate deprived them off welfare and the complaint supports the influence to be correct. This is further confirmed by 10(100%) interview result from the senior executives and Branch managers who stated that clients had complained that the interest rate application method in place deprived them of welfare. This was conclusive evidence that the influence of client response to interest rate policy did not improve financial sustainability.

CGAP (2002) interest rate function to determine a financially sustainable interest rate ignored the influence of clients response, the force of a well sensitized client group and the actions of activists of the active poor who would speak for their rights such as governments, amplifying that interest rates were high and pressurize MFIs to reduce rates despite liberalization and even may lead to closure of an MFI like the closure of MFIs in Andra Pradesh as reported by shylendra (2006) that there was a related client response by an uprising and proceeding Closure of 50 branches of 2 MFIs in Andhra Pradesh in India in 2006 due to accusations of unfair interest rate administration. There fore, interest rate policies should be designed with caution because when clients respond to the interest rate policy, financial sustainability is undermined however small the magnitude.

5.2.4.1   Hypothesis (H4$_1$): Clients' response to interest rate policy positively influenced the relationship between interest rate policy and financial sustainability of PML

The alternative hypothesis H4$_1$ stated that clients' response to interest rate policy positively influenced the relationship between interest rate policy and financial sustainability of PML. The null hypothesis H4$_0$ stated that there was a negative influence of client's response to the interest rate policy on the relationship between interest rate policy

and financial sustainability at significance level, alpha (α) = P (H4o) = sig. 0.05. Client's response in Model 2 (Table 24) derived using hierarchical multiple regressions was used to discuss the result on the hypothesis where the client's response was introduced to predict the influence to the relationship between IRP and FS. The R square = 0.775 and R square change = 0.716 for model 2 posted a negative change in R square 0.058 at statistical insignificance level sig. = 0.614 > 0.05. The R square change, change in R square and the statistical significance of the result when predictor was added was interpreted to show the influence of client's response on the relationship between interest rate policy and FS

When clients' response was introduced on the interest rate policy, R square reduced from 0.775 to 0.716 with a negative effect on change in R square of 0.058. There was reduction in R square from R square = 0.775 to R^2 change = 0.716 which yielded a change in R square = 0.058 at a statistical insignificance sig. = 0.614 > 0.05 and a reduction. The 0.058 = 5.8% reduction at sig = 0.614 > 0.05 implied that clients' response negatively influenced the relationship between interest rate policy and financial sustainability where clients' response explained the negative variance in financial sustainability by 5.8%. The result revealed that the predictor, clients response had a negative linear influence on the relationship between interest rate policy and financial sustainability. The alternative hypothesis H4$_1$ that client response positively influenced the relationship between interest rate policy and financial sustainability at Null H4$_0$, sig = 0.614 > 0.05 was rejected and the null H4$_0$ that client's response negatively influenced the relationship between interest rate policy and financial sustainability was accepted.

.According to the findings, clients' response to the interest rate policy negatively influenced the relationship between interest rate policy and financial sustainability by 5.8%

unexplained variance in financial sustainability. The result was supported by the mean of client's response of 2.95 disagree along the likert scale in the descriptive statistic which was between disagree and undecided and that implied that clients' response did not positively influence the relationship between interest rate policy and financial sustainability. The negative skew = -2.151 was beyond -1 which implied that the clients views far disagreed with the alternative hypothesis. The negative influence of client's response to interest rate policy supported Adongo and stock (2005) earlier analysis that stated that the power of clients could explain and influence the policies on interest rate ceilings by usury rates in west African countries which had constrained financial sustainability for MFIs as they were fixed below break even point. However, the negative influence result disagreed with the earlier conclusion by Semboja (2004) and Anyanwu (2004) who had reported conclusively that the clients of MFIs were interest rate insensitive and that clients would accept any interest rate policy to enable them access microfinance. The negative influence finding demonstrated that the "client insensitivity " by Anyanwu (2004) has been overtaken by competition and increased access in the industry and now clients have influence on the service. Interview result 2(50%) with officials of apex institutions stated that clients of MFIs had reported that the flat rate methods of application of the interest rate deprived them off welfare which supports the negative influence to be correct. (Appendix XVI a & b).When client response manifests in form of expression of dissatisfaction and reduced welfare; they would affect financial sustainability negatively.

5.3.0   Conclusions on research findings objective by objective.

The purpose of the study was to establish the relationship between interest rate policy and financial sustainability of MFIs using PML as a case study, which was operationalised on

interest rate determination policy, interest rate application methods, interest income collection methods and the influence of client's response on the relationship between interest rate policy and financial sustainability. Conclusion on the relationship between interest rate policy and financial sustainability was guided by part correlation, r_1 = 0.880, sig. = 000 and the coefficient of determination. r^2 = 77.4 % guided the conclusion that the interest rate policy had a strong positive and linear relationship and significantly accounted for 77.4% variations on financial sustainability of PML. The influence of clients' response to interest rate policy on the relationship between interest rate policy and financial sustainability was established to be negatively linear and significant. The conclusions below are made following study objectives.

5.3.1 Interest rate determination policy and financial sustainability.

Findings on interest rate determination policy are used to make a conclusion on the study accordingly. Below are conclusions on each of the interest rate determination policy indicators which are then proceed by a conclusion on the interest rate determination policy on financial sustainability. .

5.3.1.1 Administration expense rate in the interest rate policy and financial sustainability

The study found that administration expense rate in the interest rate policy explained 4.6 % of operational costs in MFIs. When administration expense rate was factored into the interest rate policy, financial sustainability improved. The policy that minimized administration expenses on a reducing trend improved financial sustainability as supported by the Pearson coefficient, r = -0.30 and r = - 0.026 of administration expense rate on operational and financial self sufficiency, respectively. It was concluded that having administration

expense rate as a component of the interest rate determination policy in the interest rate policy improved financial sustainability besides controlling administration expenses on a reducing trend.

5.3.1.2 Loan loss rate in the interest rate policy and financial sustainability.

The study found that loan loss rate in the interest rate policy explained 30% of the variations in operation costs of MFIs. It also explained 17% variation of loan loss provisions and correlated negatively to operational and financial self sufficiency with Pearson r = - 0.148 and r = – 0.378 at significant level greater than 0.05 respectively. This guided the conclusion that loan loss provision rate when factored in the interest rate determination policy improved financial sustainability while loan loss provisions were managed on a reducing trend.

5.3.1.3 Cost of funds rate in the interest rate policy and financial sustainability.

The study found that the cost of funds rate in the interest rate policy explained 4.8 % of the operation costs of MFIs, and had a positive linear relationship to operational self sufficiency of MFIs at Pearson r = 0.058 . It was also established that the cost of funds rate had a negative linear relationship on financial self-sufficiency, r = -0.064 which accounted for 0.4% variations of financial sustainability while the interest rate policy ensured that the cost of funds were managed on a reducing trend to improve financial sustainability.

5.3.1.4 Capitalisation rate in the interest rate policy and financial sustainability

The study found that capitalisation rate in the interest rate determination policy explained 22% variations on operation costs in MFIs and correlated the Pearson r = 0.58 on OSS and r = - 0.414 to financial self sufficiency which meant that capitalisation rate in the interest rate policy once provided for improved financial sustainability while the interest rate

policy ensured that imputed costs were managed on a reducing trend to improve financial sustainability. In conclusion, the capitalisation rate had a positive linear relationship and explained 33% variations in operational self-sufficiency and 17% variations in financial self sufficiency of PML. Therefore factoring capitalisation rate in the interest rate policy improved financial sustainability while managing imputed costs on a reducing trend.

