THE MICROFINANCE INDUSTRY IN UGANDA: sustainability, outreach and regulation

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DECLARATION

I, the undersigned, hereby declare that the work contained in this dissertation is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

Signature   Date

ABSTRACT

Using an econometric approach on panel data collected from 53 microfinance institutions (MFIs) in Uganda over a period of six years (annual), this study has identified the determinants of sustainability and outreach of MFIs. In addition, the study has also used survey data from 31 non-Bank of Uganda (BOU) regulated MFIs or Tier 4 MFIs, four BOU-regulated non-bank MFIs, 12 commercial banks and the BOU itself to assess the effects of financial regulation of MFIs on their sustainability and outreach.

The results indicate that sustainability is positively and significantly driven by real effective lending rates and age of an MFI, and negatively by the ratio of gross outstanding loan portfolio to total assets, the ratio of average loan size to the national per capita income, the unit cost of loans disbursed, and a group-based delivery mechanism compared to an individual-based delivery mechanism. Outreach is positively and significantly driven by an MFI being a savings and credit co-operative (SACCO) compared to being a private company, effectiveness of governance, the age of an MFI, the ratio of gross outstanding loan portfolio to total assets, and the ratio of salary/wage paid to staff to the national per capita income, and negatively by the ratio of average loan size to the national per capita income and the unit cost of loans disbursed. In the short run, financial regulation negatively influences the outreach of MFIs, but positively affects their sustainability. In the long term, financial regulation positively influences both the sustainability and the outreach of MFIs.

The results suggest a number of policy options. First, the MFIs should focus on the real effective lending rate, given its significance in their sustainability. Second, for a real effective lending rate to be relatively low, the rate of inflation should be low. This calls for prudent monetary policy management by the government. Thirdly, the cost of doing business should be kept low. This calls for prudence in business management by the MFIs and creating a cost-effective business environment by the government. While the results are tentative, in order to expand outreach more SACCOs should be established and the MFIs should commit more funds to lending purposes compared to other investments. Finally, before enacting financial legislation, it is important that its benefits and costs are adequately assessed to ensure that the benefits outweigh the costs both in the short and long term.

OPSOMMING

Hierdie studie maak gebruik van 'n ekonometriese benadering tot paneeldata verkry van 53 mikro-finansiële instellings (MFIs) in Uganda oor 'n tydperk van ses jaar (jaarliks) om die determinante van volhoubaarheid en die reikwydte (of uitreik) van MFIs te identifiseer. Die studie gebruik ook data uit opnames vanaf 31 nie-"Bank of Uganda" (BOU) gereguleerde of Vlak 4 MFIs, vier BOU-gereguleerde MFIs, 12 kommersiële banke, en die BOU self om die effek van finansiële regulering van MFIs op hul volhoubaarheid en reikwydte te bepaal.

Die resultate toon dat volhoubaarheid positief en beduidend beïnvloed word deur reële effektiewe uitleenkoerse en die ouderdom van 'n MFI. Dit word negatief beïnvloed deur die verhouding van bruto uitstaande leningsportefeulje tot totale bates, die verhouding van gemiddelde leningsgrootte tot nasionale per capita inkomste, die eenheidskoste van lenings uitgereik, en deur 'n groep-gebasseerde afleweringsmeganisme in vergelyking met 'n idividueel-gebasseerde afleweringsmeganisme. Reikwydte word positief en beduidend beïnvloed indien 'n MFI 'n besparings- en kredietkoöperasie (SACCO) is eerder as 'n private maatskappy, deur die effektiwiteit van bestuur, die ouderdom van 'n MFI, die verhouding van bruto uitstaande leningsportefeulje tot totale bates, en die verhouding van salaris/loon betaal aan personeel tot nasionale per capita inkomste. Reikwydte word negatief beïnvloed deur die verhouding van gemiddelde leningsgrootte tot nasionale per capita inkomste en die eenheidskoste van lenings uitgereik. In die kort termyn het finansiële regulering 'n negatiewe effek op die reikwydte van MFIs, maar 'n positiewe effek op hul volhoubaarheid. In die lang termyn het finansiële regulering 'n positiewe effek op beide die volhoubaarheid en reikwydte van MFIs.

'n Paar beleidsopsies vloei voort uit die resultate. Eerstens moet MFIs op die reële effektiewe leningskoers fokus op grond van die belangrikheid daarvan vir volhoubaarheid. Tweedens, vir 'n reële effektiewe leningskoers om relatief laag te wees, moet die inflasiekoers laag wees. Dit vereis verstandige monetêre beleidsoptrede. Derdens, die koste om handel te dryf moet laag gehou word. Dit doen 'n beroep op MFIs tot verstandige bestuur en op die regering tot die ontwikkeling van 'n koste-effektiewe besigheidsomgewing. Al is die resultate tentatief, sal meer SACCOs gestig moet word ten einde MFIs se reikwydte te verbeter en MFIs sal meer fondse vir lenings moet allokeer in vergelyking met ander beleggings. Laastens, voor finansiële regulering toegepas word, is dit belangrik dat die voordele en kostes daarvan bepaal word om te verseker dat die voordele die kostes in beide die lang en kort termyn oortref.

ACKNOWLEDGEMENTS

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LIST OF ACRONYMS

AMFIU	Association of Microfinance Institutions of Uganda.
ANT	Average number of times
AROA	Adjusted return on assets
AROB	Adjusted return on business
AROE	Adjusted return on equity
ASA	Association for Social Advancement
AvLz	Average loan size
BOU	Bank of Uganda
BRAC	Bangladesh Rural Advancement Committee
BRI	Bank Rakyat Indonesia
CAMELS	Capital, asset quality, management, earnings, liquidity and market sensitivity
CAR	Capital adequacy ratio
CERUDEB	Centenary Rural Development Bank
CGAP	Consultative Group to Assist the Poorest
CIC	Currency in circulation
CK	Core capital
CLD	Unit cost of loans disbursed
CMA	Capital Markets Authority
DANIDA	Danish International Development Agency
DDM	Dominant product delivery mechanism
DER	Debt-equity ratio
DFID	Department for International Development
DOI	Depth of Outreach Index
DPF	Deposit Protection Fund
FE	Fixed effects
FIA	Financial Institutions Act
FINCO	Financial costs to the MFI of borrowing from other institutions
FS	Financial saving
FSS	Financial self-sufficiency
GDP	Gross Domestic Product
GINDEX	Governance index
GLP	Gross loan portfolio
GLS	Generalized Least Squares
GM	Efficiency parameter
GOLP	Ratio of gross loan portfolio to total assets
GOU	Government of Uganda
ICGN	International Corporate Governance Network
ICS	Cost of maintaining the value of equity relative to inflation and the surplus revenue resulting from subsidised loans
INDCO	In-kind expenses
LLP	Loan loss provision
LSDV	Least Squares Dummy Variable

M2	Broad money
MC	Marginal cost
MCR	Minimum capital requirement
MDI	Micro Finance Deposit-taking Institution
MFI	Microfinance institution
MFO	Microfinance organisation
MGDP	Monetary GDP
MIX	Microfinance Information Exchange
MOFPED	Ministry of Finance, Planning and Economic Development.
MR	Marginal revenue
MSEPU	Micro- and Small Enterprise Policy Unit
MSROA	Modified subsidy-adjusted ROA
NBO	Number of borrowers only
NGO	Non-governmental organisation
NL	Number of loans
NNRB	Number of non-repeat borrowers
NRB	Number of repeat borrowers
NSB	Number of single borrowers
NSO	Number of savers only
NSOBO	Number of savers and borrowers
OECD	Organization of Economic Cooperation and Development
OLS	Ordinary Least Squares
OPCO	Direct and indirect operating costs incurred by the MFI in the process of lending and related activities
OR	Operating revenue
OSS	Operational self-sufficiency
OUTR	Scale of outreach or number of clients served in a given period
PCSU	Private Enterprise Coordination and Support Unit
RE	Random Effects
RELRD	Real effective lending interest rate
RFI	Rural finance institutions
ROA	Return on asset
ROE	Return on equity
SACCO	Savings and Credit Cooperatives
SDI	Subsidy Dependency Index
SEEP	Small Enterprise Education and Promotion
TERUDET	Teso Rural Development Trust
TK	Total capital
TRWA	Total risk-weighted assets
UBOS	Uganda Bureau of Statistics
UGX	Uganda shillings
UMU	Uganda Microfinance Union
UNESCAP	United Nations Economic and Social Commission for Asia and The Pacific
US	United States
USE	Uganda Securities Exchange

CHAPTER ONE: INTRODUCTION

1.1   Background to the study

Microfinance, generally defined as financial services, such as savings, credit, insurance and payment products to low-income clients, including the self-employed,[1] has a long history. However, formal microfinance can be traced back to the pioneer work of Grameen Bank in Bangladesh and Accion International in Latin America in the late 1970s (Accion International, 2006 and 2007; Chu, 2006; Ledgerwood, 1999; Christen, 1997). The major thrust of Grameen Bank was to promote access to financial services for the poor to enhance their participation in productive activities. For Accion International, the primary objective was to promote access to financial services for those unable to access them from the traditional formal financial sector. The two roles ascribed to microfinance have become key driving forces for promoting access to formal financial services for low-income earners and reducing poverty (Kalpana, 2005; Fernando, 2004; Littlefield *et al.*, 2003; Mathie, 2002; Morduch, 1999; Schreiner, 1999).

Over the years, microfinance has not only acquired an additional dimension as a tool for financial systems development,[2] it has also recorded impressive growth (Ledgerwood, 1999; Woller and Schreiner, 2006). In Asia and the Pacific, UNESCAP (2006) reports that microfinance is the fastest growing segment of rural financial intermediation. The range of products currently provided by the microfinance industry has widened, the repayment rates have been maintained at close to 100 per cent, the number of loans per borrower has increased significantly, and several microfinance institutions (MFIs)[3] are reportedly financially sustainable and profitable (Accion International, 2007; Cull *et al.*, 2006; Rhyne and Otero, 2006; Kalpana, 2005; Morduch, 1999). The number of MFIs regulated under the banking laws has also increased since 1992, when the first specialised MFI, BancoSol in Bolivia, transformed into a regulated commercial MFI (Ledgerwood and White, 2006; Chu, 2006). Rhyne and Otero (2006:4) and UNESCAP (2006:5) further report that the formal

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[1] See Rhyne and Otero (2006); Chu (2006); Fernando (2004); Dasgupta and Rao (2003); and Ledgerwood (1999). Schreiner (1999:1) defines microfinance as the supply of loans and savings services to the poor.
[2] Citing Otero and Rhyne (1994), Ledgerwood and White (2006: xl) state that the financial systems approach refers to the use of market-driven principles in the provision of financial services to the poor.
[3] CGAP website: http://www.cgap.org/about/faq05.html (visited on 6 December 2006) defines a microfinance institution as an organisation whose principal activity is to provide financial services to the poor.

banking sector has also started entering the microfinance market and is competing with specialised MFIs.

In terms of scale of outreach, the number of savers and borrowers, and the value of loan portfolios have increased exponentially. Citing a publication by the Consultative Group to Assist the Poorest (CGAP), Ledgerwood and White (2006:xxx) report that the current combined loan portfolio of MFIs worldwide is approximately US$15 billion and they claim that microfinance is believed to be growing annually at between 15 and 30 per cent. MIX Market Inc. (2006:3) reports that its databases show that in 2005 MFIs served a total of 35 million borrowers, up from 29 million in 2004. Based on the number of active borrowers, of the 512 MFIs that reported to MIX Market Inc. in 2005, 43 of the top 100 MFIs are from Asia, serving over 24 million active borrowers.

Grameen Bank, Association for Social Advancement (ASA), Bangladesh Rural Advancement Committee (BRAC), Bank Rakyat Indonesia (BRI) and PROSHIKA alone had 18.3 million active borrowers in 2005. By August 2006 Grameen Bank had 6.61 million active borrowers (an increase from 5,050,000 by the end of December 2005), disbursing a total of US$5.72 billion in loans since its inception, and recording a repayment rate of 98.9% (Yunus, 2006). Latin America had 31 of the top 100 MFIs, serving about 3.7 million active borrowers, while Africa had 23 of the top 100 MFIs, serving about 2.8 million active borrowers (MIX Market Inc., 2006). In the case of the latter this represents a substantial growth from the 2003 levels. MIX Market Inc. (2005:4) reports that in 2003 the 163 MFIs in Africa that reported to the MIX Market Inc. in that year served more savers (6.3 million) than borrowers (2.4 million).

In Uganda at the beginning of the 1990s there was no specialised formal financial institution delivering microfinance, but a handful of non-governmental organisations (NGOs) and government programmes doing so. The last 15 years have experienced a rapid expansion of the industry. By December 2005 the number of active MFIs was about 750, the majority of which were savings and credit cooperatives (SACCOs) (MOFPED, 2006). In 2004 and 2005 four formerly non-Bank of Uganda (BOU)-regulated MFIs or Tier 4 MFIs, namely Finca-Uganda, Uganda Microfinance Union (UMU), Pride-Uganda and Uganda Women's Finance Trust (UWFT) transformed into BOU-regulated MFIs following

the enactment of the Micro Finance Deposit-taking Institutions (MDI) Act, 2003. Furthermore, a lot of restructuring is taking place in the industry, as some MFIs are putting in place the necessary requirements to become MDIs, while others are changing their legal status and restructuring operations to conform to the new legal regime (see section 8.6).

As the microfinance industry has evolved and rapidly expanded both globally and in Uganda, questions regarding sustainability and outreach have come to the fore. For example, Morduch (1999) and Cull *et al.* (2006) ask whether microfinance can meet the full promise of reducing poverty without ongoing subsidies. They also observe that high repayment rates recorded by MFIs cannot be translated easily into profitability. Buckley (1997) questions whether MFIs are any different from past smallholder rural and co-operative finance of the 1960s and 1970s, suggesting that they may not be sustainable without either substantial donor subsidies or a shift toward less poor clients. Ledgerwood and White (2006:xv) observe that the microfinance industry has seen impressive growth for longer than a decade, yet still reaches only a small percentage of its potential market worldwide. In this regard the authors ask: "What steps can we take to make microfinance available to more people and do so on a lasting basis and, as well, provide them with financial services they need other than just credit?"

The microfinance literature is filled with theoretical arguments as to what needs to be done to improve sustainability and outreach of MFIs. Rhyne and Otero (1992) and Otero and Rhyne (1994) have argued that to achieve significant outreach, sustainability of MFIs is a prerequisite. This argument has since been elevated to include the commercialisation[4] and transformation[5] of microfinance, which have strong links to regulation (Christen with Drake, 2002; Ledgerwood and White, 2006). In the late 1990s and early 2000s there were widespread discussions as to whether or not to regulate MFIs (CGAP, 2000; Hannig and Bruan, 2000; AMFIU, 2005). Accion International (2007:1) argues that "Ultimately, microfinance's progress over the next 10 years will depend on *favourable regulatory and*

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[4]According to Ledgerwood and White (2006:xxvi), commercialisation of microfinance refers to the application of market-based principles and to the movement out of the heavily donor-dependent arena of subsidised operations into one in which microfinance institutions manage on a business basis as part of the regulated financial system.
[5]Transformation in the microfinance industry means the institutional process of changing the legal structure and operational activities of an NGO microfinance provider or a microfinance project into a share-capital company and to become licensed as a regulated financial institution (Ledgerwood and White, 2006:xxviii).

policy environments, which determine the extent to which MFIs can reach the poor." In Uganda a legal and regulatory framework, called the MDI Act, 2003, provides a licensing and regulatory framework for MFIs. An important question in this regard that requires an answer is: what impact does financial regulation of MFIs have on their sustainability and outreach?

Empirical research on sustainability and outreach, using econometric analysis, has rarely been undertaken. One of the first comprehensive studies was carried out by Christen *et al.* *(*1995). It examined 11 MFIs in Africa, Asia and Latin America to establish how far they had come in providing outreach and achieving financial viability, and the challenges they were facing. Before then Gurgand *et al.* (1994) examined outreach and sustainability of six RFIs in Sub-Saharan Africa.

A couple of other international studies on sustainability and outreach have since followed. Studying eight RFIs in Indonesia, Chaves and Gonzalez-Vega (1996) examine the effects of design features on sustainability and outreach. The key question asked in this study is: can RFIs profitably reach large numbers of clients? Paxton and Fruman (1998) investigate the extent of outreach and sustainability of eight African MFIs. Using correlation measures, the study also sought to establish the strength of the relationship between sustainability and outreach. Conning (1999) examines the relationship between outreach, sustainability and leverage in monitored and peer-monitored lending, while Sharma and Zeller (1999) investigate factors affecting the placement of programmes across communities and outreach of three group-based credit organisations in Bangladesh. More recently, using a data set from 124 institutions in 49 countries, Cull *et al.* (2006) investigate why high loan repayment rates recorded by most microbanks have not translated easily into profits.