5.3.1.5   Conclusion on interest rate determination and financial sustainability.

As to whether there was an effect of interest rate determination policy on financial sustainability of PML, the study factor component rotational matrix results revealed that interest rate determination policy accounted for 18% of the interest rate policy and was supported by Pearson correlation r = 0.685, sig. = 0.002 and r^2 = 47%. It was found that the interest rate determination policy and its indicators had a positive linear relationship and significantly accounted for 47% variations in financial sustainability of PML. This implied that financial sustainability was low without the interest rate determination policy, but when the interest rate determination policy was in place and tailored to the MFI, financial sustainability improved. Qualitative data, revealed that PML did not have, in place, a fully documented and well communicated interest rate policy and that the composition of interest rate were not yet established in terms of administration expense rate, loan loss provision rate, cost of funds rate and, capitalisation rate. Given that PML was found with a high level of management efficiency, lack of interest rate composition determinants meant that raising sufficient interest income was not obvious and this explained the low profitability in the years 2004 - 08. The interest rate determination in the interest rate policy at PML was not tailored to financial sustainability. Accordingly, the alternative hypothesis that the interest rate determination positively affected financial sustainability was tested and substantiated.

5.3.2   **Interest rate application methods on financial sustainability.**

Findings on interest rate application methods were used to make a conclusion on the study variable accordingly. Below are conclusions on each of the interest rate application method indicators which are then proceed by a conclusion on the interest rate application methods and financial sustainability.

5.3.2.1   **Declining balance method in the interest rate policy and financial**

sustainability.

The Pearson correlation coefficients for the declining balance method in the interest rate application method were r = 0.306 and r = 0.493 on Operational and financial self sufficiency respectively. The Pearson correlation result guides the conclusion that the declining balance method in the interest rate application methods had a positive linear relationship to operational and financial self sufficiency of PML (Table 14). The method accounted for 9.3% variance on operational and financial self sufficiency. Corroborative documentary review (Development Policy Division, New Delhi, 2007) and interviews guided the conclusion that the declining balance method maximized interest income revenue through increased outreach and customer retention for the MFIs while minimizing interest expense to the clients which locked them in and significantly improved financial sustainability.

5.3.2.2   **Flat rate application method in the interest rate policy on financial**

sustainability

Though evidence from Pearson correlation result (Table 15) showed the flat rate interest rate application method in the interest rate application methods had a positive linear relationship on cost coverage, income generation and management efficiency, the flat rate

application method on profitability correlated negatively, r = -0,067 and r = - 0.232 on operational and financial self-sufficiency respectively. This guides to conclude that the flat rate method had a negative linear relationship with financial sustainability. The conclusion was supported by corroborative evidence from documentary review (Figure 1) and interviews that while applying a flat rate method, PMLs profitability was low and persistently on a reducing trend 2004 – 2008 and thus, flat rate application method in the interest rate application policy reduced financial sustainability.

5.3.2.3   Conclusion on interest rate application methods on financial sustainability.

The objective was to analyse the effects of interest rate application methods on financial sustainability of MFI. Interest rate application methods in the component factor analysis accounted for 18% of the interest rate policy hence very significant. The Pearson correlation r = 0.864 , sig. 000 and its coefficient of determination r^2 = 75% guided the conclusion that the interest rate application methods in the interest rate policy had a very strong positive linear relationship and accounted for 75%   variations on financial sustainability of the MFIs. Corroboration with documentary review revealed that the interest rate application methods, coupled with high management efficiency, are used to increase interest income generation without affecting the level of interest rate. The reducing balance method of interest rate application was found to meet both MFI and clients needs (win – win) through maximizing revenue for the MFI, high customer retention and outreach and a lesser effective interest expense payable by clients. The flat rate application method on the other hand maximized interest income revenue to the MFI at whatever management inefficiencies, but increased interest expense to the client besides high customer drop out, which reduced financial sustainability of PML. Accordingly the significance level for the null hypothesis,

sig. = 000 was lower than 0.05 while testing the hypothesis $H2_0$ and this guided the conclusion to uphold the alternative hypothesis that interest rate application methods significantly affected financial sustainability.

5.3.3 Interest income collection methods and financial sustainability

Findings on interest income collection methods are used to make a conclusion on the study variable accordingly. Below are conclusions on each of the interest income collection methods indicators which are then proceed by a conclusion on the interest income collection methods and financial sustainability.

5.3.3.1 Upfront interest income collection method in the interest rate policy.

The study found that upfront interest income collection method had a positive linear relationship on cost recovery, management efficiency and income generation. From documentary review, attributes of the upfront collection method; repayment schedules and advance loan processing fees improved financial sustainability. However, the Pearson correlation result (Table 18) for upfront income collection method on interest income in arrears, operational and financial self-sufficiency were negative and linear which leads to the conclusion that the upfront interest income method did not improve financial sustainability. This implied that its implementation could not improve financial sustainability of the PML as a whole because it reduced client's welfare which increased clients drop out for the MFI.

5.3.3.2 Interest income due collection method in the interest rate policy.

The Pearson correlation result (Table 18) for interest income due method on cost coverage, income generation, and profitability indicators were positive and linear and it was significant on imputed costs and income in arrears at sig. = 0.042 and 0.017 respectively. The

interest income due method however had a negative linear relationship to the yield gap, recovery rate and portfolio at risk. It was found that when interest income due persisted un collected, the yield gap, recovery rate and portfolio at risk worsen which aggravated financial sustainability to be low. The interest income due method was positive and linearly related to OSS and FSS which implied that the method improved financial sustainability. Repayment schedules were used to monitor and report the amount due on time to be realized as income which when recovered improved financial sustainability.

5.3.3.3   The interest income in arrears policy in the interest rate policy.

The study established that interest income in arrears method had a positive linear relationship on cost coverage; interest income due, interest income in arrears and the yield gap in the income generation and management efficiency and the indicators of profitability (Table 18).Financial sustainability was low when interest income in arrears policy was lenient to defaulters, but when the interest income in arrears policy was stringent to default, arrears kept on a reducing trend which improved financial sustainability. Interest income in arrears method specified zero default tolerance and stringent policies that minimized interest income in arrears, kept portfolio at risk on a reducing trend and hence improved financial sustainability.

5.3.3.4   Conclusion on interest income collection methods on financial
**   sustainability**

The objective was to examine the effects of interest income collection methods on financial sustainability of PML. The interest income collection method rated high in the

component factor analysis, accounting for 26% of the interest rate policy. From the Pearson correlation result, r = 0.833, sig. = 0.000 and its coefficient of determination, r^2 = 70%, it was found that the interest income collection methods had a very strong positive linear relationship and accounted for 70% of variations in financial sustainability of MFIs. Financial sustainability was low when interest income collection methods were lenient to default, but when interest income collection methods were stringent and tailored to collect interest income to the MFI, financial sustainability improved. The interest income collection methods that accelerated the interest income collection improved financial sustainability. Corroborative findings in literature reviewed and interviews confirmed that the interest income collection policies accelerated interest income collection, minimized default at reducing cost of loans recovery and were stringent zero tolerant policies that enhanced financial sustainability. Similarly, the hypothesis $H3_0$ that stated that interest income collection methods positively affected financial sustainability was upheld to be true at significant level 99% (sig. = 0.000). Accordingly, the interest income collection methods guide the MFI to recognize interest income on active loans when it falls due and on portfolio at risk to be written off in accordance to the accrual accounting concept.

5.3.4   Influence of clients' response to interest rate policy on the relationship
between interest rate policy and financial sustainability.

The objective was to establish the influence of clients' response to interest rate policy on the relationship between interest rate policy and financial sustainability. The influence of clients' response on the relationship between interest rate policy and financial sustainability was established using a partial correlation and a hierarchical multiple regression results which guided the conclusion on the objective and hypothesis $H4_1$. The Part correlation

r_1 = 0.880, sig. = 0.001, and $r_1{}^2$ = 77.4% guides the conclusion that interest rate policy had a strong positive and linear relationship, accounting for 77.4% of financial sustainability of MFIs , but when clients' response was introduced in model 2 of the regression, the resulting R square reduces to R^2 change, r_2 = 0.876, sig. = 0.001, which has a coefficient of determination = 76.7%. The resulting change in R square was a reduction by 0.7%, at statistical level 0.948, insignificant , implying that when client's response to interest rate policy was exhibited, 0.7% variance reduction in financial sustainability was not explained by interest rate policy and guided to conclude that client's response to the interest rate policy had a negative influence on the relationship between interest rate policy and financial sustainability. The reduction and negative linear relationship established conflicted with reports by Semboja (2004) and Anyanwu (2004) who had proclaimed that clients of MFIs were insensitive to interest rates.

The alternative hypothesis $H4_1$ was tested. When clients response was predicted on the interest rate policy, R^2 reduced from 0.775 to 0.716 where its change in R^2 = 0.058 at significant level 0.614 > 0.05. The reduction in R^2 change result implied that clients' response negatively influenced the relationship between interest rate policy and financial sustainability where clients' response explained the negative variance in financial sustainability by 5.8%. The result revealed that the predictor, clients response had a negative linear influence on the relationship between interest rate policy and financial sustainability. Accordingly, the hypothesis that clients' response to interest rate policy positively influenced the relationship between interest rate policy and financial sustainability as perceived by the researcher was rejected and null hypothesis result triangulated with the partial correlation result approved hypothesis to read, clients response to interest rate policy negatively influenced the relationship between interest rate policy and financial sustainability.

5.4   Recommendations.

The following recommendations are guided by the study findings and conclusions on the relationship between interest rate policy and financial sustainability of PML.

5.4.1   Interest rate determination and financial sustainability

Given that PRIDE Microfinance Ltd (MDI) was trading on an optimum portfolio and investment, and while exhibiting a high standard of management efficiency, the following recommendations on interest rate determination will improve financial sustainability.

5.4.1.1 The study recommends that PML should document the interest rate determination policy which specifies interest rate composition to comprise the administration expense rate, loan loss provision rate, cost of funds rate and the Capitalisation rate accordingly to enable charge a sustainable interest rate on microfinance loans for financial sustainability.

5.4.1.2 The study recommends that charging stationery fees, ledger fees on loan accounts and loan processing commissions separately should be avoided but instead be included in the interest rate determination.

5.4.1.4   The study recommends that PML undertakes revise interest rate charged periodically to much the general price levels in the economy.

5.4.2   Interest rate application methods on financial sustainability.

Given that the objective of interest rate application policy was to raise maximum revenue to cover costs sustain ably, while retaining customers, the study recommended as follows;

5.4.2.1   The study therefore recommends a declining balance method which was found to maximize interest income to the MFI and positively related to operational and financial self

sufficiency for financial sustainability through increased outreach and management efficiency associated with an increasing credit officer's workload, customer retention and on time recovery rate. It is recommended that PML adopts a reducing balance method because it will increase revenue by creating a win win situation where maximum interest income for the MFI and less interest expense for clients is the standard.

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5.4.2.2 The study further recommends that the flat interest rate application method should be avoided because was found to be negatively related to operational and financial self sufficiency of PML hence reduced financial sustainability of the MFI.

5.4.2.3 The study recommends that financial sustainability should be viewed from the client's point of view as well and the recommendation to charge a reducing balance method ought to be implemented alongside revising the current interest rate structure and not in isolation. The Interest rate application method should be documented as part of the interest rate policy and communicated to management and simplified to clients and the public for easy following and application. The interest rate quoted per anum should be prorated per month since the loan periods of four to six months are short enough to benefit turnover through credit creation.

5.4.3   Interest income collection methods and financial sustainability.

The objective of the interest income collection method was to accelerate interest income inflows for financial sustainability.

5.4.3.1   The study recommends that the upfront characteristic features of collection of fees and commissions in advance be avoided and to instead aggregate an interest rate. Best practices of the upfront interest income collection methods such as repayment schedules for

determining interest income instalments should be adopted in the interest income collection method in the interest rate policy.

5.4.3.2   The study recommends that the interest income due collection method which related positively to operational and financial self sufficiency of PML should be documented as part of the aggregate interest rate policy and communicated to management and implemented.

5.4.3.3   The study recommends that the interest income in arrears method that emphasized the zero tolerance default policy at PML should be emphasized and documented as part of the interest rate policy because it reduced the portfolio at risk in the MFI and was thus recommended to improve financial sustainability.

5.4.4   Influence of clients' response to the interest rate policy on the relationship between interest rate policy and financial sustainability.

5.5.4.1   The study recommends that PML undertakes to educate the public, stakeholders and her clients in particular the rationale for interest rate policy so that client's response to interest rate policy can be minimized for financial sustainability because the study found client response to be of negative influence to financial sustainability.

5.5.4.2 . The study recommends PML to carry out sensitivity analysis of the clients' influence and establish at what level of interest rate and to which attributes in the interest rate policy that clients response will influence and its consequences on financial sustainability.

5.4.4.3   The study recommends PML to put in place an interest rate policy that will create a win win standard where the MFI raises maximum interest income for financial sustainability while at the same time minimizing the effective interest expense and costs to the client. PRIDE microfinance should establish the interest rate that meets both MFI financial sustainability and the clients' micro enterprise sustainability.

5.5   Recommendations for further research.

5.5.1   Sustainable interest rate for financial sustainability of Microfinance deposit taking institutions (MDIs) in Uganda.

5.5.2   Establishing interest rate composition coefficients for interest rate charged by Microfinance deposit taking institutions (MDIs).

5.5.3   Client's response on financial sustainability of Microfinance deposit taking institutions (MDIs).

5.5.4   Relation ship between customer retention and financial sustainability of Microfinance deposit taking institutions (MDIs).

5.5.5   Cost controls and financial sustainability of Microfinance deposit taking institutions (MDIs).

5.5.6   Clients' sensitivity to changes in interest rates on financial sustainability of Microfinance institutions.

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Appendix I: Figure 10; Geographical Location of PML's Branches.