In Uganda few studies focusing on sustainability and outreach have been done over the last 10 years (Seibel, 2000; Schadwinkel, 2000; Almeyda, 2002; Kiiza *et al.*, 2004). With the exception of Schadwinkel's (2000) study, which covers two financial institutions, namely the Centenary Rural Development Bank (CERUDEB) (U) Ltd and MED-Net,[6] the rest covered one institution each. The second major issue of concern about these studies, except that by Kiiza *et al.* (2004), is that they are descriptive. They simply describe outreach in

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[6] MED-Net is one of the specialised NGO MFIs in Uganda providing microfinance.

terms of scale and depth of poverty and sustainability measures. On the basis of the observed and calculated numbers and ratios, it is concluded that there is both a trade-off and correlation between sustainability and outreach. In the Kiiza *et al.* (2004) study the purpose was to determine self-sustainability using the Subsidy Dependence Index (SDI)[7] and Depth of Outreach[8] as the measure of outreach for the Teso Rural Development Trust (TERUDET).

Empirical studies that have investigated the effects of financial regulation on the sustainability and outreach of MFIs are also few and far between. The study in Bolivia by Theodore and Loubiere (2002) comes close to such an assessment. No such studies have been undertaken in Uganda.

The current research employs an econometric approach using panel data from a relatively large sample of MFIs (53) over a period of 6 years (2000-2005) to identify the determinants of sustainability and outreach. It uses operational self-sufficiency (OSS) as a measure of sustainability and the scale of outreach (OUTR) as a measure of outreach. Secondly, the study examines the correlation between OSS and OUTR. By controlling for the MFIs regulated under the banking laws of Uganda using a dummy variable in both the OSS and OUTR models, and through analysis of data collected from 31 Tier 4 MFIs, four Bank of Uganda-regulated MFIs, 12 commercial banks, and the Bank of Uganda itself, the study investigates the effects of financial regulation of MFIs on their sustainability and outreach.

1.2   Objectives of the study

The overall objective of this research is to investigate and establish the determinants of sustainability and outreach and the effects of financial regulation of MFIs on their sustainability and outreach. With reference to Uganda, this study specifically intended to:

- Identify the determinants of sustainability and outreach;

- Establish the relationship between sustainability and outreach;

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[7] SDI is explained in Chapter Three.
[8] Depth of Outreach is explained in Chapter Three.

- Investigate the potential and actual effects of financial regulation of MFIs in Uganda on their sustainability and outreach; and

- Propose policies and practices for promoting sustainability and outreach, and to facilitate the design and implementation of an appropriate regulatory framework for the microfinance industry in Uganda.

1.3 Significance of the study

The studies that have been undertaken in the microfinance industry in Uganda have not been comprehensive in terms of the institutions covered or the depth of analysis, especially with respect to the application of econometric methods. This study has, therefore, been justified in that it:

- Identifies the determinants of sustainability and outreach using econometric methods and covering several MFIs. It also investigates the relationship between sustainability and outreach using the correlation method. Furthermore, the study evaluates the potential and actual effects of financial regulation of MFIs on their sustainability and outreach; and

- The results of the study are useful for various actors in the microfinance industry, including the potential/current regulators and supervisors of MFIs, to get a broader understanding of the determinants of sustainability, which is a major institution-building policy issue, the determinants of outreach, which is a major public policy issue, and the relationship between the two. The study also provides a deeper insight into the implications of financial regulation of MFIs on their sustainability and outreach.

1.4   Scope and methodology

This study has three parts, namely sustainability, outreach and regulation, which have been grouped into two parts for analytical convenience. The first part is principally modelling the determinants of sustainability and outreach, using econometric methods and panel data collected from or on 53 MFIs for six years (annual) from 2000 to 2005. Following the results of the Hausman's tests, a random-effects (RE) model has been estimated for sustainability and a fixed-effects (FE) model for outreach.

The data collected were both secondary and primary. The secondary data were collected from http://www.mixmarket.org, a website for MIX Market, Inc., and Bank of Uganda reports. The primary data were collected from the MFIs in the sample using a structured questionnaire (Appendix A1). A significant number of MFIs supplied printed data captured by the performance-monitoring tool (PMT) or audited accounts. For consistency only data not found on the website of the MIX Market, Inc. were collected from the MFIs. The measure of the dependent variable in the sustainability model is the OSS and for the outreach model it is the Number of Clients (OUTR).

The second main part of the study covers the potential and actual effects of financial regulation of MFIs on their sustainability and outreach. The investigation of these effects has been done in two ways:

Way 1: A dummy variable to capture the effects of deposit taking was included both in the sustainability and outreach models. The sign of this dummy variable and its statistical level of significance were examined.

Way 2: Survey data were collected from four distinct respondents: 31 Tier 4 MFIs, four BOU-regulated MFIs, 12 commercial banks, and the BOU itself, and analysed to determine the effects of financial regulation of MFIs on their sustainability and outreach. Evaluation of the effects of financial regulation of MFIs on their sustainability and outreach was based on the licensing requirements and capital, asset quality, management, earnings, liquidity and market sensitivity (CAMELS) as the main framework.

1.5   Research hypotheses

Four categories of hypotheses have been formulated, corresponding to the different aspects of the study, namely sustainability, outreach, the relationship between sustainability and outreach, and effects of financial regulation of MFIs on their sustainability and outreach. Debt equity ratio and savings mobilisation were found insignificant and dropped.

1.5.1   Sustainability (measured by Operational Self-sufficiency (OSS))

Hypothesis 1:   Ratio of Gross Loan Portfolio to total assets (**GOLP**) and OSS are negatively related.

Hypothesis 2:   Effectiveness of Governance (**GINDEX**) and OSS are positively related.

Hypothesis 3:   SACCO and MDI have positive effects on OSS compared to private company (**COMP**), while NGO has negative effects on OSS compared to COMP.

Hypothesis 4:   Average Loan size (**AvLz**) in relation to the national per capita income and OSS are positively related.

Hypothesis 5:   Real Effective Lending Interest Rate (**RELRD**) and OSS are positively related.

Hypothesis 6:   Unit Cost of Loans Disbursed (**CLD**) & OSS are negatively related.

Hypothesis 7:   Average Salaries/Wages and benefits in relation to the national per capita income (**WL**) and OSS are positively related.

Hypothesis 8:   Group-based lending mechanism (**DDMg**) has a positive effect on OSS compared to individual lending mechanism (**DDMi**).

Hypothesis 9:   **AGE** of an MFI and OSS are positively related.

1.5.2   Outreach (measured by the number of clients (OUTR))

Hypothesis 1:   GOLP and OUTR are positively related.

Hypothesis 2:   GINDEX and OUTR are positively related.

Hypothesis 3:   SACCO, MDI and NGO have positive effects on OUTR compared to COMP.

Hypothesis 4:	AvLz and OUTR are negatively related.
Hypothesis 5:	RELRD and OUTR positively related.
Hypothesis 6:	CLD and OUTR are negatively related.
Hypothesis 7:	WL and OUTR are positively related
Hypothesis 8:	Group-based lending (**DDMg**) has a positive effect on OUTR compared to individual lending (**DDMi**).
Hypothesis 9:	AGE and OUTR are positively related.

1.5.3   The relationship between OSS and OUTR

Hypothesis: OSS and OUTR are positively related.

1.5.4   Effects of financial regulation of MFIs on their sustainability and outreach

Hypothesis: The overall potential and actual effect of financial regulation of MFIs is positive on their OSS and negative on their OUTR.

1.6   Problems encountered and limitations of the study

Considerable difficulties were encountered in collecting standard information on sustainability and outreach for a number of reasons. First, most of the MFIs were not keeping the data in the required format. Therefore, a lot of time was spent re-organising the data. Second, because some of the data required were panel data, repeated visits had to be made to the sampled MFIs. These were expensive and time consuming. Third, the sampled MFIs were either reluctant to provide the data or demanded money for the time spent in assembling the required data. This made the data collection expensive and time consuming. Fourth, because the microfinance industry is relatively young in Uganda, data for a long period of time were not available in several institutions. Therefore, it was possible to collect annual data for six years only from 53 MFIs. Fifth, due to the restructuring that was taking place in the microfinance industry in Uganda, including the enactment of the MDI Act, 2003, some of the MFIs which were in the sample at the beginning of the survey in 2003 either closed or were restructured and had to be dropped from the sample studied. Despite

these problems and limitations, the data collected are reasonable and the best that could be assembled. In addition, 53 MFIs is a relatively large number of MFIs.

1.7   Organisation of the dissertation

The dissertation is divided into 9 chapters, followed by appendices. The previous sections of this chapter cover the background, the objectives and the significance of the study, the scope and methodology, the research hypotheses, and the problems encountered and the limitations of the study.

Chapter Two presents and discusses Uganda's economy and the microfinance industry in order to provide a country context to guide the interpretation of the results. Chapter Three covers the concepts and measures of sustainability and outreach, and the dependent variables. Chapter Four focuses on the determinants of sustainability and outreach.

Due to limited guidelines in the microfinance literature on the functional relationship between OSS and outreach and their determinants, this study makes recourse to the theory of the firm, and in particular the production and profit functions. A modified Cobb-Douglas production function and the profit function were estimated and tested.

Chapter Five defines the firm and reviews the literature on the theory of the firm to provide a framework for a review of the production and profit functions. The chapter argues that a microfinance institution is a business just like any other in the theory of the firm. Therefore, the OSS function can be estimated based on the profit function, while the outreach function can be estimated based on the production function.

Chapter Six brings into the picture financial regulation of MFIs and its potential and actual effects on their sustainability and outreach. As a background, the chapter first defines the concept of regulation and discusses the rationale for regulation before discussing the benefits and costs of regulation. The effects of financial regulation of MFIs on their sustainability and outreach are assessed based on the Licensing Requirements and the CAMEL framework extracted from the MDI Act, 2003 as the main framework.

A detailed account of the methodology employed in this study is provided in Chapter Seven, while Chapter Eight covers the empirical analysis. The results of the study indicate that sustainability is positively and significantly driven by real effective lending rates and the age of an MFI, and negatively by the ratio of gross outstanding loan portfolio to total assets, the ratio of average loan size to the national per capita income, the unit cost of loans disbursed, and a group-based delivery mechanism compared to individual delivery mechanism. Outreach is positively and significantly driven by an MFI being a SACCO compared to being a private company, the level of the effectiveness of governance, the age of an MFI, the ratio of gross outstanding loan portfolio to total assets, and the ratio of salary/wage paid to staff to the national per capita income, and negatively by the ratio of average loan size to the national per capita income and the unit cost of loans disbursed. In the short run financial regulation negatively influences outreach of MFIs, but positively affects their sustainability.

Chapter Nine summarises the findings and policy recommendations that include:

1) The MFIs should focus on real effective lending rate and let the market forces determine lending rates. Additionally, the MFIs should be innovative and efficient in the increasingly competitive microfinance market;

2) The government should keep the rate of inflation low by continuing to implement effective fiscal and monetary policy;

3) The cost of doing business should be kept low through prudence and efficiency in business management by the MFIs and creation of a cost-effective business environment by the government;

4) To expand outreach, more sustainable SACCOs should be established;

5) The MFIs should commit more funds to lending purposes as compared to other investments; and

6) Before enacting financial laws, it is important that their benefits and costs are adequately assessed to ensure that the benefits outweigh the costs.

Finally, Appendix A is a list of the MFIs and commercial banks interviewed. Appendix B is a set of questionnaires used for data collection.

CHAPTER TWO: UGANDA'S ECONOMY AND MICROFINANCE INDUSTRY

2.1 Introduction

In Chapter One microfinance and a microfinance institution are defined. The chapter also covers the background, the objectives and the significance of the study, the scope and methodology, the research hypotheses, and the problems encountered and the limitations of the study. This chapter focuses on the context in which the MFIs in Uganda operate, with an emphasis on the economic environment. The motivation for the chapter is threefold. First, it is important that the country context in which the study has been done is substantially described, so that the empirical results are interpreted and understood in a clearly defined framework. Second and related to the first point, the experience of countries with a large microfinance industry shows that a country context and more so the economic aspect is particularly critical in determining the success or failure of financial institutions (Chaves and Gonzalez-Vega, 1996).

For example, Chaves and Gonzalez-Vega (1996) and Gurgand *et al.* (1994) identify dynamism of the economy, macroeconomic stability (low and stable inflation), stable political environment, high and rapid growth of national outputs and rural incomes accompanied by the availability of profitable investment opportunities, reduction in poverty, high density of population, well-developed infrastructure (particularly the physical and telecommunications infrastructure), integrated domestic markets, and liberalised trade and exchange rate policies as some of the important country context factors that determine the success of microfinance activities and institutions.

Furthermore, a strong presence of government at all levels, a high degree of social cohesion and the existence of the traditional social structures also offer effective mechanisms for financial contract enforcement, and ultimately high repayment rates, which are critical for institutional success. In Indonesia, for example, the government intervened, rather successfully, by establishing semi-independent and locally operated networks (Chaves and Gonzalez-Vega, 1996:70). In Uganda the government has put in place structures similar to those in Indonesia (Local Councils and Financial Extension Workers) that could be used to

address the question of information asymmetry and improve access to financial services by the rural and low-income earners (Government of Uganda, 1997).

Third, it is assumed in this study that the demand for microfinance in Uganda is given for variety of reasons that include a large segment of the low income people living in rural areas and engaging in small holder agricultural activities and petty trade (See Uganda Bureau of Statistics, 2002; Meyer *et al*. 2004). It is therefore important that the rationale for this assumption is explained and illustrated.

Thus, this chapter reviews Uganda's economy taking into account the above-mentioned factors. The chapter is organised as follows: section 2.2 provides an account of the major economic policy reforms and developments in Uganda since 1962 to highlight some of the factors that could be responsible for the rapid expansion of the microfinance industry. Section 2.3 is a description and an analysis of Uganda's current economic structure. Section 2.4 provides a review of Uganda's microfinance industry, including a discussion on the linkages between MFIs and commercial banks. Section 2.5 concludes the chapter.

2.2   Economic policy reforms and the major developments

2.2.1   The period between 1962-70

At Uganda's independence in 1962 agricultural production dominated the economy. It provided income to the majority of the population and the country. From its introduction, cotton was grown mainly by smallholders, while cultivation of coffee shifted to smallholders following the collapse of the coffee price in 1920/22 (Bank of Uganda, 1970:8). In 1968 cotton and coffee accounted for about 75 per cent of the country's export outside East Africa (Bank of Uganda, 1970:11).

While coffee and cotton growing were mainly by the private sector, the public sector set the pace for the industrial development of the country. However, as the country was preparing for independence, the World Bank recommended the encouragement of the private sector (Balunywa, 2002:14).

Up until 1969 Uganda pursued a mixed economy policy, whereby the public sector worked with the private sector. For example, while exporters were required to surrender their foreign exchange earnings to commercial banks at the prevailing official exchange rates, the banks held foreign exchange earnings and re-allocated them to importers. The exchange rate was fixed, but the trade policy was relatively liberal. Internally, however, the government established industries as joint ventures. Interest rates were administered, and loans granted to selected sectors, including small farmers, usually in kind through the co-operative movement. The fiscal policy mainly concentrated on expenditure restraint, and monetisation of fiscal deficits, through printing money, was limited.

Over the period 1962-70 the macroeconomic situation remained stable and the economy performed reasonably well. GDP grew by 6 per cent per annum between 1963-70, fiscal deficits rarely exceeded 2.5 per cent of GDP, inflation was maintained at below 10 per cent per annum, real interest rates were positive and, except for the last two years, the current account balance was in surplus (World Bank, 1990). The domestic savings rate averaged 15 per cent of GDP, which could finance a reasonable level of investment. Although narrow, the financial sector was sound and the formal microfinance activities were not as prevalent as they are today (Bank of Uganda, 1970). The systems of transportation, education and health were highly effective (World Bank, 1993).

The World Bank (1993) further reports that the country was self-sufficient in food. Smallholders produced the major exports and were able to earn cash for the purchase of non-farm goods and services. Poverty was not widespread. Besides growing faster than the rest of the economy, the industrial sector supplied the economy with basic inputs, consumer goods and foreign exchange earnings through the export of textiles and copper.

2.2.2 The period between 1971-86

In 1969 private enterprises were nationalised. Between 1971-1979 and subsequently up to 1986 Uganda's economy was engulfed in economic mismanagement and civil strife that had a substantial negative impact on the gains made during the 1962-70 period. For example, between 1970-80 Uganda's GDP declined by 25 per cent, exports by 60 per cent and imports by close to 50 per cent (World Bank, 1993:3). The decline in GDP and poor

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export performance were translated into low income per capita and growing poverty in the country. The rate of inflation averaged 70 per cent as the government financed public expenditure through bank borrowing.