1. Head Office Branch	11. Masaka	21. Kawempe
2. Katwe	12. Hoima	22. Lira
3. Iganga	13. City Centre	23. Ishaka
4. Kasese	14. Jinja	24. Wandegeya
5. Nakawa	15. Mbarara	25. Soroti
6. Mukono	16. Kabale	26. Rukungiri
7. Bugiri	17. Kasubi	27. Natete
8. Fortpotal	18. Buwenge	28. Mbale
9. Kabalagala	19. Bushenyi	29. Kabwohe
10. Lugazi	20. Arua	

Source: PML Annual Report 2008

Appendix IIa: **UMI authority letter to collect data for a dissertation.**

UMI UGANDA MANAGEMENT INSTITUTE

Telephones:	256-41-4259722 /4223748 /4346620	Plot 44-52, Jinja Road
	256-31-2265138 /39 /40	P.O. Box 20131
	256-75-2259722	Kampala, Uganda
Telefax:	256-41-4259581 /314	Website: http://www.umi.ac.ug
E-mail:	admin@umi.ac.ug	

Your Ref:

Our Ref: G/35   21 May 2009

Mr. Wanderemah Richard
08/MMSFM/16/039

Dear Mr. Wanderemah,

FIELD RESEARCH

Following a successful defense of your proposal before a panel of Masters Defense Committee and the inclusion of suggested comments, I wish to recommend you to proceed for fieldwork.

Please note that the previous chapters 1, 2 and 3 will need to be continuously improved and updated as you progress in your research work.

Wishing you the best in the field.

Yours sincerely,

John Kitobbe

**AG. HEAD, HIGHER DEGREES DEPARTMENT/
PROGRAMME MANAGER MMS**

Appendix IIb: UMI introduction letter to PML collect data for a dissertation.

UGANDA MANAGEMENT INSTITUTE

Telephones:	256-41-4259722 /4223746 /4346620	Plot 44-52, Jinja Road
	256-31-2265136 /39 /40	P.O. Box 20131
	256-75-2259722	Kampala, Uganda
Telefax:	256-41-4259561 /314	Website: http://www.umi.ac.ug
E-mail:	admin@umi.ac.ug	

Your Ref:

Our Ref: G/35   21 May 2009

The Executive Director
Pride Microfinance Ltd.
Uganda.

Dear Sir/Madam,

MASTERS IN MANAGEMENT STUDIES DEGREE RESEARCH

Mr. Richard Wanderemah is a student of the Masters Degree in Management
Studies of Uganda Management Institute 16th Intake 2008/2009 specializing in
Financial Management, Registration number: **08/MMSFM/16/039.**

The purpose of this letter is to formally request you to allow this participant to
access any information in your custody/organisation, which is relevant to his
research.

His Research Topic is: *"Interest Rate Policy and financial Sustainability of
Microfinance Institutions in Uganda: A Case Study of Pride Microfinance
Ltd".*

Any assistance rendered to him shall be appreciated.

Yours sincerely,

John Kabebe
AG. HEAD, HIGHER DEGREES DEPARTMENT/PROGRAMME MANAGER,
MASTERS DEGREES IN MANAGEMENT STUDIES

Appendix III: PML authority to undertake research on PML as a case study.

PRIDE MICROFINANCE LIMITED (MDI)
Metropole House, Plot 8 - 10 Entebbe Rd.
P.O. Box 7566, Kampala, Uganda
Tel: 041 - 346297 / 346930 / 258150
         0312 - 262365/6
Fax: 041 - 346147
Email: pml@pridemicrofinance.co.ug

July 22, 2008.

Mr. Omoding Joseph,
Regional Supervisor
Central I,
PRIDE MICROFINANCE LIMITED (MDI)
Katwe Branch,
P.O. Box 7566,
Kampala.

Dear Mr. Omoding,

RE: MR. WANDEREMAH RICHARD.

This is to introduce to you **Mr. Wanderema Richard**, who is pursuing a Masters in Management Studies at Uganda Management Institute (UMI), Kampala.

He would like to carry out a research on "The Impact of Interest rate policy on the sustainability of Microfinance Institutions". This letter is therefore to request you to accord him the necessary assistance during his research.

He must however produce some identification first.

Thanking you for your cooperation.

Yours Sincerely,

Reherna N. Mutazindwa
**HUMAN RESOURCE DEVELOPMENT
& ADMINISTRATION MANAGER**

Appendix IV: **A self administered questionnaire.**

This is a self administered to Senior Executives, Finance and branch managers of PML to collect opinions, perceptions that relate to interest rate policy and financial sustainability in accordance with the research objectives. The questionnaire was made up of five sections with predetermined alternatives on a nominal and likert scale to enable collect data to answer the research questions.

SECTION A.   NOMINAL DATA ABOUT THE RESPONDENT

Position, ☐   Board,   ☐   Senior Executive,   ☐   Finance   ☐   Branch Manager

Experience (years) in governance or management or operations of MFIs;

☐   Above 5 years,

☐   2 – 4 years,

☐   Below 2 years

SECTION B.

This section is an inquiry on the relationship between interest rate policy and financial sustainability, objective by objective. The respondent is requested to check along the row the number that satisfies own opinion and perception about the statement made or question asked concerning interest rate policy and financial sustainability in PRIDE Microfinance Ltd. In this study, each number has the   meaning assigned as follows;   **5 = strongly agree, 4= agree, 3 = Un decided , 2 = dis agree, 1 = strongly disagree**.

Objective 1; Interest rate determination policy on financial sustainability .

No.	Question/ Opinion Scale of measure	5	4	3	2	1
	Administration expense rate					
1	Admin. expenses rate considered in interest rate improved financial sustainability					
2	Operational costs are reducing					
3	Ratio of admin. expenses to loans portfolio < 15%					
	Loan loss provision rate.					
4	Loan loss provision rate is included in interest rate					
5	Loan loss ration to operating costs reducing..					
6	Loan loss provision to portfolio is less than 1%					
	Cost of funds rate.					
7	Cost of funds covered by interest rate.					
8	Use of commercial fund reducing.					
9	Grants & subsidy contribution reducing					
10	Cost of funds ratio to portfolio < 15%					
	Capitalisation rate.					
11	Capitaisation rate included in interest rate improved financial sustainability.					
12	Part of profits are loaned out					
13	Contribution to portfolio growth by retained earnings is increasing.					
14	Ratio of Capitalisation rate to portfolio is ≤ 15 %					

Objective 2; Interest rate application methods on financial sustainability.

No	Scale of measure in numbers.	5	4	3	2	1
	Declining balance method.					
15	Interest rate policy specifies method of application.					
16	Calculation method maximizes income generation.					
17	Reducing balance method is in use					
18	PML interest rate objective is to maximize interest income generation.					
	Flat rate application method.	5	4	3	2	1
19	Clients know how to calculate interest.					
20	Interest calculation is simplified to all.					
21	Flat rate method is the policy in use.					
22	Application method maximizes interest income.					

Objective 3; Interest income collection methods on financial sustainability.

	Upfront collection method	5	4	3	2	1
23	PML Collects interest income upfront.					
24	Repayment schedules are used to collect interest income					
25	Prepaid interest income is held on a special account till due.					
26	There is a budgeted interest income per year.					
27	Interest calculation is simplified.					
	Interest income due method	5	4	3	2	1
28	Interest income is collected when due.					
29	Our clients pay interest installments weekly.					
30	Loan installments are paid monthly.					
31	Repayment schedules are followed to collect interest income.					