Although in the early 1980s attempts were made to turn the economy around, with a mix of policies such as floating the Uganda shilling, removal of government control on prices, raising agricultural producer prices and control of government spending, widespread civil strife and political turmoil in the country limited the achievement of positive results to such an extent that by 1987 the inflation rate was reportedly at 250 per cent (Musinguzi and Smith, 2000; The Economist Intelligence Unit Limited, 1999; World Bank, 1993).

The majority of Uganda's population were plunged into subsistence agricultural production. With a fixed exchange rate regime and a high domestic inflation rate, Uganda's exports were uncompetitive and the opportunities to earn foreign exchange were significantly curtailed. Rising import levels and a fixed exchange rate led to a "black" market exchange rate. The balance of payments deficits widened as a result, and the economy became increasingly fragile both internally and externally. At this stage, clearly, the economy needed immediate re-dress.

2.2.3 The period from 1987 onwards

In 1987 the Government of Uganda launched a comprehensive Economic Recovery Programme (ERP) to bring down and stabilise the inflation rate and reduce imbalances in the economy in order to lay a foundation for broad-based economic growth (World Bank, 1990, 1993; Kibirango and Kasekende, 1992; Bategeka, 1999). The ERP was comprised of stabilisation policies and structural adjustment programmes (SAPs). While stabilisation policies were designed to restrict the demand within the overall resource envelope to restore internal financial equilibrium, SAPs were designed to increase efficiency, stimulate the supply side of the economy and encourage economic growth.

In the financial sector a number of reforms were instituted. New laws were enacted and the monetary policy formulation and implementation shifted from administered to a market-based approach, where open market operations (OMO) are the major means of influencing

the level of money supply in the economy. For example, the BOU Act, 1966 was replaced by the BOU Statute, 1993 (Government of Uganda, 1993). The government also undertook to divest from owning any financial institution, a policy objective that was fully realized in 2002, when the last government-owned commercial bank was privatised. In addition, the Capital Markets Authority (CMA) was established to spearhead the development of the capital markets in the country.

2.2.5 Key results of the stabilisation policies and SAPs from 1987 onwards

The results of the stabilisation policies, the SAPs as well as the subsequent consolidation policies have been mixed. Although fragile, overall, the internal equilibrium has been restored and the external equilibrium has improved. However, there have been concerns, especially since the late 1990s, about whether the macroeconomic success achieved is being shared by all Ugandans (Musinguzi and Smith, 2000:124). In particular, the trickle-down effects do not seem to be visible in rural areas and most Ugandans were reportedly poor (Ochieng, 1998), prompting the UNDP to refer to the "two faces of Uganda" (cited in Musinguzi and Smith, 2000:124).

2.2.4.1 Major developments in inflation and Gross Domestic Product (GDP)

Table 2.1 provides a summary of some selected key macroeconomic indicators for the period 1989-2005. The inflation rate was brought down from 250 per cent in 1987 to 6.4 per cent by the end of September, 1997 with a slight increase to 8.5 per cent by the end of 2005. Between 1989-97 real GDP grew, on average, by 6.2 per cent per annum, peaking at 10.1 per cent in 1994/95. At the turn of 2000 and up to 2005 GDP has been growing, on average, at a lower rate. The performance of the GDP per capita has been sluggish, increasing, on average, by about 2.5 per cent per annum between 2002 and 2005. The nominal exchange rate depreciated steadily between 1989 and 2005.

Table 2.2 shows the proportions of the number of people below the poverty line[9] who lived in urban and rural areas between 1992-2000. The number of people living below the

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[9] The poverty line was constructed based on the World Bank approach of spending less than US$1 a day.

poverty line declined over the period 1992-2000 to 35 per cent, increased to 38 per cent in
2003, but decreased to 31 per cent in 2005.

Table 2.1: **Selected performance indicators of Uganda's economy**

Selected Indicators	Period				
	1989-98[10]	1998-02[11]	2003	2004	2005
CPI growth (%)	21.7	2.28	8.7	3.7	8.5
GDP growth (%)	6.5	6.38	6.2	5.2	6.4
GDP per capita (UGX)		393,056	421,726	431,098	443,638
GDP per capita growth (%)		2.85	3.1	2.2	2.9
Exchange rate (UGX/US$1)	1,029	1,579	1,964	1,811	1,781

Source: Ministry of Finance, Planning and Economic Development (various years), Uganda Bureau of Statistics (various years) and Bank of Uganda Annual Reports (various years)

Table 2.2: **Head count poverty trend**

Period/Distribution		Overall (%)[12]	Central (%)	Eastern (%)	Northern (%)	Western (%)
1992	Overall	**56**	**46**	**59**	**71**	**53**
	Urban	28	22	40	52	30
	Rural	59	53	61	72	54
1997	Overall	**44**	**28**	**54**	**59**	**42**
	Urban	16	11	25	33	20
	Rural	48	34	57	61	43
2000	Overall	**35**	**20.0**	**42**	**28**	**7.4**
	Urban	10	7	17	31	6
	Rural	39	26	39	67	29
2003	Overall	**38**	N/A[13]	N/A	N/A	N/A
2006	Overall	**31**	N/A	N/A	N/A	N/A

Source: Ministry of Finance, Planning and Economic Development (2001; 2004) and Uganda Bureau of Statistics (2006)

2.2.4.2 Major developments in the balance of payments and fiscal deficits

The legalisation of the foreign exchange bureaux led to the convergence of the official and
parallel exchange rates, which is now market determined. While the current account deficits
are not positive indicators of the benefits of the liberalisation of the exchange rate and the
current and capital accounts, overall, the potential effects of overvalued exchange rates and

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[10] Annual average
[11] Annual average
[12] % have calculated out of total urban, rural or regional population numbers
[13] N/A stands for Not available

restricted capital and current accounts were removed, providing an opportunity for the expansion of the export sector and capital inflows. Table 2.3 shows the capital and financial account. Between 1996-2000 the capital account balance averaged US$331 million. This amount, however, declined between 2001-2005 to US$-281.00 on average. The total export value to current account balance also deteriorated between 2001-2005.

Public sector deficits to GDP increased from an annual average of -6.8 per cent between 1987 and 1990 to -10.3 per cent between 1991 and 1995. Between 1996 and 2005 it was in the region of –11 and –13 per cent, before falling to –2.2 per cent in 2005/06 (Bank of Uganda Reports, various years and MOFPED (Background to the Budget), 2006/07).

Table 2.3:   Balance of Payments Accounts, 1995 – 2005

Balance of Payment Accounts	1996-2000	2001-2005	2004	2005
Current Account (US$, mill.)	-333.4	-245.78	-127.98	-194.84
Capital & Financial Account (US$ mill.)	331.4	-281.00	-208.98	-320.36
Total exports/Current account balance	1.57	-12.46	-5.06	-4.04

Source: Bank of Uganda (various years)

2.2.4.3 Major developments in the financial sector

Table 2.4 captures developments in the interest rates structure: annualised treasury bill rates of various maturity periods, savings rates, time deposit rates and lending rates. Treasury bill rates are used mainly for monetary policy management and, therefore, reflect the monetary policy stance of the government. They peaked in 2003, but declined in 2004 and 2005. Savings rates have been very low and declined over 2000-2005, while time deposit rates have remained relatively stable and significantly above inflation rates (see Table 2.1). The lending rates were, on average, 20 per cent for the period 2000-2005, but they declined to 18% by the end of the year 2005, mainly on account of market determined regime.

Table 2.4   Interest rate structure, 2000-2005

The structure of interest rates	2000-2005[14]	2003-2005	2003	2004	2005
91 days	11.41	12.90	21.44	9.64	7.61
182 days	13.77	15.00	23.28	12.79	8.56
364 days	15.82	15.36	22.33	13.82	9.94
Savings	2.41	2.01	2.49	1.76	1.77
Time deposits	11.00	13.27	13.27	13.27	13.27
Lending rates	20.03	18.34	18.34	18.34	18.34

Source: Bank of Uganda Annual Reports (various years)

The positive real deposit rates and macroeconomic stability have created an environment conducive to financial sector growth, as shown by the selected financial sector growth indicators depicted in Table 2.5. For example, financial savings (time and savings deposits) to GDP increased from 4 per cent in 1999/00 to 6 per cent in 2004/05. Similarly, as a proportion of broad money (M2) and monetary GDP (MGDP), financial savings (FS) have also trended upwards. While still low compared to Kenya and Tanzania, which recorded M2/GDP of 40 per cent and 35 per cent respectively in 1996, the increase in M2/GDP of Uganda from 12 per cent in 1999/00 to 19 per cent in 2004/05 is an improvement in the depth of the financial sector (Bategeka, 1999:13; Meyer *et al.*, 2004). Currency in circulation (CIC) as a proportion of M2 has slightly reduced, which also indicates an improvement in the depth of the financial sector. In addition, there has been a strong movement toward monetisation of the economy as indicated by the rising ratio of monetary GDP to total GDP from 0.71 in 1999/00 to 0.73 in 2004/05.

Table 2.5   Selected financial sector growth indicators

	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05
FS/M2	0.30	0.30	0.31	0.32	0.31	0.32
FS/MGDP	0.05	0.06	0.07	0.08	0.08	0.08
FS/GDP	0.04	0.04	0.05	0.06	0.06	0.06
CIC/M2	0.30	0.29	0.27	0.26	0.28	0.28
CIC/GDP	0.04	0.04	0.04	0.05	0.06	0.05
M2/MGDP	0.17	0.19	0.22	0.24	0.25	0.26
M2/GDP	0.12	0.13	0.16	0.17	0.18	0.19
Monetary GDP/GDP	0.71	0.71	0.72	0.72	0.73	0.73

Source: MOFPED; UBOS and BOU (various years)

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[14] The interest rates for 2000-2005 and 2003-2005 are annual averages.

Uganda's financial sector has also improved with respect to the growth in assets, overall deposit base and the level of capitalisation. Table 2.6 gives a summary of the value of total assets, loans, liabilities, total deposits, and capital and reserves of the banking system in 1996 and between 2000-2005. In 1996 the value of total assets was UGX805.9 billion. By 2000 it had increased to UGX1,801.5 billion, representing an increase of more than 100 per cent. The value of capital and reserves was negative in 1996, and by 2000 it had not only turned positive, but had grown significantly. Loans to the private sector and total deposits have also grown tremendously. Moreover, this growth in both loans and deposits has happened in spite of the closure of insolvent banks in the early and late 1990s.

Table 2.6   Selected indicators of commercial banking sector performance

Indicator	Period						
(UGX where applicable)	**1996**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Total assets (Billions)	805.9	1,801.5	1,913.4	2,596.2	3,030.0	3,396.1	3,675.6
Loans (Billions)	274.0	570.1	639.4	649.0	855.8	997.7	1,1136.9
Capital and Reserves (Billions)	-36.4	87.3	91.2	230.1	238.5	229.9	199.6
Liabilities (Billions)	842.3	1,714.2	1,822.2	2,366.1	2,791.5	3,166.2	3,476
Total Deposits (Billions)	543.3	1,201.4	1,255.4	1,731.6	2,115.4	2.307.1	2,413.5
Loans/Assets	0.34	0.32	0.33	0.25	0.28	0.29	0.31
Loans/Deposits	0.50	0.48	0.51	0.38	0.41	0.43	0.47
Capital and Reserves/Assets	-0.05	0.05	0.05	0.09	0.08	0.07	0.05
Debt/Equity ratio	-23.1	19.6	20.0	10.3	11.7	13.8	14.4
Exchange rate (Ushs/US$)	1,045	1,645	1,756	1,797	1,964	1,811	1,781

Source: Bank of Uganda Annual Reports (various years)

The significant improvements realized in the financial sector performance notwithstanding, major challenges still remain. The improvements in the sector are not widely felt in most parts of the economy, and this is reflected in the loans to the private sector (Table 2.7) and the concentration of the financial institutions in the urban areas (Table 2.8) for the period 2000-2005. While the aggregate loan value to the private sector has increased, the percentage share for agricultural production has remained relatively small and yet, as noted earlier, agriculture remains the mainstay of Uganda's economy in terms of its contribution to GDP, export earnings, employment and income earnings.

Wholesale and retail trade takes the biggest chunk of the loans to the private sector and the value of the loans has been growing over the years (46 per cent in 1996, 58 per cent in 2002

and 60.5 per cent in 2005), which is a reflection of, first, the short-term nature of the loans and, second, the little weight put on the production of goods and services.

Table 2.7   Loans to the private sector by sectors as % of total loans, 2000-2005

Sector/Period	2000	2001	2002	2003	2004	2005
Agriculture (Production)	1.82	2.56	1.70	2.67	4.08	6.09
Agriculture (Marketing)	5.37	5.99	6.80	6.69	6.51	3.93
Mining and Quarrying	0.01	0.39	0.08	0.16	0.07	0.06
Manufacturing	33.0	34.94	24.70	23.34	20.22	20.08
Electricity and Water	5.30	5.49	6.50	6.58	5.89	5.96
Building and Construction	4.39	4.11	3.60	3.26	4.01	3.40
Wholesale and retail trade	50.18	46.51	58.30	57.29	59.23	60.49

Source: Bank of Uganda Annual Reports (various years)

The implications of the financial sector reforms in Uganda are also manifested in the narrowness of the sector. As Bategeka (1999:8) argues, the restructuring of the financial sector has concentrated banking services in urban areas, especially Kampala, the capital city of the country. Table 2.8 shows the number of commercial banks, credit institutions, MDIs, and development banks and their branches. While a bigger country and economy compared to Uganda, as at 1 January, 1995 South Africa had 2,970 commercial branches and 1,085 agencies compared to Uganda's (Strauss Commission, 1996:58).

Table 2.8:   The number of commercial banks, credit institutions, other financial institutions & their branches

Banks and credit institutions	Period					
	2000	2001	2002	2003	2004	2005
Number of commercial banks	18	17	15	15	15	15
Number of branches of commercial banks	128	126	124	139	142	150
Percentage of commercial bank branches located in the city to total branch network	35	36	34	34	35	36
Number of credit institutions	7	6	6	7	7	7
Number of branches of credit institutions	11	10	8	31	31	33
Percentage of branches of credit institutions located in the city to total branch network	55	50	63	42	42	46
Microfinance Deposit-taking Institutions (MDIs)	N/A[15]	N/A	N/A	N/A	1	4
Number of branches of MDIs	N/A	N/A	N/A	N/A	21	92
% of MDI branches located in the city to total branch network	N/A	N/A	N/A	N/A	10	13
Number of development banks	3	3	3	3	3	3

Source: Bank of Uganda and MOFPED, 2006

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[15] N/A is Not Applicable

All the financial institutions have their head offices located in the capital city and there are only two banks with a widespread national branch network, namely CERUDEB and Stanbic Bank (U) Ltd. PostBank Uganda Ltd, which was formerly part of Uganda Post and Telecommunications Corporation (UPTC), uses the branch network of the former parent company located in several parts of the country.

By December 2005 CERUDEB had 25 branches, Stanbic Bank (U) Ltd had 67 branches and PostBank Uganda had 20 branches. However, apart from PostBank Uganda, with a branch network stretching beyond district headquarters, CERUDEB and Stanbic Bank (U) Ltd have their branches located at the district headquarters. Three branches of CERUDEB and 14 of Stanbic Bank (U) Ltd were located in Kampala. This shows that the rural areas in Uganda are seriously under-served by the formal financial sector, which is one main reason why the microfinance industry has expanded so rapidly (Bategeka, 1999:8).

In 1996 the Capital Markets Authority (CMA) was established and a year later Uganda Securities Exchange (USE) was formed. CMA is the licensing and regulatory body set up by the Government of Uganda, while USE is a stock exchange, where agents of buyers and sellers trade securities. These agents are licensed by the CMA and are members of USE. Currently USE is the only licensed stock exchange in Uganda and by the end of 2005 nine companies had been listed (Capital Markets Authority, 2006:12).

2.2.4.4 The major developments in the privatisation drive

Besides privatisation of all commercial banks in the country, other enterprises have been privatised (or are in the process of being privatised). In 1992, when the privatisation exercise was launched, there were 154 enterprises in which the government had shares (Jaramogi, 2004; Wood, 2000:31). Of these 89 have been privatised and 33 have been either deleted from the Register of Companies or liquidated as of October 2006 (Privatization and Utility Reform Project, 2006).

One of the companies privatised, which has had a major impact on Uganda's economy, is the former government-owned UPTC. The privatisation of this company has resulted in the licensing of additional telecommunication companies, including Mobile Telephone

Network (MTN), Celtel Uganda, Starcom Corporation, and Mango. In less than three years after privatisation the number of phones in the country increased from 45,000 to 150,000 (Balunywa, 2002) and several jobs have been created. By the end of 2005, 1.5 million subscribers had been registered (MOFPED, 2006).

Other sectors that have been liberalised – with enormous impact on the economy – include education, health, transport and power. For example, private primary and secondary schools, tertiary institutions and universities have been established and enrolment has increased. The universities, in particular, are more widespread across the country. These have led to an increase in the demand for financial services to finance education.

2.3. Uganda's current economic structure

Table 2.9 provides the statistics of the contributions of agriculture, industry and services sectors to GDP. It can be seen that the agricultural sector contributed a substantial proportion to the GDP at 40 percent in 2001/02, slightly lower that the services sector which contributed 41 per cent. Over the years, however, the contribution of the agricultural sector has steadily declined to 34 per cent in 2005/06. Of the three broad sectors, industry contributed the least to GDP over the period 2001/02 to 2005/06.

Table 2.9:   **Sector contributions to GDP (at basic prices) in percentages**

Sector	Period				
	2001/02	2002/03	2003/04	2004/05	2005/06
Agriculture	39.9	39.1	37.4	35.6	34
Industry	18.9	19.3	19.8	20.6	20.5
Services	41.2	41.7	42.8	43.9	45.5

Source: Background to the Budget 2006/07, MOFPED, 2006:5

In the export sector, as shown in Table 2.10, agricultural products also dominate in their contribution to exports with the share of the fish sector substantially increasing between 2000/01 and 2005/06, while that of coffee declined over the same period. Given that microfinance activities are concentrated in retail trade, opportunities in the export sector have been of limited direct benefit to the clients of MFIs. Agricultural activities are mainly done in rural areas by smallholder producers using rudimentary methods of production and

access to financial services is still very limited (Schadwinkel, 2000; Hannig, *et al*, 2002; Meyer *et al.*, 2004).

Table 2.10:   Composition of Uganda's exports (Million US$ where applicable)

Exports/Period	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Total Exports	458.3	474.0	507.9	647.18	786.32	877.39
Coffee	109.64	85.25	105.47	114.13	144.53	180.17
% of coffee to Exports	24	18	21	18	18	21
Cotton	14.08	18.00	16.88	42.84	42.34	17.80
Tea	35.93	26.85	29.46	39.25	33.13	32.99
Fish	50.11	80.85	83.78	117.51	169.61	192.51
% of Fish to Exports	11	17	17	18	22	22
Gold	58.49	56.67	48.16	58.49	71.33	74.74
Electricity	16.67	13.94	15.47	12.64	8.25	2.76
Other exports	173.38	192.44	208.68	262.32	317.13	376.42

Source: BOU Reports (various years) and Background to the Budget 2006/07, MOFPED, 2006

Table 2.11 gives the number of registered businesses with fixed premises in the various sectors of the economy. Despite being the largest contributor to GDP, export earnings and employment, the agricultural sector has less than 1 per cent of businesses with fixed premises and employs about 4 per cent of all employees in the businesses. Commerce dominates in the number of businesses with fixed premises (see Table 2.7), followed by hotels, restaurants and bars. The dominance of commerce suggests that MFIs have a substantial market given that MFIs mainly finance trade.

Businesses in agriculture employ about 25 persons per business, which suggests that most of them could actually be small to medium-scale. It is estimated that, in the formal sector in Uganda, approximately 80 per cent of all businesses are small enterprises (with 5-20 employees); this represent almost 25 per cent of private sector total employment (Jaramogi, 2002:17). Utilities, with an average of 150 persons per business unit, are the largest per business employer sector, followed by construction, employing on average 30 persons.

Table 2.11: No. of registered businesses with fixed premises and their sectoral distribution

Economic Sectors	Number (No) of businesses and employment			
	No. of businesses	Total no. of employees	Average no. of employees	Average no. of male employees
Agriculture including fishing	623	15,782	25	17
Mining and Quarrying	427	1,609	4	3
Manufacturing	11,968	87,131	7	6
Utilities	23	3,444	150	123
Construction	247	7,340	30	27
Wholesale and Retail trade	107, 486	178,275	2	1
Hotels, Restaurants and bars	20,483	54,131	3	1
Transport and communications	834	13,898	17	12
Finance and Insurance	539	8,100	15	9
Social and Community services	15,838	54,229	3	2
Other services	2,415	20,179	8	7
Total	160,883	444,118	3	2

Source: Uganda Bureau of Statistics (2003)

Another particularly significant feature of Uganda's economic structure is the distribution of business activities across the country. According to the Uganda Business Register for 2001/02, there are over 160,883 business establishments in Uganda with fixed premises, employing 444,118 people (Uganda Bureau of Statistics, 2003). Table 2.12 gives the distribution of the businesses and employment by region. Of the 160,883 businesses, the central region has over 60 per cent, providing employment to 63 per cent of the people employed. The eastern region has 19 per cent, the western region has 15 per cent, while the northern region has 6 per cent of the businesses, employing 15 per cent, 17 per cent and 5 per cent of the people employed respectively. These findings also show that males are more likely to be employed in businesses with fixed premises compared to females, suggesting that more women could be employed in the informal businesses targeted by MFIs.

Table 2.12   Number of businesses and employment by region, 2001/02

Regions	Number of businesses	Employment			
		Total	Male	Female	Average number of employees
Central	96,991	281,456	163,412	118,044	2.9
Eastern	29,839	65,830	45,170	20,660	2.2
Northern	9,763	23,206	15,313	7,893	2.4
Western	24,290	73,626	47,353	26273	3.0
Total	**160,883**	**444,118**	**271,248**	**172,870**	**2.8**

Source: Uganda Bureau of Statistics (2003)

2.4   The microfinance industry and linkages with the commercial banks

2.4.1   Sources of funds for the MFIs

Table 2.13 summarises the sources of funding for the MFIs in Uganda. Private companies, co-operatives and other private MFIs are funded mainly by share capital. Voluntary savings are an important source of funding for commercial banks, credit institutions and MDIs (see Table 2.14), because the country's legal framework permits them to mobilise deposits for intermediation (see Chapter Eight for the findings from this study). Other MFIs employ compulsory savings and, to some extent, voluntary savings to guarantee loans obtained from commercial banks for on-lending to clients and/or intermediate the savings, and equity capital for NGO/companies limited by guarantee is mainly from donors (Ledgerwood and Musana, 2002:1).

Table 2.13:   Sources of funding for Uganda's microfinance institutions

Sources of funding	Level of significance
Private share capital	Very significant for Tier 1, 2 and 3 institutions and for member-based Non-BOU licensed and supervised institutions
Donor funding	Very significant for NGOs and companies limited by guarantee
Voluntary savings	Very significant for Tier 1, 2 and 3 institutions
Commercial loans	Very significant for Tier 1 institutions and specialized MFIs under Tier 4.

Source: Micro-and Small Enterprise Policy Unit (MSEPU) (2002)

2.4.2 Products offered, terms and conditions of the products, and the clients served

Products provided are financial and non-financial services. Financial products include savings, loans, insurance products, money transfer, etc. to economically active poor persons, i.e. employed or self-employed persons on-farm and/or off-farm businesses, and to low-income but income earning households (Jaramogi, 2002:20). A significant number of MFIs provide non-financial services that include training of clients in production technology (MSEPU, 2002:16).

Conflicting information is available on the lending interest rates structure. MSEPU (2002:17) reports that the lending interest rates ranged between 2.8 - 7.1 per cent per month and, on average, 5 per cent in 2001/02. The UBOS (2004) reports that the lending interest rates ranged between 0.4 - 83 percent per month in 2003. Jaramogi (2002:20) reports that the MFIs in Uganda lend at 3-4 per cent per month. MOFPED (2006) finds that, on average, nominal lending interest rates range between 1.8-4 per cent per month.

Most of the MFIs offer small, short-term loans for up to 12 months. The majority provide loans for 3-4 months and require compulsory savings before a person or an organisation becomes a client and subsequently accesses a loan. Apart from group guarantees, a significant number of MFIs require other forms of security. See Chapter Six for a discussion of the requirements under the MDI Act, 2003.

Reports from the early 2000s indicated that a group-based lending method was more widespread compared to an individual lending method (MSEPU, 2002:11; Uganda Bureau of Statistics, 2004; Okumu and Opondo, 2000). A study done in 2006, however, shows that most MFIs use both group-based and individual lending methodologies (MOFPED, 2006).

2.4.3 Growth of the industry

At the beginning of the 1990s there was hardly any specialized formal financial institution delivering microfinance, except for a handful of NGOs and government programmes. The last 15 years has experienced a rapid expansion of the industry. MOFPED (2006) reports that by December 2005 the number of active MFIs was about 745, the majority (630) of

which were SACCOs. One commercial bank, two credit institutions and four MDIs provide microfinance to the low-income earners and their enterprises.

2.4.4 The external environment

The Bank of Uganda Policy on Micro-Finance Regulation, 1999 provides the policy framework for the regulation and supervision of the microfinance industry as depicted in Table 2.14 and the MDI Act, 2003, and the Implementing Regulations, 2004 provide the legal framework for regulation and supervision of microfinance in Uganda (Bank of Uganda, 1999; Ledgerwood *et al.,* 2002). Detailed discussion of the laws and regulations governing Uganda's microfinance industry is presented in Chapter Six.

Table 2.14:   Bank of Uganda Tiered Framework for Regulation

Criteria Level	Deposit-taking	Legal and regulatory framework	Regulating and Supervising Authority
Tier 1: Commercial Banks	Yes	FIA[16], 2004; MDI Act, 2003	Bank of Uganda
Tier 2: Credit institutions	Yes	FIA, 2004; MDI Act, 2003	Bank of Uganda
Tier 3: MDIs	Yes	MDI Act, 2003	Bank of Uganda
Tier 4: Non-Bank of Uganda regulated institutions	No	Various laws - See chapter six	Various bodies – See chapter six

Source: Katimbo-Mugwanya (2000)

2.4.5 Linkages between commercial banks and MFIs

Recently, a number of commercial banks in Uganda began providing loans to MFIs on a commercial basis. Ledgerwood and Musana (2002) report that some banks are utilising guarantee mechanisms provided through donors or government, but one or two commercial banks have agreed to provide loans using the MFI's portfolio as collateral. The terms of these loans are generally up to two years with interest rates approaching prime and the loan amounts based on a cover of 250 percent of the microfinance portfolio. While these are positive developments, the linkage between the commercial banking sector and the MFIs is still limited. It is argued that with the promulgation of the MDI Act, 2003, either more commercial banks will themselves move into microfinance business as has happened in

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[16] FIA is Financial Institutions Act

Latin America (Valenzuela, 2002), or there might be linkages created between microfinance institutions and the commercial banks. Chapter Eight presents the findings of a survey of the effects of financial regulation of MFIs on their sustainability and outreach as well as the possible linkages between microfinance institutions and commercial banks.

2.5 Conclusion

This chapter has focused on the context in which the MFIs in Uganda operate, with an emphasis on the economic environment. The motivation for the chapter was threefold: (i) to describe the country context so that the empirical results of this study are interpreted and understood in a clearly defined framework; (ii) to illustrate the importance of the economic environment in determining the success or failure of financial institutions, including microfinance institutions; and (iii) to explain and illustrate the rationale for assuming that the demand for microfinance in Uganda is a given.

The chapter has thus described the macroeconomic environment of Uganda, the economic reforms that have been instituted over the last two decades, and the resultant achievements as well as the key sectors such as agriculture, industry, services and finance. The chapter has illustrated that many Ugandans are still poor, live in rural areas, and depend heavily on agricultural activities. For this reason microfinance has a significant role to play in increasing their productivity, and generating employment and incomes.

The chapter has also argued that, despite the positive achievements resulting from economic reforms, Uganda's financial sector is still narrow and lacks depth. For this reason MFIs are expanding to those areas that still lack formal financial services. It can therefore be deduced that the demand for microfinance remains huge and unmet.

CHAPTER THREE: CONCEPTS AND MEASURES OF SUSTAINABILITY AND OUTREACH

3.1   Introduction

The terms sustainability and outreach are extensively used in the field of microfinance without, in many instances, providing clear definition (Ledgerwood, 1999; Hulme and Mosley, 1996). For the purpose of this study it is important that these terms are defined for two main reasons. First, they are used in different contexts and their meaning thus depends on the specific context in which they are used. Second, two of the focal areas of this study are to establish the determinants of sustainability and outreach (the determinants are identified and discussed in Chapter Four). To be able to do this meaningfully, it is not only imperative that these concepts are clearly defined, but it is also important that their measures are investigated and appropriate ones identified. This chapter investigates and discusses the definitions of these concepts and their measures. It also proposes definitions and measures considered more appropriate. Besides, given the rapid evolution of the field of microfinance and the concepts of sustainability and outreach, the chapter briefly traces their historical development.

The rest of the chapter is organized as follows. In section 3.2 the concept of sustainability, its measures, and the measures adopted in this study and its limitations are discussed. In section 3.3 the concept of outreach, its measures and measure adopted in this study and its limitations are also discussed. Section 3.4 provides a summary of the chapter.

3.2   The concept and measures of sustainability

3.2.1   The concept of sustainability

The term sustainability is widely used interchangeably with other concepts such as profitability, self-sufficiency, financial self-sufficiency, self-sustainability, financial sustainability, financial efficiency, institutional sustainability, viability and financial viability (see SEEP Network and Calmeadow, 2000; Ledgerwood, 1999; Paxton and Fruman, 1998; Christen, 1997; Buckley, 1997; Johnson and Rogley, 1997; Hulme and

Mosley, 1996; Christen *et al.,* 1995; Rhyne and Otero, 1992; Strauss Commission, 1996; and Yaron, 1992). This practice can be confusing, especially to new readers in microfinance.

Woller and Schreiner (2006:2) define sustainability as the non-profit equivalent of profitability, while UNESCAP (2006:15) defines sustainability as the ability of the organisation to meet the cost of operations and build enough reserves for capitalisation. Navajas *et al.* (2000:335) define sustainability as "…permanence…Sustainability is not an end in itself but rather a means to the end of improved social welfare (Rhyne, 1998)." Schreiner (1999:2) defines sustainability as the ability to break even in an accounting period while compensating all factors of production at their opportunity cost. Conning (1999:52) argues that "In most discussions sustainability is taken to mean full cost recovery or profit making, and is associated with the aim of building microfinance institutions that can last into the future without continued reliance on government subsidies or donor funds." Strauss Commission (1996:96) defines self-sustainability as "…the degree of subsidy independence attained by a DFI…"

The scope of the debate around the concept of sustainability is well captured in Brinkerhoff and Goldsmith (1992:369) (see Mog, 2004 as well):

> *Whether development assistance "works" has been bitterly debated since international, government-to-government transfers of capital and expertise first began on a large scale, more than 40 years ago. Criticism of foreign aid, whether from the left (Lappe, Schurman and Danaher, 1987) or from the right (Eberstadt, 1988) shows no sign of abating. At the heart of this controversy is sustainability.*

From a project point of view, sustainability is about the life of a project beyond a period during which its finances come from external sources, such as donors. Therefore, sustainability is a question of self-reliance in the medium to long term, or as Mog (2004:2139) puts it, is a question of unending desire or process, not a fixed goal to be achieved through specific designed processes. In terms of an institution, Brinkerhoff and Goldsmith (1992:371) argue that in a strict sense the concept of sustainability of an institution is redundant, since an institution is by definition sustained by the ways that people interact. However, in development circles the conventional meaning of a sustainable institution refers to an organisation consciously designed to do one or more of the

following: (i) survive over time as an identified unit, (b) recover some or all of its costs, and (c) supply a continuing stream of benefits using its own resources (Brinkerhoff and Goldsmith, 1992).

Some authors have argued that the above suggested characteristics of a sustainable institution do not take into account the possibility of implicit subsidies flowing into the institution and/or a mission drift. A more complete definition is that which underscores the ability of the organisation to grow and provide services on a long-term basis with either its own resources or debt secured from commercial sources, which it (MFI) must have the ability to repay (SEEP Network and Calmeadow, 1995:1; Chaves and Gonzalez-Vega, 1996). While other authors have argued that this definition of sustainability is only one part of the sustainability equation (Edgcomb and Cawley, 1994:89), the other parts being its ability to achieve regular and significant results for the institution's clients and reaching enough of them to have an impact on geographical outreach.

Relating to profitability, sustainability is an adjusted measure of profitability in an accounting sense, generally defined as the difference between total revenue (TR) generated by an organisation from its operations and the total associated costs (TC). While profitability is generally used to assess the financial performance of organisations that do not depend on external subsidies, sustainability is considered more appropriate to assess the financial performance of subsidy-dependent organisations, as argued in Hulme and Mosley (1996:42):

It is common to assess the performance of any commercial organisation, including the development finance institutions, in terms of the profits it makes; and without profits, of course no commercial organisation can sustain itself. However, if profits depend on external subsidy, they imply nothing about the efficiency of the organisation, or even about its sustainability, since the abolition of a subsidy can make the institution incapable of standing on its own. For these reasons, it is right to evaluate the financial performance of our selected institutions in terms of indicators which measure more accurately the organisation's financial efficiency.