	Interest income in arrears method.	5	4	3	2	1
32	There is a budgeted interest income per year at PML.					
33	Interest income to expense and budget gap is favorable / positive					
34	Interest income in arrears is collected and reported.					
35	Zero default is implemented.					

Financial Sustainability.

	Cost Coverage.	5	4	3	2	1
	Operational costs.					
36	Interest income covers operational Costs.					
37	Cost controls are in place to and effective.					
38	Interest income covers imputed costs					
39	Operational Grants, subsidies and Treasury bills interest income are used to cover costs.					
40	Fees and commissions are charged to meet costs					
41	Interest income is low to cover costs.					
	Loan losses .					
42	Bad loans written off are pursued to recovery.					
43	Loan loss provision is covered by interest income.					
44	Interest income covers loan loss adjustments.					
	Imputed costs of capital.					
45	Interest income covers adjustment of imputed costs.					
46	Other loan able funds are invested in treasury bills to meet costs.					
47	Inflation level affects interest rate charged.					
	Interest income generation.	5	4	3	2	1
	Interest income due					
48	Interest income due is collected on time					

49	Interest income due is reported on time.					
	Interest income collected	5	4	3	2	1
50	Interest income paid is timely reported.					
51	Interest income paid to due ratio is favorable $\geq$ 95%.					
	Interest income in arrears.					
52	Interest income in arrears is pursued to recovery.					
53	Interest income prepaid is held on special account till due.					
54	PML has a zero tolerance policy on default.					
	Management efficiency.	5	4	3	2	1
	Credit officer's workload.					
55	The MFI trades on optimum portfolio.					
56	Repeat loans are increasing.					
57	Average loan size is increasing.					
58	Loan methodology is implemented appropriately.					
59	Credit officers workload is > 400 and increasing.					
60	The cost per loan is reducing.					
61	Customer retention rate is > 90%					
62	Customer drop is rewarded to staff.					
	The Yield gap.	5	4	3	2	1
63	Interest earned exceed budgeted					
64	Yield gap ratio $\geq$ 1					
	Recovery rate.					
65	PML has zero tolerance policy on defaulters.					
66	Average recovery rate is $\geq$ 95%					
	Portfolio at risk.	5	4	3	2	1
67	Portfolio at risk is 5% of the portfolio.					
68	Portfolio at risk is less than 5% and reducing.					
69	Administration costs are $\leq$ 25% and reducing.					
70	There is a portfolio at risk policy.					

	Profitability.	5	4	3	2	1
	Operational self sufficiency.					
71	PML has achieved operational self sufficiency.					
72	The operational self sufficiency is > 94%					
	Financial self sufficiency.	5	4	3	2	1
73	The imputed cost of capital is reducing.					
74	PML has achieved financial self sufficiency					
75	Financial self sufficiency is > 90%					
76	Operational costs at PML are reducing.					
77	Ration of other incomes to total income is reducing.					
78	The ration of operational grants to costs is reducing.					

Objective 4; Client's response to interest rate policy on financial sustainability.

	Scale of measure in numbers.	5	4	3	2	1
	Interest rate determination					
89	Increasing interest rate will scare away the clients					
80	Clients will still borrow even interest rates increased					
	Interest rate application method.	5	4	3	2	1
81	PML interest rates are subsidized for clients.					
82	Clients are consulted to revise interest rates.					
83	Clients give feed back on interest rate policy.					
84	PML Interest rate is lower than competitors.					
	Interest income collection methods.	5	4	3	2	1
85	Clients micro enterprise sustainability is emphasized when applying interest rates.					
86	Clients do not mind the level of interest rates.					

Appendix V. A researcher administered questionnaire to repeat borrowers of PML.

SECTION A; Nominal data about the repeat borrower respondent.

      ☐   ☐   ☐

Loan cycle   2-4,   5-7   Above 7

Type of micro enterprise loaned. _____

Collaterals pledged for the Loan. _____

SECTION B; Interest rate policy and clients response on borrowing.

This section is an inquiry on the influence of client's response to interest rate policy on the relationship between interest rate policy and financial sustainability. The research assistant read the question to the client with clarity and in turn to tick the number that represents the clients' opinion about the statement made or question asked along the likert scale. In this study, each number had the meaning assigned as below; If the client expressed another opinion, it was written down.

5 = strongly agree, 4= agree, 3 = Un decided , 2 = dis agree, 1 = strongly disagree.

No	Question/ Opinion Scale of measure	5	4	3	2	1
	Interest rate determination.					
1	I know the Interest rate that PRIDE is charging.					
2	I know the interest rate charged by other MFIs					
3	I know the importance of interest rate charged.					
4	PRIDE has ever revised the interest rate charged.					
5	I pay fees and commissions besides the interest charged.					
	Interest rate application methods.	5	4	3	2	1
6	PRIDEs interest rate charged on loans is lower					
7	I will still borrow from MFIs even if they increased interest rate charged (Give reasons)					
8	I can calculate interest charged on loans					
9	I prefer paying equal interest instalments.					
10	Interest charges paid changes every month/ week.					
	Interest Income collection methods.	5	4	3	2	1
11	I have sold some of my collaterals to pay the loan.					
12	I receive all the loan amount approved from PML.					
13	I pay interest in advance for loan received.					
14	I pay interest charged weekly/monthly					
15	Upfront collection of interest affects my business.					
	Cost coverage	5	4	3	2	1
16	Benefits from the loan exceed interest expense.					
17	Defaulters refund loan instalments paid by the group.					
18	I get a loan in PRIDE in a short time after application.					
19	My business has expanded due to loan from PRIDE.					
20	My income has increased as an impact of a loan from PRIDE into my business.					
	Income Generation.	5	4	3	2	1

21	I pay loan instalments on due date.					
22	Late payments are penalised by PRIDE					
23	Defaulters refund loan instalments paid by the co guarantors.					
24	Early and on time repayments are rewarded					
25	My business profits exceed interest expense					
26	I pay loan instalments from other sources.					
	Management efficiency.	5	4	3	2	1
27	Officers from PRIDE visit my business.					
28	I recommend my friends, relatives to get loans from PRIDE Microfinance.					
29	I am paying the current loan instalments well.					
30	Some members stopped borrowing from PML, Please explain why they stopped.					
31	I / We pay loan instalments for group/ co guaranteed members who default.					
32	Trainings from PRIDE improve my business.					
33	Late repayments are penalised.					
	Profitability.	5	4	3	2	1
34	My Business expanded due to loan from PRIDE.					
35	My business Income has increased as an impact of a PRIDE Loan.					
36	PRIDE Interest rate is lower / higher					
37	My house hold income and welfare has improved due to a loan from PML					
38	I will still borrow from PML to increase my profits.					
39	I pay Interest charged from business profits					

Appendix VI: Interview guide for senior executives and branch managers of PML

The interview guide is an administered open ended questioning to each selected Senior executive of PML to collect data on opinion / statements and questions that relate to interest rate policy and financial sustainability in accordance with PRIDE Microfinance Ltd. The responses to questions and some more details of interest mentioned by the respondent shall be summarised in the researchers note book accordingly to facilitate the research during data analysis.

SECTION A.   Nominal data about the interviewee.

Position, ☐ Board, ☐ Senior Executives, ☐ . Management, ☐ Operations.

Experience (years) in governance or management of MFIs;

☐ Below 2 years.   ☐ Below 2 years   ☐ Above 5 years

SECTION B. Open ended face to face Interview guide with Officials of PML.

Interest rate policy and financial sustainability of PRIDE Microfinance Ltd.

Interest rate determination.

1.   How was the interest rate charged determined?

2.   What is the composition of the interest rate being charged?

3.   Is there a written down policy on interest rate determination?

4.   What is the interest rate determination objective at PML?

5.   Is the interest rate charged a sustainable rate for the institution?

Interest rate application methods

6.   What interest rate application method is PML implementing?

7.   Does this method maximise interest income for PML? Please explain.

8.   Does the application method retain customers in PML? Please explain.

9.   What strategic plans are in place on the interest rate application methods?

10.   Do PML clients give feedback on interest rate application methods? Elaborate.?

11.   Is there a written down policy on interest rate application methods at PML?

Interest income collection methods.

12.   How has the PML ensured high recovery rates through the period?

13.   Is there a written down policy on interest income collection methods?

14.   What are the interest income collection objectives at PML?

15.   How does PML ensure on time income collection?

16.   Does the interest income collected cover all costs and a profit?

17.   What is the use of other fees and commissions charged at PML?

Appendix VII: **Interview guide for officials of Apex institutions.**

The Interview guide is to facilitate a face to face interview to each selected   Official of Apex institutions of Microfinance Industry to collect data on opinion / statements and questions that relate to interest rate policy and financial sustainability of MFIs/MDI. The responses to questions and some more details of interest mentioned shall be summarised in the researchers note book accordingly to facilitate the research .

SECTION A.   Nominal data about the interviewee.

Position, ☐   Board,   ☐   Senior Executives, ☐   Management, ☐ Operations.

Experience (years) in governance or management of MFIs;

☐   Below 2 years.   ☐   Below 2 years   ☐   Above 5 years

SECTION B. Face to face open ended interview guide for Officials of Apex Institutions for MFIs.

Interest rate policy and financial sustainability of Microfinance Institutions in Uganda.

Interest rate determination.

1   How do MFIs in Uganda determine interest rate charged on microfinance loans?

2   Do the MFIs report composition of the interest rate being charged to apex body?

3   Do MFIs in Uganda have written down policies on interest rate determination?

4   Are Ugandan MFIs charging a sustainable interest rates for the institutions?

Interest rate application methods

5   What interest rate application methods are MFIs implementing in Uganda?

6   Does this method maximise interest income for MFIs? Please explain.

7   Does the application method retain customers in MFIs? Please explain.

8   What strategic policy plans are in place on the interest rate application methods?

9   Do clients of MFIs give feedback on interest rate application methods to Apex body?

Interest income collection methods.

10   How have the MFIs ensured high recovery rates through the period?

11   Is there a written down policy on interest income collection methods?

12   What are the interest income collection objectives at PML?

Appendix VIII: Documentary review check list for data collection.

Variable/ indicator	Document required	Content to be reviewed
Interest rate determination policy	• Interest rate determination policy, • Credit and operational manuals.	• Interest rate composition rates. • Interest rate charged
Administration expense rate.	• Income statements, Balance sheet and notes to accounts.	• Credit Officers workload. • Trend in operation costs • Total operation costs.
Loan loss provision rate	• Interest rate policy, loan loss provision policy, • MDI regulation Act , 2004	• Interest rate policy not available • Loan loss provision in final accounts • Bad loans written off
Cost of funds rate.	• Income statements, • Balance sheets and notes to accounts.	• Financing costs • Cost analysis trends • Grants, subsidies, fees, Treasury bills interest income • Sources of funds.
Capitalisation rate	• Background to budget, MFPED • Notes to Final Accounts PML.	• Inflation rates. • Treasury bills rates • Changes in reserves
Interest rate application methods	• Operational and credit procedures	• Interest rate application methods used
Declining balance method	• Clients repayment schedules	• Size and interval of interest instalments payable

Flat rate application.	• Repayment schedules • PML Budgets and Income statement. • PML Annual reports and notes to accounts.	• Equal interest income installments receivable by PML. • Interest income to cost ratio. • Yield Gap • Profitability statements
Interest income collection methods	• **Interest income collection procedures**	• **Interest income collection procedures**
Upfront collection method	• Loan application approved • loan disbursement voucher	• Loan processing fees • Difference between approved and disbursed loan amount for a client • Use of repayment schedules.
Interest income due method	• Loan Repayment schedules • Portfolio reports. • Income statements	• Interest income receivable • Loan recovery rates. • Portfolio at risk (PAR) Loan recovery rates. • Portfolio at risk (PAR)
Interest income in arrears method.	• Credit policy and collection procedures.	• Policy statements on defaulters. • Role of guarantors on defaulters • Management of collaterals for defaulters.

Appendix IX: **Observation check list for data collection.**

Variable/Indicator	Observable event.	Content observable
Interest income collection method		
Interest income due method	- Meetings of the micro enterprise group. - Interest income collection activities at the micro enterprise group and the collection cycle	- Attendance of the meetings by clients. - Reporting and list of defaulters promptly. - Collecting payments to MEG leaders - Handling of defaulters at the meetings - Collection, storage and sale of collaterals from defaulters - Loan repayment cycle - Zero arrears tolerance indicators
	Business at the Banking halls of PML.	- Clients turn up, GGS and ILS - Savings and repayments deposits and withdrawals. - Micro project appraisals.
Interest income in arrears method	Meeting of micro enterprise group.	- Reporting status of arrears from previous meeting (MEG). - Role of peer guarantors.

Appendix X :Figure 11: Krejcie & Morgan , 1970, table, Amin (2005).

Martin E. Amin

Appendix A
Sample size (s) required for the given population sizes (N)

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	256	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	100000	384

Note : From R. V. Krejcie and D. W. Morgan(1970), Determining sample size for research activities, Educational and psychological measurement, 30, 608, Sage Publications.

Appendix XIa: **Analysis of Final Accounts; Income statement, 2004 – 2008**

PRIDE MICROFINANCE LIMITED (MDI).					
INCOME STATEMENT EXTRACTS ; NOTES TO ACCOUNTS ENDED 2004 - 2008					
Particulars/ Details	**2004**	**2005**	**2006**	**2007**	**2008**
Currency	**Billions UGX.**	**Billions UGX.**	**Billions UGX.**	**Billions UGX.**	**Billions UGX.**
INCOME					
Interest Income (a)	3.159	11.897	10.79	14.31	18.55
Bad Debts recovered (b)	0	0.35	0.67	0.14	0.127
Other Incomes from fees, staionery, tresury bills,………… (c)	1.373	1.06	3.265	1.238	1.373
Total Income (Note 2) d = (a+b+c)	**4.532**	**13.307**	**14.725**	**15.688**	**20.05**
COSTS/ EXPENSES.					
Financing costs (F) Note , (e)					
Interest and cost on Deposit, (f)	0.072	0.26	2.451	2.77	3.596
Interest on Borrowings, (g)	0.74	1.94	0	2.11	2.9
Total Financing costs, h= e+f+g	**0.812**	**2.2**	**2.451**	**4.88**	**6.496**
OPERATING COSTS.					
Personel costs, (i)	1.7	5.88	6.2	6.71	9.33
Bad Debts write off/ LLP . (j)	0.271	0.35	0.35	0.096	0.121
Operating expenses, (k)	0.75	3.18	4.52	3.997	5.031
Total Operating costs, (l)	**2.721**	**9.41**	**11.07**	**10.803**	**14.482**
Total costs/ Expenses, (m)	**3.533**	**11.61**	**13.521**	**15.683**	**20.978**
Net Income over costs. N=(d-m)	0.999	1.697	1.204	0.005	-0.928
Income Tax expense			1.94	0.43	0.84
Net Income after Tax	0.999	1.697	-0.736	-0.425	-1.768
Operating self sufficiency, o = a/m	**0.894141**	**1.02472**	**0.798018**	**0.912453**	**0.88426**
Suggested Imputed Cost of Capital %	7.271599	13.24026	13.31359	17.7558	21.42401
Sugested Imputed cost of capital	1.505221	2.615215	3.473515	6.148834	9.298019
Total Costs with imputed costs	**5.038221**	**14.22522**	**16.99452**	**21.83183**	**30.27602**
Financial self sufficiency	**0.627007**	**0.836332**	**0.634911**	**0.655465**	**0.612696**