In a nutshell, the concept of sustainability is not an end state, but an on-going input-output process. Specifically, the concept is used in the microfinance literature to describe the performance of institutions or programmes that at one point or another rely on external support in the form of grants, concessionary loans or implicit subsidies. It is a concept developed to answer the question of whether it is possible for an institution to exist for a

long time providing valuable services without subsidies. The concept is also widely applicable to institutions or programmes that do not reflect inflation costs in their pricing mechanisms. In this dissertation, therefore, the sustainability of a microfinance institution means its ability to exist for a long time providing microfinance services without subsidies.

3.2.3. The relationship between the concept of sustainability and profitability

To gain more insight into the concept of sustainability its relationship with profitability and its historical development, further analysis is provided below.

In business accounting the difference between TR and TC is commonly referred to as profit. Denoting profit by $\prod$, this can be expressed algebraically as:

$\prod$ = TR-TC ---3.1

In equation 3.1, $\prod > 0$ if TR and TC > 0 and TR > TC or if TR > 0, but TC = 0. (This case is rare because to generate revenue costs have to be incurred.) Profit is important for increasing the value of assets or capitalisation from an organisation's own internally generated funds.

However, equation 3.1 is often used to define a profit function of a typical firm which does not (or is assumed not to) rely on subsidies and produces tangible goods such as loaves of bread, where TR may be expressed in terms of the product of the number of loaves of bread (Q) sold and the average (P). That is,

TR = P*Q --3.2

where * is a multiplication symbol.

For a firm producing all that it sells, Q is obtained from the production function examined in Chapter Five.

Substituting TR in equation 3.1 with PQ in equation 3.2, equation 3.3 is obtained:

$$\Pi = (P*Q)\text{-TC} \text{ ---3.3}$$

From equation 3.3, the problem of a profit-maximising firm is that of either minimising TC subject to a given revenue level (equation 3.2), or maximising revenue subject to a given TC. In perfect competitive markets, in which the prices of output sold and of the factor inputs are given, the solutions to either the minimisation or maximisation problem lead to the determination of the equilibrium conditions in employment of factors inputs (see Chapter Five).

While for a typical private firm, Q in equation 3.3 is the quantity sold, in a typical private loan-granting financial institution (FI), Q can be equated to the product of the number of loans (NL) granted by the institution and average loan size (AvLz), assuming loans are the only source of income for the FI (Rose and Fraser, 1988). In this narrow sense of the output of a loan-granting FI, its revenue from loans (LY) can be expressed as:

$$LY = NL * AvLz * i \text{ ---3.4}$$

where i is the average lending interest rate on loans, and can be equated to P in equation 3.3 or equation 3.2.

But apart from the loan portfolio, typical private loan-granting FIs can earn income from other sources such as commissions, investments, etc. If Z denotes additional income earned from other sources, then the total revenue (FY) to a loan-granting FI can be represented as:

$$FY = NL*AvLz*i + Z \text{ ---3.5}$$

Defining the total costs incurred in generating FY by TC, the profit of a typical private loan-granting financial institution can be expressed as:

$$\pi = (NL*AvLz*i + Z) - TC \text{ --3.6}$$

In equation 3.6, if $\pi > 0$, it means the FI is making a profit; if $\pi = 0$, the FI is at break-even point (recovering costs); and if $\pi < 0$, the FI is incurring losses (Hulme and Mosley, 1996:19).

Comparing equations 3.6 and 3.3, TR of a typical private firm with FY of a typical private lending FI, the difference lies in what are constituted in output and other sources of income. The price of output of a typical private firm is called a commodity price, while that of a typical private lending financial institution is called an effective lending interest rate (nominal lending interest rate plus the rate of other charges).

Secondly, for a typical private firm, the output sold (Q) is often a tangible quantity that is sold and never returned to the seller, while for a typical private lending financial institution, the output sold (NL*AvLz) is loan principal expected to be used by the borrower (buyer) at a price (interest rate and other charges) and repaid. In equation 3.6, the principal loan repaid to the FI by its clients and the principal loan the FI repays to its lenders are assumed to off-set each other and therefore excluded.[17]

Equation 3.6 depicts a profit definition for a financial institution whose equity and other forms of capital come from private sources, usually private investors or borrowed at commercial rates. However, as already argued, most MFIs today rely heavily on external subsidies, technical assistance (TA), and in some cases owner-manager services, and therefore their profit is significantly influenced by these forms of support (Hulme and Mosley, 1996; Christen, 1997; Ledgerwood, 1999; SEEP Network and Calmeadow, 1995; Yaron, 1992). As a result, it has been suggested that the appropriate framework to reflect their financial performance should be sustainability, which is the adjusted form of equation 3.6 discussed in the next sub-section.

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[17] It is assumed that the loan to an MFI is all on-lent to clients and, when the clients repay, the MFI also repays its lenders.

3.2.3   Measures of sustainability

The various views on the concept of sustainability have been translated into various versions of its measures, which are now discussed under four categories: i) the subsidy dependency index (SDI), ii) self-sufficiency measures, iii) adjusted profitability ratios and modified subsidy-adjusted return on assets, and iv) the arrears rate. Adjusted measures of SDI suggested by Khandker *et al.* (1995), the profitability gap suggested by Sacay (1996) and the SDI of Humle and Mosley (1996) as cited in Schreiner and Yaron (1999) are not reviewed, based on Schreiner and Yaron's (1999) argument that as a whole the recent attempts to adjust the SDI are either meaningless or answer unimportant questions. Empirical measures such as productivity and efficiency have been used as measures of sustainability and are addressed together with the arrears rate.

3.2.3.1 Subsidy Dependence Index (SDI)

While proposing the concept of self-sustainability, Yaron (1992:5) also proposed its measure: SDI. He argued that SDI is the inverse of self-sustainability, and Schreiner and Yaron (1999) contend that SDI is the most common way to measure the importance of public support for development financing institutions. Algebraically, SDI is expressed as:

$$SDI = (A(m-c) + ((E*m)-P) +K)/LP*i \text{---} 3.7$$

where,

A	=	average annual outstanding concessionary loans accessed by the institution
m	=	market interest rate
c	=	rate at which the concessionary loans have been accessed
E	=	equity
P	=	reported annual profit (before tax and adjusted, when necessary, for loan loss provision, inflation, and so on)
K	=	the sum of other annual grants received by the institution

LP   =   average annual outstanding loan portfolio extended by the institution to its clients, and

i   =   rate of interest at which the institution lends to its clients.

The SDI is a continuous variable fully defined when LP*i ≠ 0. This technically means that both LP and i ≠ 0. The index is, however, unbounded when the numerator of the function generating it tends to +∞ and the denominator is comparatively very small. In practice, though, it is unlikely that SDI can be undefined and unbounded, because for any rational business firm lending money, i and LP > 0 in the medium to long term. Similarly, following arguments about imperfect financial markets (Stiglitz and Weiss, 1981), it is also unlikely that the numerator can grow infinitely big to cause the index to be unbounded.

The SDI measures the degree to which an MFI relies on subsidies for its continued operations (Yaron, 1992; Ledgerwood, 1999) or a ratio that measures the percentage increase required in the average lending rate to compensate a subsidy dependent institution for the elimination of all the subsidies in a given year, while keeping its return on equity equal to the market reference deposit rate, assuming all other factors are held constant (Strauss Commission, 1996:159).

SDI = 0 means that the MFI in question has achieved financial self-sufficiency, i.e. it is obtaining all its funds on a commercial basis including equity. SDI< 0 implies that an MFI has not only achieved full self-sustainability, but that its annual profits, minus its capital (equity) charged at the appropriate market interest rate, exceeds the total annual value of subsidies (if subsidies were received by the MFI). SDI< 0 also implies that the MFI can lower its average on-lending interest rate, while simultaneously eliminating any subsidies received in the same year. SDI > 0 implies that an MFI is dependent on subsidies that could be coming from any of the following sources (see Yaron, 1992:5; Ledgerwood, 1999:219):

- Concessionary central bank discounting facilities or similar lending by other organisations;
- Donated equity;

- Foreign exchange losses assumed by the country where the MFI is located or by a donor;

- Direct transfer to cover specific costs or negative cash flows; and

- Exemption from reserve requirements.

Paxton and Fruman, (1998) argue that SDI is one of the most revealing indicators of institutional sustainability. Known studies that have applied the SDI include, Hulme and Mosley (1996), Strauss Commission (1996), Paxton and Fruman (1998), and Kiiza *et al.* (2004). In the study by Paxton and Fruman (1999:48), the authors warn that the SDI they calculated was not reliable due to non-availability of some data components useful in calculating it. In the study by Chaves and Gonzalez-Vega (1996), for similar reasons, instead of using SDI as proposed, a profitability indicator is used to assess the performance of the MFIs studied. While in the study by the Strauss Commission (1996:163), both the advantages and limitations of the SDI are discussed.

3.2.3.2 Self-sufficiency (sustainability) measures

The development of self-sufficiency measures started with Yaron (1992) (Ledgerwood, 1999:195). In the literature reviewed, different levels of measures of self-sufficiency have been suggested. Rhyne and Otero (1992) identify four levels, as summarised in Table 3.1.

Table 3.1: Levels of Sustainability

Level 1	Level 2	Level 3	Level 4
Grants and/or soft loans to cater for total operating costs and revolving loan fund. The MFI is presumed to be earning no income from operations. The MFI is kept in existence by grants and/or soft loans.	The MFI raises funds by borrowing short-term loans at concessionary interest rates, but the amount is still insufficient. Grants are, therefore, still needed to cover part of the operating and implicit costs.	Operating income increases, but still insufficient to cover all the costs including cost of inflation and concessionary loans.	The MFI is fully self-financing. At this level, income generated from the provision of financial services fully accounts for all the costs and the growth of the MFI.

Source: Constructed following Rhyne and Otero (1992)

While exploring the three profitability models, namely the cost recovery model, the return on equity model, and the modified subsidy-adjusted return on assets model for evaluating

financial sustainability, Christen (1997:81) points out that originally most practitioners understood that a credit programme or an MFI was financially viable as long as the income received covered its operating expenses. This perception meant that even institutions or programmes that completely depended on donations were viewed as viable (sustainable). However, Christen (1997) notes that this perception changed and sustainability was redefined to mean meeting operating expenses entirely from income generated from services offered to clients. Following this redefinition of sustainability, three levels of self-sufficiency were suggested: i) the basic operational self-sufficiency, ii) a more complete operational self-sufficiency, and iii) financial self-sufficiency (Christen, 1997:81-82). Table 3.2 captures information used to derive these levels of sustainability, obtained by dividing the total of all considered incomes (Y) by the total of all considered expenses (TE). For example, if we let BOSS stand for the basic operational self-sufficiency, then, BOSS = Y/TE is a level of the sustainability attained by an MFI.

Table 3.2:   Levels of sustainability and information used to derive them

Information from income statement & other sources	Basic level of financial viability	More complete operational self-sufficiency	Financial self-sufficiency
Total operating income (Y)		Considered	Considered
Total income received (Y)	Considered		
Total cash expenses (E)	Considered	Considered	Considered
Total non-cash expenses (E)		Considered	Considered
Cost of inflation (E)			Considered
Cost of capital (E)			Considered

Source: Constructed following Christen (1997:81-82)

Further developments of self-sufficiency measures have reduced the levels at which they are measured to two: operational self-sufficiency (OSS) and financial self-sufficiency (FSS) (see SEEP Network and Calmeadow, 1995 and Ledgerwood, 1999:215.). Sources of information used to generate OSS and FSS are summarised in Table 3.3.

Table 3.3:   Sources of information used to generate OSS and FSS

Information from income statement and other sources	Operational self-sufficiency (OSS)	Financial self-sufficiency (FSS)
Total operating income	Considered	Considered
Revaluation/inflation adjusted fixed assets value	Not considered	Considered
Financing costs	Considered	Considered
Total cash expenses on operations	Considered	Considered
Total non-cash expenses on operations e.g. depreciation and loan loss provision and write-off	Considered	Considered
Total in-kind expenses on operations	Not considered	Considered
Cost of capital or funds *	Not considered	Considered
Cost of concessionary loans and other subsidised injections such as grants	Not considered	Considered

Source: Constructed following various reviewed microfinance literature (SEEP Network and Calmeadow, 1995; Ledgerwood, 1999)

Key: *Current year inflation rate multiplied by prior year-end equity balance. See The MicroBanking Bulletin, April, 2001.

Self-sufficiency measures are generated by dividing the total of all considered incomes by the total of all considered expenses (SEEP Network and Calmeadow, 1995). Because of the apparent consensus in the literature that OSS and FSS are the preferred measures of self-sufficiency (Barres, 2006:21), further discussions are limited to these two measures.

(i)   Operational self-sufficiency (OSS)

To explain OSS, let total operating financial income for an MFI be designated by LY and let the expenses be defined and denoted as follows (SEEP Network and Calmeadow, 1995):

- Financial costs are costs to the MFI of borrowing from other institutions (FINCO);
- Direct and indirect operating costs incurred by the MFI in the process of lending and related activities (OPCO). Depreciation costs are included in OPCO (see CGAP, 1996); and
- Loan loss provisions (LLP). These cater for possible loan defaults and write-offs.

$$\text{OSS} = \frac{\text{LY}}{\text{FINCO} + \text{OPCO} + \text{LLP}} \quad \text{---3.8}$$

OSS is a continuous variable fully defined when (FINCO+OPCO+LLP) $\neq$ 0. This means that at least one of the variables in the denominator, that is, FINCO, OPCO or LLP $\neq$ 0. The index is unbounded when the numerator of the function generating it tends to $+\infty$ and the denominator is comparatively very small or zero.

In practice, though, it is unlikely that OSS can be undefined and unbounded, because no MFI can operate without incurring any cost. As Samuelson and Nordhraus (1996) argue, there is a fixed cost that an organisation must incur whether it is producing outputs or not. Similarly, it is unlikely that LY can increase to $+\infty$ while the value of the denominator remains comparatively small or zero, since to generate LY, expenses are incurred. Furthermore, the main component of LY is the product of loan portfolio (LP) and interest rate (i) charged on loans. To grant more LP, more factor inputs are required, but the law of diminishing returns to scale postulates that LP cannot increase infinitely. Following Stiglitz and Weiss (1981), it is also unlikely that i can be increased infinitely, because at i $= +\infty$, the demand for loans $= 0$, and secondly, it is not practical to charge infinite i. See subsection 4.2.5 for further discussions on charging high interest rates in the presence of information asymmetries.

OSS < 0 implies that either LY or total expenses are negative. This is unlikely to occur, because a negative income is not feasible and costs can be zero or positive. OSS = 1 means that the MFI is at break-even point, while OSS > 1 implies that the MFI fully covers cash and non-cash costs and OSS < 1 but positive means total expenses are more than LY, and therefore the MFI is making losses.

(ii)   Financial self-sufficiency (FSS)

Following the derivation of OSS, to explain FSS, let total operating financial income for an MFI be denoted by FY and let the expenses be defined and denoted as (SEEP Network and Calmeadow, 1995):

- Financial costs which are costs to the MFI of borrowing from other institutions (FINCO);

- Direct and indirect operating costs incurred by the MFI in the process of lending and related activities (OPCO). Depreciation costs are included in OPCO (see CGAP, 1996);

- Loan loss provisions (LLP). These are made to cater for possible loan defaults and write-offs;

- In kind expenses that would be incurred for technical assistance received but not paid for by the MFI (INDCO); and

- The cost of maintaining the value of equity relative to inflation and the surplus revenue resulting from subsidised loans (ICS).

FSS can be expressed as:

$$\text{FSS} = \frac{\text{FY}}{\text{FINCO} + \text{OPCO} + \text{LLP} + \text{INDCO} + \text{ICS}} \quad \text{--------------------------------3.9}$$

Like OSS, FSS is also a continuous variable fully defined when (FINCO+OPCO+LLP+INDCO+ICS) $\neq$ 0. This implies that at least one of the variables in the denominator, that is, FINCO, OPCO, LLP, INDCO or ICS, $\neq$ 0. The index is, however, unbounded when the numerator of the function generating it tends to $+\infty$ and the denominator is comparatively very small. In practice, though, it is unlikely that FSS can be undefined and unbounded, because no MFI can operate without incurring any cost for reasons already advanced. For this reason, as long as an MFI is in operation, it must incur positive costs. Similarly, it is unlikely that FY can increase to $+\infty$ while the value of the denominator remains comparatively small, since to generate FY, expenses are incurred, and the law of diminishing returns to scale applies on the loan portfolio components of FY.

FSS < 0 implies that either FY or total expenses are negative. This is unlikely to occur, because a negative income is not feasible and costs cannot be negative for reasons already advanced. FSS = 1 means that the MFI is at break-even point, while FSS > 1 implies that the MFI fully covers all costs and FSS < 1 but positive means total expenses are more than FY, and therefore the MFI is making losses or depending on subsidies.

3.2.3.3 Adjusted variants of traditional measures of financial performance

In addition to SDI and self-sufficiency measures, modified or adjusted traditional measures of financial performance have been suggested. Specifically, these measures include adjusted return on equity (AROE), adjusted return on assets (AROA), modified subsidy-adjusted ROA (MSROA), and adjusted return on business (AROB) (see Yaron, 1992:5; Christen, 1997:84; and Ledgerwood, 1999:220). With the exception of MSROA, the rest of the adjusted profitability ratios measure an MFI's adjusted net income items in relation to the structure of its adjusted specified balance sheet items. MSROA, on the other hand, is the ratio of administrative expenses to total assets (see Christen, 1997:91). As mentioned before, these measures have been suggested in recognition of the inadequacy of the traditional measures of profitability: ROE, ROA, and ROB, which are used to evaluate the financial performance of the banking sector, individual banks within peer groups, and other business organisations. Detailed analysis of the adjusted measures follows below.

(i)   Adjusted ROE

While different authors have defined ROE differently, for the purpose of this study we adopt the definition in Ledgerwood (1999:223), defining ROE as a measure of the return on funds that are owned by the accounting entity such as an MFI. It is a measure of the net income of a business organisation in relation to its capital employed (Kohler, 1975). Unlike ROA discussed below, ROE is best suited to guide investors on the profitability of their investment in comparison to available alternatives. Thus, it is more of an evaluation tool for investors than a management tool for managers of a financial institution.

AROE is a ratio of net adjusted income to average adjusted equity. Net adjusted income is generated by netting out all incomes that are not generated by the institution from operations, and adding any re-valuation income resulting from revaluation of property such as buildings and land during the accounting period. Equity is adjusted to take into account the effect of inflation. The adjustments are similar to those done while deriving the self-sufficiency measures explained above.

Theoretically, AROE would allow analysis of the MFI's performance in a way similar to analysis of the banking sector. However, practically, this kind of analysis is difficult for two main reasons. The first is due to lack of consistent data for selecting MFIs to constitute a peer group and, secondly, the capital structures of the majority of MFIs are significantly different from those of the institutions constituting the banking sector. Historically most MFIs have been financed from donated funds, whereas for banks and other financial institutions equity is principally from private sources.

(ii)   Adjusted ROA

Like ROE, ROA has also been defined differently by different authors (Kohler, 1975; Christen, 1997; Ledgerwood, 1999). Generally, however, ROA can be defined as a ratio of net earnings of an accounting entity such as an MFI to its assets for a given period of time, say, a year. It is a return on all assets employed, including fixed assets to earn the income during a specified period. This suggests that total assets rather than performing assets only should be considered when calculating ROA. For practical reasons, though, the literature suggests using average total assets, average outstanding loan portfolio or average performing assets as a denominator of ROA. Note that ROA is affected by varying loan terms, interest rates and fees, changes in the delinquency levels, and the split between interest income and fees. Consequently, it is an important model for analysing the effects of pricing policy and changes in term structures.

Derivation of AROA is based on the same principle as ROA, except that it is obtained after making adjustments to both the net income and the assets. On the net income side, all expenses that, by accounting convention, are normally excluded when calculating the net income are subtracted from operating income[18] to obtain the adjusted net income. These additional expenses include the cost of inflation, implicit cost of capital (opportunity cost), implicit cost of concessionary loans, and any payments made to staff or technical assistance from a source other than the revenue of the institution, for example, a grant. On the assets side, fixed assets are re-valued to arrive at the current market value, which is then added to the rest of the other assets to get the value of total assets.

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[18] Operating income excludes all forms of donated income, but includes income from re-valued property.

As already stated, AROA is more of a tool for management of an MFI than a tool for investors to use for assessing the profitability of their investment. Nevertheless, AROA should indicate to the investor whether or not the managers of an MFI are utilising its resources efficiently. In this respect, AROA is a useful measure for assessing the efficiency of the management of an MFI.

(iii)   Modified subsidy-adjusted ROA

The MSROA has been suggested by Christen (1997:91) as an alternative to ROE. It is argued that ROE has proven to be inadequate as a model for understanding the overall financial performance of MFIs. As a result, MSROA would be a more suitable alternative to ROE, because it explicitly takes into account the effects of inflation and subsidies, and relates expenses to total adjusted assets and not to income.

(iv)   Adjusted ROB

Like AROE and AROA, AROB is also obtained after making adjustments on the generated income, assets and liabilities. It is the ratio of net adjusted income to the average adjusted sum of assets and liabilities. Ledgerwood (1999:223) argues that by obtaining an average of assets and liabilities, an average of a business base is established, which is important when the institution in question is collecting deposits. Adding liabilities to assets and dividing by two captures the effects of costs associated with deposit mobilisation. AROA does not give weight to the cost of deposit mobilisation. If these costs were excluded, an AROA would be reported.

Given that ROB is a ratio of net income to average of assets (A) and liabilities (L), it is clear that it is directly affected by the level of liabilities and capital (K) from the accounting equation of $A = L + K$. For a fixed A, a higher K implies a lower L and, therefore, a higher ROB. If the majority of the MFI's equity and liabilities is composed of equity, for example, then adjusted ROB is misleading.

3.2.3.4 Arrears rate

The arrears rate as a measure of sustainability was proposed and used by Hulme and Mosley (1996:42). The authors define the arrears rate as the proportion of loans more than six months in arrears. Generally, several arrears rates can be calculated depending on the purpose for which they are to be used. For example, an MFI can decide to calculate an arrears rate on a weekly, fortnightly, monthly or annual basis. However, the period over which an arrears rate is calculated tends to follow the repayment schedule of loans or their maturity periods.

In general, the arrears rate is the ratio of the amount of loan principal that has become due and has not been recovered divided by the portfolio outstanding (i.e. the total amount of loans lent out and not yet recovered). It is commonly used as an indicator of portfolio quality along with other portfolio quality ratios such as portfolio at risk (PAR) and the number of delinquent borrowers (Ledgerwood, 1999:207). Its application as a measure of sustainability is not widespread.

Another set of indicators infrequently used as measures of sustainability are productivity and efficiency ratios. These ratios provide information about the rate at which MFIs generate revenue to cover their expenses. Productivity refers to the per capita volume of business that is generated by inputs, while efficiency refers to the cost per unit of output. By calculating productivity and efficiency ratios over time, the MFIs can determine whether they are maximising their use of resources. Thus, these ratios are proxy measures of sustainability.

3.2.4   Adopted measures of sustainability

As shown in the above analysis, a wide range of measures has been suggested for measuring sustainability of MFIs. This underlines first and foremost the extent to which the microfinance industry has evolved. Secondly, it is an indication of the greater emphasis that has been placed on the sustainability of microfinance institutions in the recent past, and the need to find appropriate measures that can be widely accepted as standard measures of sustainability.

In this study OSS has been preferred for the following reasons:

1. Like FSS, it can easily be related to the standard profitability definition of revenue minus associated expenses, which makes it easy to understand the linkage between profitability and sustainability;

2. It explicitly relates income to expenses, which are the two main components that are critical in determining whether or not an institution is able to cover all its costs of doing business;

3. While FSS is a more appropriate measure of sustainability (see Barres, 2006:21), the data required to derive it are enormous and often not available in most MFIs, more specifically those in Uganda;

4. Unlike SDI, which relies on average annual outstanding loans, part of which has a positive probability of not being recovered, OSS like FSS is derived using actual data. In addition, it is straightforward as it makes it easy to see whether an MFI is sustainable or not, instead of inverting the ratio. SDI is best suited for assessing the relationship between external subsidies and operating income generated by the MFI;

5. Compared to adjusted traditional measures, OSS like FSS does not focus on returns on equity, returns on assets, or returns on business. It can be described as holistic as it gives a global picture of the institution in terms of the overall financial performance and not with respect to particular aspects of the institution; and

6. Finally, the choice of arrears rate as a measure of sustainability is subjective, because different researchers may choose to use different rates. For example, a researcher can choose to use an arrears rate defined as the proportion of loans more than three months in arrears or more than nine months depending on the maturity of the loan period or repayment schedule. Furthermore, and as already argued, arrears rates are more suitable indicators for portfolio quality than sustainability.

While OSS as a measure of sustainability has some advantages discussed above, it also has some limitations:

1. Unlike SDI that uses a market rate when adjusting for the cost of the MFI's equity or FSS that uses the inflation rate to adjust for the cost of equity, in OSS the cost of equity as well as other implicit subsidies is not adjust for. In OSS, like SDI, in-kind support that the MFI may receive is not adjusted for. FSS controls for in-kind subsidies as well.

2. OSS, like other measures of sustainability, does not measure the benefits of microfinance, and the measurement of costs in the framework ignores the costs borne by clients as well as social costs (Yaron *et al.* 1997 cited in Ledgerwood, 1999:225). Thus the measure does not lead to a cost-benefit analysis, perhaps the most natural and defensible method of evaluation (Schreiner, 1999:2).

3. OSS, like other measures of sustainability, is a point estimate as it establishes the level of operational self-sustainability at a point in time, but it does project what may happen in the future (Schreiner, 1999:2).

4. Finally, Ledgerwood (1999:217) reports that the definition of OSS – and therefore its derivation – varies among MFIs and donors. The difference is reported to be due to the inclusion of the cost of debts, which could be incurred by some MFIs and not others. These different ways of deriving OSS limit the comparability of the MFIs using this measure.

3.3 The concept and measures of outreach

3.3.1 The concept of outreach

The contexts where the concept of outreach has been or is mostly used are religion, community activities, targeted credit programmes and microfinance, or more generally, development programmes or activities. For the purpose of this study, outreach is examined within the context of microfinance.

Conning (1999:52) defines outreach as the term "...typically used to refer to effort by MFOs[19] to extend loans and financial services to an ever-wider audience (breadth of outreach) and especially toward the poorest of the poor (depth of outreach)." In this definition, outreach is reflected as an effort made to provide loans and financial services to the poorest of the poor.

Schreiner (1999:2) refers to outreach as proxies for the benefits of microfinance in terms of the numbers of clients or average deposit amount. In this definition outreach is a proxy of the benefits of microfinance assessed in terms of six aspects of outreach: worth to clients, cost to clients, depth, breadth, length and scope. Similarly, Navajas, *et al.* (2000:335) define outreach as "…the social value of the output of a microfinance organisation in terms of depth, worth to users, cost to users, breadth, length, and scope." In this definition outreach is seen in the value of output of an MFO. In other words, an MFO must first produce an output, which the authors do not indicate, and the value of the output is what is considered outreach.

Some authors (such as Schadwinkel 2000:2) have argued that the concept of outreach is vague as it has proven to be difficult to assess, because it includes quantitative as well as qualitative aspects. In addition, the clients that are the subject of assessment are difficult to identify and to obtain their status. For example, when assessing outreach, should it be measured in terms of the number of clients accessing financial services in general or only the number of the poor accessing financial services? If only the poor accessing financial services should be considered, how can they be identified?

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[19] MFO stands for microfinance organisation.

While the definitions of outreach by Schreiner (1999) and Navajas, *et al.* (2000) are more elaborate, they are not clear and therefore not very helpful in understanding outreach precisely in the context of microfinance. Conning's (1999) definition of outreach is more appropriate, but it is not the definition adopted in this study. The author of this dissertation adopts a less restrictive definition of outreach, defined as the extent to which formal financial services are accessible to the low-income earners, measured by the scale of outreach as argued in the next sub-section. This definition is similar to Conning's (1999) definition of outreach, but it is less restrictive because it does not specifically refer to the poor or the poorest of the poor. It implicitly recognises that MFIs have a niche market, which is primarily the low-income section of the population, who have no or limited access to financial services from the traditional formal financial sector under free market-driven conditions. Henceforth, outreach in this dissertation refers to the extent to which formal financial services are accessible to the low-income earners, measured by the scale of outreach. Subsection 3.3.2 addresses measures of outreach.

3.3.2   Measures of outreach

Attaining high levels of economic growth and improving the quality of life of the majority of the people in developing countries have remained major policy goals of governments in these countries. Throughout the 1960s and most of the 1970s developing countries intervened in their economies using various means, one of which was channelling domestic and international donor funds to the agricultural sector in general and, more specifically, to small-scale farmers at subsidised lending rates. The main objectives of these initiatives were to increase agricultural output and productivity, induce the optimal rate of adoption of new technology and utilisation of inputs, improve income distribution, reduce poverty and increase the level of employment. It was generally believed that extending credit to the rural people would achieve these objectives (Adams and Vogel, 1986; Braverman and Guash, 1986; Adams and von Pischke, 1992; Johnson and Rogaly, 1997; Robinson, 2001a). The concern at the time was more on outreach than sustainability (Wiemaier-Pfister and Steinwand, 2003:1).

The results of these policies were assessed in terms of outreach, using measures such as the number of loans made, tons of fertiliser sold, number of tractors purchased, acres of land irrigated and of crops financed by loans, and number of cattle purchased. Adams and Von Pischke (1992:465), for example, argue that these measures did not adequately capture the ultimate objectives of the stated policies.

When micro-credit and later formal microfinance (as generally known today) gained currency in the 1990s with different approaches to the delivery of financial services to the poor, the concept of outreach begun to be widely used in microfinance and other measures developed. It was during this time that Yaron (1992:5-7) also argued that the traditional quantifiable measures of institutional success based on profit presented in standard financial statements provide only partial, often meaningless information with respect to financial self-sustainability (see Gurgand *et al.* 1994). For this reason Yaron (1992) suggested alternative sets of measures that would be far more revealing not only in terms of actual cost of continued institutional operations, but the extent to which formal financial services are accessible to the low-income earners.

Yaron (1992:7) suggests that seven different measures could be used to measure the outreach of an MFI: (i) the value of outstanding loan portfolio and the average value of loans extended, (ii) the amount of savings and average value of savings accounts, (iii) the variety of financial services offered, (iv) the number of branches and village posts/units, (v) percentage of the total rural population served, (vi) the annual growth of MFI assets over recent years in real terms, and (vii) women's participation.

Over the years, the measures of outreach first proposed by Yaron (1992) have either been broadened, refined or categorised. The CGAP (1997) and Yaron *et al.* (1997) as cited in Ledgerwood (1999:226) broadened outreach measures and classified them under three groups: (i) clients and staff outreach, (ii) loans outreach, and (iii) savings outreach. Under each of these groups a number of specific measures were proposed to capture the extent to which the MFI is reaching out to clients with its services, and whether or not the clients reached could be described as poor. One example of these measures used by Valenzuela (2002:53) is the number of active loans.

Although not specifically referring to them as measures of outreach, the framework for outreach in terms of six aspects: worth to clients, cost to clients, depth, breadth, length, and scope first proposed and used by Schreiner (1999:2) to estimate the net social benefits of the best-known microfinance organization in Latin America - BancoSol of Bolivia - has been treated as measures of outreach. Navajas *et al.* (2000) explain that the depth of outreach is the value that society attaches to the net gain from the use of micro-credit by a given borrower. Since society places more weight on the poor than on the rich, poverty is a good proxy for depth of outreach. For example, the authors argue that society is likely to value more the net gain from a small loan for a street kid or for a widow than the same gain for a rich person. This means deeper outreach occurs when social value increases, which happens when poorer people are reached. But as Conning (1999) shows, reaching poorer people has higher costs resulting from the difficulty associated with heterogeneity and less ability to signal repayment ability and willingness, which invites intensive appraisal and monitoring processes. Thus lending to poorer people creates more social value only if increased depth of outreach is accompanied by lower costs of service delivery.

Worth of outreach is the willingness to pay and cost to users is the sum of price costs and transaction costs. Price costs are direct cash payments for interest and fees which constitute revenue to the microfinance organization. Transaction costs are non-price costs for both non-cash and opportunity cost such as the value of time to get and repay the loan as well as indirect cash expenses for such things as transport, documents, food, and taxes needed to use a financial contract. Transaction cost is not revenue to the lender (see Schreiner, 1999:5 and Chapter Four).

Worth is a function of the cost of access and taste. If the cost of access, for example, declines and the taste remains the same, the gain increases. Thus the trend of costs, *ceteris paribus*, is an indicator of the extent of outreach. Conversely, with constant costs an increase in worth of access to credit is a measure of increased outreach. Costs to users are relatively easy to measure using present costs, while gains are difficult to measure.

Breadth of outreach is the number of users. In this case outreach is measured in terms a numeric value such as the number of clients to whom an MFI is providing financial

services, especially those previously having no access. This measure of outreach is similar to the *scale* of outreach described below.