Appendix XIb: **Analysis of Final Accounts; Balance sheet, 2004 – 2008**

PRIDE MICROFINANCE LIMITED (MDI).						
BALANCE SHEET EXTRACT FROM NOTES TO ACCOUNTS AS AT 31st December.						
Particulars/ Details		**2004**	**2005**	**2006**	**2007**	**2008**
		Billions UGX	**Billions UGX.**	**Billions UGX.**	**Billions UGX.**	**Billions UGX.**
ASSETS						
Cash and Bank	A	0.07	0.441	1.16	2.751	1.721
Financial investments eg, TBs B		0	0	16.1	10.23	13.699
Loan portfolio (Note 10) C		20.7	19.752	26.09	34.63	43.4
Accrued Interest Incomes D						
Other Assets and receivables	E	1.1	1.4	1.355	1.478	1.568
Other Assets	F	13.773	12.083	0.082	0.064	0.227
Fixed Assets	G	1.1	1.4	1.731	1.819	2.138
Total Assets		**36.743**	**35.076**	**46.518**	**50.972**	**62.753**
LIABILITIES						
Overdrafts, (Note 14)	H	12.93	9.1	16.312	0.050	0.823
Customer deposits (Note 15)	I	0	1.44	5.319	8.506	11.386
Loan Insurance fund (Note 16)	J	9.5	9.078	8.821	8.994	11.391
Debentures , (Notes 20)	K	4.282	4.282	4.282	4.282	4.282
Borrowed Capital, (Note 17)	L	2	2	2	16.31	17.594
Other Liabilities (Notes 9b,23,20,19) M		1.944	2.243	2.985	3.323	5.092
Revaluation reserve (Note 26)	N	0	0	0	0	-0.015
Retained earnings reserve	O	0.085	0.931	0.797	3.505	6.136
Regulatory reserves (Note 27)	P	0	0	0	0	0.061
Share Capital (Note 22)	Q	6.002	6.002	6.002	6.002	6.002
Total Liabilities		**36.743**	**35.076**	**46.518**	**50.972**	**62.753**

Appendix XIc: **Analysis of Final Accounts; Management data, 2004 – 2008**

MANAGEMENT DATA FROM ANALYSIS OF FINAL ACCOUNTS.					
Particulars/ Details	**2004**	**2005**	**2006**	**2007**	**2008**
	Billions UGX	**Billions UGX.**	**Billions UGX.**	**Billions UGX.**	**Billions UGX.**
ASSETS					
Average Net worth, Opening + clossing/2	36.743	54.281	58.335	72.004	82.3485
Average Fixed Assets, opening + closing/2	1.1	1.8	2.2655	2.6405	2.888
Average Net Worth - Aver. Fixed Assets	35.643	52.481	56.0695	69.3635	79.4605
Consentional loans	2	2	2	16.31	17.594
Performing Assets, B+C	20.7	19.752	42.19	44.86	57.099
Average performing Assets. Open + Close	**20.7**	**20.226**	**30.971**	**43.525**	**50.9795**
Average Interest rate on concess. loans%	13.2	13.2	17.4	14.6	14.6
Interest rate difference on Conc. Loans	1	2.2	1.4	-1.46	3.85
Inflation rate.%, (AMFIU 2008, p11).	4.7	5.4	7.7	11.8	13.9
Treasury bill rate as at 31st December.	12.2	11	12	13.14	18.45
Inflation * (Av.Net Worth - Av.Fixed Assets	167.5221	283.3974	431.7352	818.4893	1104.501
Inflation - Inte rate paid * Concession Loan	-17	-15.6	-19.4	-45.668	-12.3158
Total Number of staff, Vision 17.07.09	286	298	324	346	436
Total number of clients, Vision 17.07.09	56,135	72,824	89,359	136,106	146,634
Credit Officer workload	**196**	**244**	**276**	**393**	**336**
Portfolio at Risk Weghted,UGX, 31st Dec	0.214	0.197	0.135	0.0196	0.0425
Interest Income receivable UGX, 31st Dec	0.215	0.111	0.564	0.051	0.064
Portfolio at Risk rate (PAR)	1.03	1.00	0.00	0.06	0.10
Recovery rate as at 31st December.	93.6	99.1	95.0	99.6	99.7

Appendix XIIa :   Table 25; Rotated component matrix on interest rate policy.

Item/ Question administered to measure the variables.	Interest rate application methods	Interest income collection methods	Interest rate determination
Loan loss provision rate is included in the interest rate determination.	.911		
The cost of funds component is covered by the interest rate charged.	.878		
The interest rate policy specifies method of interest rate	.847		
Contribution to portfolio growth by retained earnings is increasing.	.788		
Interest rate calculation is simplified to all	.749		
Grants and subsidy contribution to costs are reducing.	.720		
PML adopted industrial interest rates charged			-.363
Reducing balance method of interest rate calculation is the policy in use.	-.651		
There is a criteria to determine interest rate charged.	.630		
Interest rate at PML is usually revised….	-.628		
Clients know how to calculate interest rate.	.560		
Part of the profits is put to portfolio ….	.422		
Funding portfolio using commercial loans is increasing.	.411		
Interest income in arrears is collected and reported.		.923	
Interest income is collected when it falls due		.811	

Repayment schedules are followed to collect interest income.		.764	
Flat rate method of interest calculation is the policy in use.		.760	
PML knows and is charging a sustainable interest rate.		.743	
PML collects interest income upfront		.664	
Loan Installments are also paid monthly		.600	
PML pays lower than treasury bills rate on savings deposits.		.588	
Our clients pay loan installments weekly		.539	
Capital growth ^ profit component was included in the interest rate charged…			.796
PMLs Interest rate objective is to maximize interest income generation			.757
Interest rate charged does not cover all costs.			.752
The interest income to expenses and budget gap is favorable and positive			.747
Administration expenses are considered in determining interest rate at PML			.617
Interest rate calculation is simplified to all			.521
Eigenvalues, rotational	**5.508**	**7.870**	**5.421**
Percentage variance	**18.361**	**26.232**	**18.069**
Cumulative percentage = 63%			

Source.   Primary data. (PML)

Extraction method; Principal component analysis.

Rotation method: Varimax with Kaiser normalization.

a. Rotation converged in 8 iterations.

Appendix XIIb: Table 26; Rotated component matrix on financial sustainability.