Length of outreach is the timeframe in which an MFI produces loans. In theory a perpetual source of support can allow an MFI to achieve length of outreach without sustainability. Loan losses shorten the length of outreach as both the employees and users of services may take the opportunity to defraud the organisation through bloated administrative costs and loan defaults respectively.

Scope of outreach is the number of types of financial contracts offered by an MFI – for example, different loan sizes and savings, which increase worth to users and boost length of outreach. Deposits matter for two reasons: all poor people are deposit worthy and save to smooth consumption, finance investment and buffer risk. In contrast, not all poor people are creditworthy. Deposits strengthen the incentives for sustainability and continuous access to financial services by the users.

Further refinement of measures of outreach has re-classified them into two categories: *scale (or breadth)* of outreach and *depth* of outreach, although Microbanking Bulletin (2006:38) has maintained a long list of outreach indicators, and MIX Market (2006:3) uses the Number of Active Borrowers as a measure of outreach due to the fact that it is the most commonly available proxy to measure the breadth of outreach. By the *scale* of outreach is meant the number of clients served in a defined period, and by the *depth* of outreach is meant the level of poverty of the clients served (Ledgerwood, 1999:39).

From the definition of the *scale* of outreach, it is noticeable that the number is an aggregation of the number of clients accessing various services offered by an MFI during a given period or at a point in time. Denoting the number of clients an MFI serves by OUTR, and assuming that this MFI provides only two products: savings accounts (SAC) and loans (L), and assuming further that the people with SAC do not borrow, OUTR can be obtained by SAC+L. If SAC$\cap$L $\neq \varnothing$, then OUTR = [SAC-(SAC$\cap$L) + L-(SAC$\cap$L) + SAC$\cap$L], where $\cap$ standards for an intersection set and $\varnothing$ stands for a null set. For MFIs that either require compulsory deposits or condition borrowing to having a savings account or both, L is a sub-set of SAC.

The above re-classification of the measures of outreach is an attempt to capture the number of clients served and the extent to which they can be described as poor, as opposed to the earlier measures that captured several aspects of the operations of an MFI, some of which have nothing to do with outreach as defined above.

Chaves and Gonzalez-Vega, (1996:66) propose the quality of the services measured by the clients' cost of transactions as a proxy measure for outreach. But quantifying this measure is problematic due to the difficulties in quantifying clients' transaction costs. Besides, both the poor and non-poor may incur the same costs, which make it difficult to distinguish between the transaction costs attributable to the poor and those attributable to the non-poor. Consequently, the measure may be an inaccurate indicator of the depth of poverty.

Christen (1997:26) uses average loan size divided by GDP per capita income as a measure of the depth of outreach but notes that, although it is widely used, it has not been systematically tested. This can be misleading because of the heterogeneity of loan products in terms of maturity periods and purposes, and therefore may not reflect the target market and the level of poverty of the clients served.

Following Barres (2006), the consensus in the microfinance industry appears to be that all the above proposed measures can be conveniently and exhaustively grouped into two categories: *scale* and *depth* of outreach, already explained above. Similarly, Ledgerwood (1999:217) argues that currently most people in the microfinance industry refer to only two levels of self-sufficiency: operational self-sufficiency and financial self-sufficiency.

Ledgerwood (1999:225) further argues that the *scale* of outreach is a straightforward measure but less nebulous than the *depth* of outreach, because it captures the total number of clients served by an MFI without taking into account their poverty status. A more nebulous measure is one that captures the characteristics of the poor clients served. This argument, however, ignores the fact that it is not only the poor who are denied access to financial services in the formal financial sector. There are millions of non-poor people who are also denied access to financial services in the formal sector. Moreover, as argued in Chapter Four, the delivery technology employed by MFIs tends automatically to close out

those who can access financial services from the formal sector, leaving out mainly those who are unable and have to turn to MFIs for financial services (Johnson and Rogaly, 1997; Ledgerwood, 1999; Jain, 1996). The *depth* of outreach, which is considered a more nebulous measure of outreach, is also very contentious because of its roots in poverty indicators.

Paxton and Fruman (1998) have constructed an alternative measure of the depth of outreach, namely the depth of outreach index (DOI). According to Ledgerwood (1999:225), the DOI is a simple, useful measure of the depth of outreach. However, the index suffers from a number of problems, one of which is that it is calculated on the basis of only four characteristics of the target population, namely, being a rural inhabitant, a woman, poor and uneducated. Another area of weakness of the DOI is the underlying assumption that the variables in the DOI characterise the people excluded from accessing financial services in the formal financial sector. This is not the case in many of the countries where MFIs operate. In effect, therefore, the index measures access to financial services rather than the extent of poverty of the clients.

3.3.3   Adopted measure of outreach

From the above proposed measures of outreach the *scale* of outreach is straightforward and easy to establish. The depth of outreach has been proposed as a better measure of outreach from the poverty perspective. For the purpose of this study the scale of outreach is considered an adequate measure of outreach for the following reasons:

1. First, it is a reasonable measure of people excluded from accessing financial services from the traditional formal financial sector. It is a quantifiable proxy of the extent to which the MFI has reached its outreach objective (Yaron *et al.* 1997 cited in Ledgerwood, 1999:225). Indeed, one of the basic reasons for the evolution of microfinance is to provide access to financial services for those who have been consistently left out or underserved by the traditional formal financial sector (Ledgerwood, 1999:34; Schadwinkel, 2000:14). *Scale* of outreach, therefore, reasonably captures the number of people who are served by most MFIs, given the self-selection methodology employed by MFIs. For example, MFIs use groups or co-operative

arrangements which require attending weekly meetings. In addition, graduation techniques are used as mechanisms of granting loans. These methods are generally known to promote self-selection as the more affluent clients usually see them as an inconvenience, making credit attractive only to poor clients (Johnson and Roglay, 1997; Jain, 1996; Ledgerwood, 1999:35). Ledgerwood (1999:225) argues that indicators of outreach are relatively simple to collect and provide a good measure of scale of outreach and good proxies for depth of outreach.

The second reason for the choice of *scale* of outreach is that the data are readily available and generating them is quite straightforward compared with, for example, the Depth of Outreach Index (DOI) of Paxton and Fruman (1998) or clients' transaction costs of Chaves and Gonzalez-Vega (1996).

The third reason for preferring scale outreach is that it is cheaper to construct. Outreach measures that take into account the characteristics of the poor usually require regular collection of detailed information about the MFI clients to determine their level of poverty. In addition to being expensive and time consuming, it has also been observed that poverty related measures get entangled in the controversies of the definition of poverty and who constitute the poor, which are often resolved through highly subjective processes (Chaves and Gonzalez-Vega, 1996:76 footnote 3).

The scale of outreach measure has some limitations:

1. Like the sustainability measures, scale of outreach lacks a need to measure the benefits of microfinance. Thus the measure does not lead to a cost-benefit analysis (Schreiner, 1999:2).

2. As Ledgerwood (1999:225) argues, the *scale* of outreach is less nebulous than the *depth* of outreach, because it captures the total number of clients served with different types of financial instruments by an MFI without taking into account their poverty status. A more nebulous measure is one that captures the characteristics of the poor clients served. Similarly, *scale* of outreach does not provide full assessment of the economic impact of the operations of the MFI as it does not disaggregate the clients by income levels, sex,

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economic activities, rural-urban location, the uneducated, and so forth, which are often positively associated with poverty and lack of access to formal financial services.

3. Finally, from the perspective of the six aspects of outreach originally proposed by Schreiner (1999) and later expounded by Navajas, *et al.* (2000), scale of outreach only gives a picture of the number of clients served (breadth). It does not, for example, give a full account of outreach in terms of the value to clients, cost to clients, depth, length and scope.

3.4   Summary of the chapter

This chapter has investigated the various definitions and measures of sustainability and outreach, because these concepts have been used in different contexts without first defining them. Thus, the chapter has defined the concepts of sustainability and outreach, identified and discussed their measures and stated the adopted measures and their limitations.

The chapter argues that the concept of sustainability is not an end state but an ongoing input-output process. Specifically, sustainability is used to describe the performance of microfinance institutions or programmes that at one point or another rely on external support in the form of grants, concessionary loans or other implicit subsidies. It is a concept developed to answer the question of whether or not it is possible for an institution to exist for a long time providing valuable services to its clients without subsidies.

The measures of sustainability discussed in the chapter include the subsidy dependency index (SDI), self-sustainability measures (OSS and FSS), adjusted variants of traditional measures of financial performance, and the arrears rate. Of these, the adopted measure is OSS for reasons that include: i) it can easily be related to the standard profitability definition of revenue minus associated expenses; ii) it explicitly relates income to expenses; ii) the data required to derive it are less onerous and often readily available in most MFIs; iv) it is straightforward to derive and it uses actual data; v) it does not focus on traditional measures of financial performance; and vi) it is objective. The limitations of the OSS were also discussed, one of which is that it does not take into account implicit subsidies and in-

kind support to the MFI which are important in determining whether or not an MFI is sustainable.

Regarding outreach, the less restrictive definition adopted is the extent to which formal financial services are accessible to the low-income earners and the adopted measure is the *scale* outreach for two important reasons. First, it is a reasonable measure of people excluded from accessing financial services from the traditional formal financial sector, and second, it is straightforward to calculate and the data required to generate it are readily available. Limitations of *scale* outreach include its lack of a need to measure benefits of microfinance, and the narrow focus on breadth, leaving out the five aspects of outreach originally proposed by Schreiner (1999), namely the worth to clients or users, cost to clients or users, depth, length and scope unattended to.

CHAPTER FOUR: DETERMINANTS OF SUSTAINABILITY AND OUTREACH AND ANALYSIS OF THEIR RELATIONSHIP

4.1   Introduction

Chapter Three defines and examines the concepts of sustainability and outreach and how they are measured. It also indicates the definitions and measures of sustainability and outreach adopted in this study. The adopted measure of outreach is the number of clients an MFI has served with financial services in a defined period. The adopted measure of sustainability is operational self-sufficiency (OSS), although the financial self-sufficiency (FSS) is considered to be a more appropriate measure of sustainability.

This chapter presents and examines the determinants of sustainability and outreach that have been identified through a review of the literature on supply leading finance theory, subsidised credit programmes, the imperfect information paradigm in the credit markets, rural finance markets, organisational development and evolution, and the rapidly expanding field of microfinance. For a systematic analysis and presentation, each widely acknowledged determinant identified in the literature has been tackled separately so that the relationship between the dependent variable and the explanatory variable is fully investigated. The analysis also investigates the relationship between sustainability and outreach.

The chapter is organised in four sections. Section 4.1 is the introduction. Section 4.2 presents and examines the determinants of sustainability and outreach, while section 4.3 is an analysis of the relationship between sustainability and outreach. The chapter ends with a summary and conclusion in section 4.4. The hypotheses tested in this study are presented in Chapter Five.

4.2   The determinants of sustainability and outreach

4.2.1   Sources and uses of funds

4.2.1.1   Sources of funds

Organisations can be distinguished in two broad ways: by sources of equity and legal status although this varies from country to country. Based on sources of equity, an organisation can be private, public or state. Private and public organisations are initially funded by equity from individuals or private entities while state organisations are funded by equity from the state or government. Based on legal status, an organisation can be incorporated or unincorporated, and it can be private, public, state or non-governmental. In Uganda some organisations incorporated as limited by guarantee also take the form of non-governmental organisations (NGOs). The bulk of funding for NGOs tends to come from donors in the form of grants or proceeds from concessionary loans (Chu and Otero, 2002). – can be different in different countries.

Beyond the initial funding for establishing an organisation, additional funds can be in the form of retained earnings or surpluses, grants, loans (concessionary or commercial) or intermediated savings (see Figure 4.1). Retained earnings or surpluses and grants are part of the equity, while the rest are liabilities. Therefore, sources of funds can be categorised into net worth/equity and liabilities.

Van Greuning *et al.* (1999:5) identify three broad types of MFIs according to their main sources of funds for operations and loans: (i) those using other people's money in the form of grants and donations, limited deposits, and concessionary and commercial borrowing; (ii) those using members' money in the form of contributions and savings deposits; and (iii) those using the public's money in the form of retail deposits, savings deposits, wholesale funds and commercial borrowing.
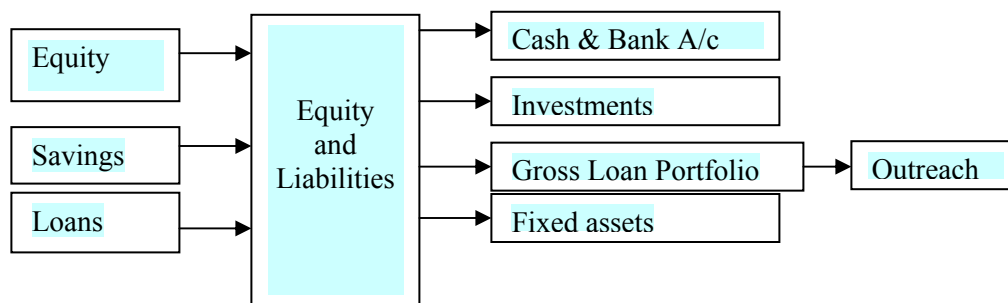
Figure 4.1 **The linkage between sources and uses of funds, and outreach and sustainability**

Sources and amount of funds available to an MFI have implications for sustainability and outreach. Similarly, the legal status of an organisation has implications for sustainability and outreach. This sub-section examines the implications of sources (measured in this study by DER[20]) and uses of funds (measured in this study by GOLP) for sustainability and outreach (OUTR). The implications of the legal status of an organisation for sustainability and outreach are addressed under governance in sub-section 4.2.2.

4.2.1.2   Uses of funds

As shown in Figure 4.1, net worth and liabilities are used to finance assets. The composition of assets tends to vary from MFI to MFI, but includes cash and bank balances, investments, loan portfolio, other current assets and fixed assets. Investments and loan portfolio are direct investments in the sense that they directly generate revenue, with the loan portfolio usually being the largest asset of an MFI or any other lending financial institution.

4.2.1.3   Sources of funds and the implications for outreach and sustainability

A significant amount of literature on microfinance has placed much emphasis on the sources of funds as a major determinant of sustainability and outreach (Rhyne and Otero, 1992; Otero and Rhyne, 1994; Rhyne, 1994; Christen, 1997; Buckley, 1997; Robinson, 2001a; Christen with Drake, 2002; Fernando, 2004; Chu, 2006; Ledgerwood and White, 2006). Buckley (1997:1081), for example, argues that extensive outreach reportedly achieved by MFIs is due to donor funding, while Rhyne and Otero (1992) argue that

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[20] DER is debt equity ratio and GOLP is gross outstanding loan portfolio.

extensive outreach by the MFIs can be achieved and sustained through savings mobilisation and access to commercial loans. In Asia and Latin America the success of MFIs in terms of sustainability and outreach is attributed mainly to savings mobilisation and access to commercial loans. BRI in Indonesia, for example, is reported to be funding a greater part of its loan portfolio using savings from low-income people. BancoSol in Bolivia is reported to be relying heavily on commercial loans to fund its loan portfolio (Robinson, 2001a). White and Campion (2002:28) report that between 1998 and 2000, in Peru, Mibanco increased its clients from 32,000 to 58,000 and its loan portfolio from US$14 million to US$40, following its transformation and access to savings for intermediation.

Figure 4.1 illustrates the possible channels through which sources of funds affect sustainability and outreach of an MFI. While it is not easy to see a direct relationship between the various sources of funds, on the one hand, and sustainability and outreach, on the other hand from the Figure, given the accounting principle that the value of net worth plus liabilities (sources of funds) is equal to the value of assets, an increase in the sources of funds should lead to an increase in the uses of funds. Thus, if a sustained amount of savings and commercial loans can be mobilised, it is possible that sustainability and expanded outreach can be achieved, consistent with the hypothesis stated in section 1.5. It can also be seen that additional equity arising from retained earnings or donor funding or both leads to an increase in the uses of funds.

However, the growth in the uses of funds (measured by GOLP) due to the growth in the sources of funds may not automatically be translated into improved sustainability and increased outreach for a variety of reasons. As Figure 4.1 shows, when more savings are mobilised and/or commercial loans obtained, they may be converted into cash or put in a bank and/or in fixed assets other than in gross loan portfolio (GLP) and/or investments, which are directly linked to sustainability and outreach. For example, out of increased savings, higher wages and salaries may be paid or money spent on strengthening the governance structure with a long-term effect on sustainability and outreach.

Secondly, even if the savings mobilised and/or commercial loans obtained are used to increase GLP, if the average loan size (AvLz) increases at a rate higher than the rate at which GLP increases, an increase in GLP may not be translated into an increase in outreach

although sustainability could improve. Thirdly, an increase in GLP may not be translated into an increase in outreach, if the number of repeat borrowers increases. Therefore, access to more savings and/or commercial loans may not necessarily lead to an increase in outreach and/or improved sustainability, as has been argued in the literature (see for example, Rhyne and Otero, 1992; Otero and Rhyne, 1994; Rhyne, 1994; Christen, 1997).