Item/ Question to measure the variable.	Component variables			
	Cost coverage	Management efficiency	Profita-bility	Income generation
My business income has increased as an impact of PRIDE loan.	.734			
My business has expanded due to PML loan	.704			
My income has increased as an impact of loan from PRIDE into my business	.701			
My business expanded due to loan……	.688			
I pay loan installments from other sources.	.463			
Late payments are penelised by PML.		.702		
My business profits exceed interest expenses		.693		
I am paying the current loan installment well.		.604		
I recommend friends,..to get loans from PML		.584		
Benefits from loan exceed interest expense		.442		
I get a loan in a short time after application.		.402		
I pay a loan installment on due date.			.-692	
Early and on time repayments are rewarded.			.-692	
Trainings from PRIDE improve my business.			.534	
My income and welfare improved due to loan			.526	
I pay interest from my Business profits.			.497	
I will still borrow to increase business profits.			.-437	
Some members stopped borrowing from PML				.763
Defaulters refund installments paid by the group.				.598
I / we pay loan installments for the group/ co guaranteed members who default				.-420.
Officials from PML visit my business				

PRIDE interest rate is lower.				
Late payments are penelized.				
Eigenvalues rotational	**2.938**	**2.650**	**2.618**	**2.053**
Percentage Variance	**12.242**	**11.042**	**10.910**	**8.554**
Cummulative percentage = 43%				

Source.   Primary data. (PML)Extraction method; Principal component analysis.

Rotation method: Varimax with Kaiser normalization**.**

a. Rotation converged in 8 iteration

Four important factors in the financial sustainability (dependent variable) were extracted contributing 43% of financial sustainability as shown in table 27 above. The cumulative eigenvalue on financial sustainability suggests that 43% variable factors contributed to financial sustainability and were part of this study. The rotational percentage variance factors are Cost coverage - 8.554%, Management efficiency – 10.910 %, Profitability –   11.042 and income generation – 12.242%. This implies that there are other 57% factors that comprise the financial sustainability of MFIs but were not part of the study

Appendix XIII: Descriptive statistics on interest rate policy and financial sustainability.

	N	Minimum	Maximum	Mean	Std. deviation	Skewness		Kurtosis	
Variable.	Statistic	Statistic	statistic	Statistic	Statistic	Statistic	Std error	Statistic	Std. error
Interest rate determination	15	2.64	4.57	3.6810	.55974	.357	.580	-.194	1.121
Interest rate application.	15	2.67	4.33	3.6444	.54869	-.183	.580	-1.021	1.121
Interest income collection	15	2.90	5.00	4.0800	.70529	-.162	.580	-1.225	1.121
Cost coverage	15	1.89	4.67	3.8963	.76228	-1.321	.580	2.114	1.121
Income Generation.	15	3.17	5.00	4.0333	.67318	-.463	.580	-1.104	1.121
Management efficiency	15	1.55	5.00	3.4727	.84250	-.898	.580	1.886	1.121
Profitability	15	2.40	4.60	3.5067	.66705	-.168	.580	-.547	1.121
Financial Sustainability	15	2.68	458	3.7273	.55837	-.378	.580	-.547	1.121
Client response	15	1.13	3.50	2.9333	.59362	-2.151	.580	5.989	1.121
Valid N (listwise)	15								

Source.   Primary data. (PML)

Appendix XIV: **Descriptive statistics financial sustainability**

Financial sustainability	Measuring scale						Descriptive statistic		
Number of respondents = 15	**AGREE**		**DISAGREE**		**UNDECIDED**		**Mean**	**Standard deviation**	**Skewness**
Average indicator and dimension	Freq. (F)	%ge	Freq. (F)	%ge	Freq. (F)	%ge			
Cost coverage	10	67	3	20	2	13	3.8963	0.76228	-1.321
Income generation	13	87	0	0	2	13	4.0333	0.67318	-0.463
Management efficiency	10	67	2	13	3	20	3.4727	0.84250	-0.898
Proffitability.	10	67	2	13	3	20	3.5067	0.66705	-0.168
Average on financial sustainability.	11	73.3	2	13.3	2	13.3	3.7273	0.55837	-0.378

Source; Primary data

Standard error = 1.121, Kurtosis = 0.580. Mode = 4, Median = 4, Sum F = 57.

To replace tables 23,24,25 and 26.

Strongly agree and agree analysed as agree, Dis agree and strongly disagree analysed as disagree, Undecided and none response analysed as undecided.

Appendix XV: **Interviews with officials of Apex institutions**

Variable.	Grouped summary of interviewee responses	Number	Frequency	%ge
Interest rate determination policy.	Each MFI determines its own interest rate charged	4	4	100
	Interest rate determination is liberalised.	4	4	100
	MFIs have not reported their interest rate composition.	4	4	100
	Interest rate policies not fully developed but mentioned in the operation manuals.	4	3	75
Interest rate application methods.	Interest rate application methods are being used as a competition tool among MFIs.	4	2	50
	Clients and stake holders have reported that flat interest rate application method reduces their welfare.	4	4	100
	PML follows a flat rate interest rate application method.	4	2	50
	Each MFI chooses a suitable interest rate application method in a liberal economy	4	2	50
Interest income collection methods.	MFIs/PML has reported high recovery rates.	4	3	75
	Collaterals pledged are sold and co guarantors pay the balance for defaulters as a policy	4	4	100
	MDIs have stringent collection policies that are formal including the MDI Act 2004.	4	4	100.
	Collection objectives aim at minimising default.	4	2	50

Source, Primary data, Interviews with Officials of apex institutions.

Appendix XVI: Interview with senior executives, finance officers and branch managers of PML.

Variable.	Grouped summary of interviewee responses	Number	Frequency	%ge
Interest rate determination policy.	The Treasury bill rate and risk of capital comprise interest rate determination at PML	10	2	20
	The Interest rate composition for PML on administration expense rate, loan loss provision rate, capitalisation rate and cost of funds rate not precisely known nor documented.	10	10	100
	There is no detailed documentation of interest rate determination policy.	10	10	100
	The interest rate charged was inherited from the parent company PRIDE Uganda in 2003.	10	5	50
Interest rate application methods.	PML is charging a flat rate interest rate application method.	10	10	100
	The flat interest rate application method does not maximise revenue to the MFI in a long run and has low customer retention.	10	6	60
	PML is assessing the possibility of charging a declining balance to avert loss.	10	10	100
	The effective interest rate paid by the clients is not ascertained nor known.	10	4	40
	The interest rate application method is stipulated in the operational manual of PML	10	10	100
	Clients complain that the flat rate interest rate application method deprive them off welfare	10	10	100
Interest income collection methods.	Zero tolerance policy on default is in place and effective.	10	10	100
	Banking halls are in place for expediting interest income collections and reporting.	10	10	100
	Credit managers and supervisors are rewarded over PAR and recovery rate.	10	10	100
	Arrears are pursued and recovered.	10	10	100
	Interest income is determined upfront using repayment schedules with clients and reminders to pay are made to ensure timely collection	10	10	100
	Collaterals for defaulters are sold to repay	10	10	100
	Co guarantors pay defaulted instalments	10	8	80
	Loan processing fee is collected in advance and interest income determined upfront .	10	6	60
	Interest income does not cover all costs	10	7	70

Source, Primary data .