Furthermore, mobilisation of public savings for intermediation has its own complexities and direct costs that would require more funds to be spent, for example, in payment of staff salaries and incentives, training staff and improvement of physical infrastructure for the institution (Robinson, 2001a; Ledgerwood, 1999; Ledgerwood and White, 2006). White and Campion (2002:27) note that there is evidence that, in some instances, regulation has not enhanced savings volume, because the development of a savings product is expensive and complex, requiring high levels of liquidity and risk-management skills, as well as a thorough understanding of the local economy (Ledgerwood and White, 2006).

Similarly, access to commercial funds may come with its own costs. However, the level of these costs depends on the state of development of a given financial sector. In most developing countries the financial sector is still underdeveloped, making the costs of funds relatively high. This could negatively affect sustainability and outreach. Other factors such as weak governance and lack of institutional vision can play a major role in impeding translation of an increase in the sources of funds into increased sustainability and outreach of the institution. From the foregoing analysis, the effect of the sources of funds on sustainability and outreach is an empirical question. In this study it is hypothesised that sources of funds measured by DER positively affect sustainability and outreach, because it is widely expected that an increase in the resource inflow to a microfinance institution should lead to an increase in loanable funds and the number of clients accessing the loans.

Another subject that has attracted widespread debate regarding the linkage between sources of funds and sustainability and outreach is the application of subsidies. Citing institutionalist literature, Woller *et al.* (1999) define the term subsidy as any financial resource received by an organisation at below market price or at zero price, which includes all types of donations, explicit or implicit.

A number of MFIs that receive grants apply part of them to the provision of non-financial services such as staff and client training, research and development, and other activities of particular interest to donors. These non-financial services are reported to have had a huge effect on outreach. For instance, Grameen Bank serves several million members (6.61 million by August, 2006 – Yunus, 2006) mainly through donor support (Morduch, 1999). Valenzuela (2002:71) finds that technical assistance plays a key role in helping re-orient and expand programmes of downscalers,[21] and that in Chile, subsidising special operating expenses proved hugely successful in enhancing institutional performance. This implies that subsidies could be positively related to outreach. However, if the subsidy negatively affects the attitudes of the recipients (the receiving institution and/or its clients), then it is likely to have negative effects on sustainability and outreach of the institution receiving it. Chaves and Gonzalez-Vega (1996:73) called this possible influence an "organisational dependency attitude."

Chaves and Gonzalez-Vega (1996) report that Indonesia subsidies contributed to the financial viability of rural finance institutions that received them, but only because of two fundamental factors:

- The subsidies were one-time loans and/or direct transfers in the form of capital and no more. Besides, no operating subsidies were granted thereafter; and

- The subsidies were directed to the organisation and not to its clients, and the resulting earnings were retained. The clients of the MFIs had absolutely no illusion that they would not be able to access the funds as a political gift.

Based on the above analysis, the relationship between subsidies, on the one hand, and sustainability and outreach, on the other hand, can be either positive or negative depending on the extent to which it affects the attitudes of the management of the institution and the clients receiving it. This study has not tested this hypothesis for lack of accurate data.

4.2.1.5 Uses of funds and the implications for sustainability and outreach

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[21] Downscalers is a term used to refer to commercial banks that have entered into the microfinance market.

Figure 4.1 also shows the items on the uses side of funds. Operating revenue (OR) is directly generated from two main uses of funds: investments and disbursed loans proxied by the gross outstanding loan portfolio (GLP). The direct way to increase investments and GLP, given fixed sources of funds, is to re-allocate funds within the uses side, a fairly logical argument that has received less emphasis in microfinance empirical studies. If investments generate more revenue compared to other forms of uses of funds, re-allocating resources to other forms of uses of funds (*ceteris paribus*) results in increased OR and, therefore, sustainability. Similarly, assuming all other factors remain constant, an increase in GLP results in higher OR and improves sustainability. Thus, an increase in investments and GLP, *ceteris paribus* (lending interest rates, costs and repayment rates), translates directly into improved sustainability. The loan size does not have any effect, except where it leads to increased cost of loan administration (see sub-section 4.2.7). On the other hand, an increase in GLP could also lead to a decrease in OR, because as more loans are disbursed and left uncollected, less revenue is generated. Thus, an increase in GLP could be negatively associated with sustainability, but positively with outreach as hypothesised in this study.

Unlike sustainability, where more revenue can be generated from investments and GLP to improve sustainability as argued above, outreach is only influenced through GLP (assuming loans are the only products offered). Denoting the number of loans by NL and average loan size by AvLz, GLP = AvLz*NL. Assuming there are no repeat borrowers (NRB), then NL is the same as outreach. This means that for NL to increase when GLP increases, AvLz and NRB have to be constant. If these variables increase, an increase in GLP may not be translated into an increase in outreach.

4.2.2   Governance[22]

4.2.2.1 Concept of governance

Different authors have defined the concept of governance differently. A sample of these definitions provided below can help to illuminate an understanding of the concept.

Ledgerwood (1999:111) refers to governance as a system of checks and balances whereby a board of directors is established to oversee the management of the MFI (see Ledgerwood and White, 2006; Carmichael, 2006). Similarly, CGAP (1997) defines governance as "a system of checks and balances whereby a board is established to manage the managers. Governance is sometimes conceived as a virtuous circle that links the shareholder to the board, the management, the staff, the customer, and the community at large."

Otero and Chu (2002:220) define governance as:

> *...the process by which a board of directors, through management, guides an institution in the fulfilment of its corporate mission and protects the institution's assets over the course of time. The board of directors provides oversight, gives direction to managers of the institution, and carries out its functions on behalf of the third party. Shareholders constitute the third party in for profit corporations; in nonprofits the third party is not as easily defined because they are not owners and can include clients, staff and donors.*

OECD (1999) defines governance as:

> *... the system by which business corporations are directed and controlled. The corporate governance structure specifies the distribution of rights and responsibilities among different participants in the corporation, such as the board, the managers, shareholders, and other stakeholders, and spells out the rules and procedures for making decisions to corporate affairs. By doing this, it also provides the structure through which the company objectives are set, the means of obtaining those objectives and monitoring performance.*

In a more compressed form, Shleifer and Vishny (1997:737) define governance as "ways in which suppliers of finance to corporations assure themselves of getting a return on their investment."

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[22] Widely referred to as corporate governance

PCSU (2000) states:

> *…corporate governance refers to the set of rules and incentives by which the management of a company is directed and controlled. Good corporate governance maximises the profitability and long-term value of the firm for shareholders.*

ICGN (1999) defines governance as "the relationship among various participants in determining the direction and performance of corporations. The primary participants are (1) the shareholders, (2) the management (led by the chief executive officer), and (3) the board of directors."

A synthesis of the above definitions identifies common and crucial elements that characterise the definition of governance. First, governance is an organisational arrangement in which the key organisational layers of equity holders, Board of Directors (BOD) and management are constituted and aligned to control and distribute power within the organisation to achieve the desired objectives. Second, in order for the organisational arrangement to achieve its objective(s), it must provide adequate checks and balances. Finally, the rights and responsibilities of the key stakeholders in the organisational arrangement should be part of the organisational structure. Therefore, a more complete definition of governance should include all these identified elements.

4.2.2.2. The evolution and rationale for governance

In the Principal-Agent framework, the risk bearers are called Principals, who contribute equity capital in exchange for the rights to profits/surpluses and appreciation of corporate value. These rights include selling shares, electing and removing directors, and approving fundamental changes in a company to safeguard equity ownership (OECD, 1999). The equity holders are also called owners of the organisation. The Agents are the managers who carry out the day-to-day operations of the organisation. They can be the principals or a team of professionals completely different from the principals. In NGOs equity holders are not clearly defined and constitute *shadow* equity owners as opposed to *real* shareholders in for-profit organisations (Otero and Chu, 2002; Christen, 1997).

In the early part of an organisation's life, especially a private organisation, outside equity may or may not be required depending on the ability and willingness of the shareholders to supply it. Besides, in such organisations, the principal(s) might be few, holding the same value of equity, and are also the managers of the organisation. In this case the interests of the principals and of the agents may be perfectly aligned, and therefore the principal-agent problem may not arise at all. However, as the organisation grows, it may require an injection of more equity capital and/or debt that may come from several sources and in unequal amounts, leading to a diffuse ownership with several major and minority principals. In this situation the following scenarios are likely to obtain:

(i)   The principals are not the same as the agents;

(ii)   There could be less incentive for those not in management to pay for the cost of monitoring the agents; and

(iii)   There is a dichotomy between dominant and minority equity holders.

When any of the above scenarios obtains, the interests of the principals may significantly diverge from those of the agents. For a profit organisation governance issues arise whenever all its principals do not manage the organisation, or there is a majority-minority shareholding relationship whereby the majority shareholders tend to dominate the minority shareholders or abuse their rights (OECD, 1999).

The problem may also arise if there is a diffuse equity ownership, as Gillan *et al.* (2001) observe: "it is not just the separation of ownership and control that gives rise to the agency problem between shareholders and managers, rather it is the atomistic or diffusion nature of the corporate ownership i.e., an ownership structure characterized by a large number of small shareholders." (See also Mas-Colell *et al.,* 1995:153.) Given a diffuse ownership, there is no incentive for an individual owner to monitor corporate management, since he/she meets the entire monitoring costs, but the benefits from improved management of the organisation accrue to all the shareholders/founders. In this case, therefore, the nature and magnitude of the agency problem is a function of the equity ownership structure.

The absence of any incentive to closely monitor the managers gives them (managers) opportunity to maximise their own objective function. As PCSU (2000) and Kasper and Streit (1998:271) argue, if left without adequate oversight, the managers might:

- Pay themselves above the market wages;
- Undertake unprofitable investments that provide no long-term benefits to shareholders, such as overly elaborate and expensive headquarters buildings, excessive growth, etc;
- Undertake overly risky financial transactions such as borrowing to promote expansion, without concern for high levels of leverage that might get the company into trouble when market growth slows;
- Engage in asset stripping i.e., removing assets from the company, without the knowledge of other shareholders; and
- Recruit relatives without due regard for competence.

The BOD represents the basic interests of the principals (and sometimes other parties' interests). Its principal functions are therefore to: i) select, oversee and compensate senior management based on performance; ii) with input from management, undertake strategic planning including succession planning; iii) communicate with equity holders; iv) with input from management, design risk identification and management systems including internal financial control (part of fiduciary responsibility); and v) ensure management and general legal compliance (Otero and Chu, 2002; PCSU, 2000; OECD, 1999; ICGN, 1999; CGAP, 1997; Edgcomb and Cawley, 1994). Some BODs are also responsible for declaring dividends/surpluses (PCSU, 2000). Since the BOD may be composed of representatives of equity holders, managers, creditors, workers and other stakeholders, its interests can be mixed, and therefore should be guided by well-defined principles discussed in 4.2.2.5 (b).

Management reports to the BOD and is responsible for the day-to-day operations of the organisation, as well as maximising corporate profits/surpluses and equity holders' value (Otero and Chu, 2002; PCSU, 2000; OECD, 1999; ICGN, 1999). A long-standing debate among scholars is whether or not the objectives of equity holders and of managers are consistent. Sub-section 4.2.2.3 and Chapter Five address some of the points of contention.

Figure 4.2 is an illustration of equity ownership and governance structure, showing that equity holders devolve control of the organisation to the BOD/Governors. The BOD/Governors in turn delegate the responsibility of implementing the day-to-day activities to a management team head by a Chief Executive Officer (CEO). In non-profit organisations or state corporations, BOD/Governors are accountable to the public that ultimately contributes the funds to the organisation. In for-profit organisations the BOD is accountable to the investors, including shareholders, creditors and savers in deposit-taking financial institutions.[23]
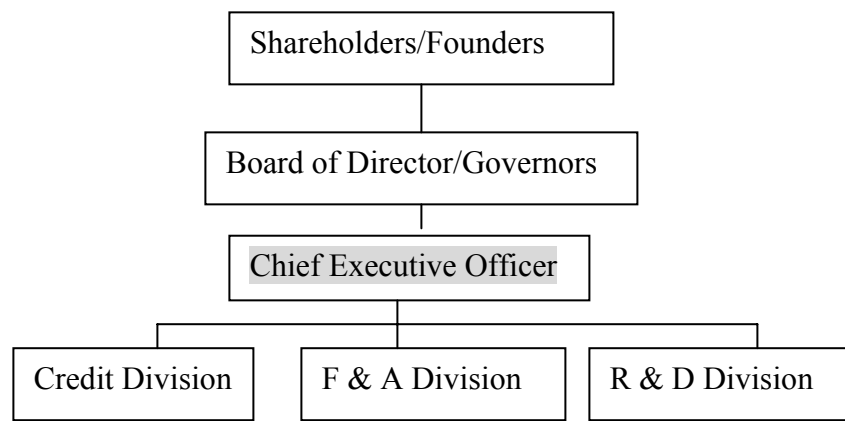
Key: F & A is Finance and Administration; R & D is Research and Development.

Figure 4.2: **Ownership and governance relationship in an MFI**

4.2.2.3 Characteristics of an effective governance structure

In identifying the characteristics of an effective governance structure, the relationship between the measures of the objectives for the existence of an organisation and the characteristics of the governance structure is analysed. Those characteristics of governance structure that are positively linked with the measures of the objectives for the existence of an organisation constitute the characteristics of an effective governance structure. Under (a) below, the framework for identifying the characteristics of an effective governance structure is discussed.

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[23] R and D division exits in a few MFIs. Uganda Microfinance Ltd in Uganda has an R and D division.

(a) **Framework for identifying the characteristics of an effective governance structure**

The main objective for the existence of most private organisations is to maximise profits. This classical assumption has been strongly challenged mainly on account of separation of ownership and control (Chapter Five). It is argued that when equity owners are not the managers of the organisation, their interests may not be aligned. Due to this mismatch, organisations may not aim at profit maximisation only. Besides, organisations such as co-operative societies do not exist for profit maximisation. Similarly, state organisations and NGOs do not exist purely for profits.

Cognisant of their social obligations, some state companies and NGOs are established to disperse possible surpluses through lower prices, additional services or higher rewards to the factors of production employed. For example, given their NGO background, the main goal of MFIs may be attaining significant outreach. Therefore, to assess whether a given governance structure is effective or not requires an assessment of whether the governance structure leads to profit maximisation/sustainability, increased outreach and so forth, based on the objective function of the organisation.

(b) **Characteristics of an effective governance structure**

Various authors have suggested a number of characteristics that an effective governance structure must display. These characteristics together with the supporting literature are summarised in Table 4.1.

Table 4.1: **Characteristics of an effective governance structure and the supporting literature**

Characteristics of an effective governance structure	Supporting literature
Existence of clear equity holders and their capacity to provide more capital	Klein, 2002; Robinson, 2001a; Edgcomb and Cawley, 1994; Otero, 1994
Existence of instruments specifying the rights and responsibilities of equity holders	PCSU, 2000; OECD, 1999; ICGN, 1999
Existence of clearly defined BOD responsibilities	PCSU, 2000; OECD, 1999; ICGN, 1999
Existence of a competent Board and leadership.	Klein, 2002; Mommartz and Schor, 2002; White and Campion, 2002; Campion, Dunn and Arbuckle Jr, 2002; Otero and Chu, 2002; Robinson, 2001a; PCSU, 2000; OECD, 1999; ICGN, 1999
Existence of an independent BOD	PCSU, 2000; OECD, 1999; ICGN, 1999
Existence of independent Board committees	PCSU, 2000; OECD, 1999; ICGN, 1999
Existence of term limit for BOD	CGAP, 1997
Existence of a code of conduct for the BOD	PCSU, 2000; OECD, 1999; ICGN, 1999
Separation of responsibilities of the Board chairman and chief executive officer of the organisation	PCSU, 2000; OECD, 1999; ICGN, 1999
Existence of mechanisms for internal controls including organisational structure, systems, policies and procedures	Klein, 2002; White and Campion, 2002; Yaron, 1992
Existence of strategic plan indicating clearly the mission and objectives	Klein, 2002; Robinson, 2001a; PCSU, 2000; OECD, 1999; ICGN, 1999; Otero, 1994
Existence of information disclosure requirement and systems	Robinson, 2001a; PCSU, 2000; OECD, 1999; ICGN, 1999; Otero, 1994
Existence and implementation of a framework for: setting objectives, ensuring that the objectives are met, assessing performance, and for rewarding/sanctioning performance	White and Campion, 2002; Otero and Chu, 2002; Robinson, 2001a; Otero, 1994
External factors that include the existence of a sound legal and regulatory framework for equity holders	PCSU, 2000; OECD, 1999; ICGN, 1999; Yaron, 1992; Braverman and Guasch, 1986

4.2.2.4 Governance and the implications for sustainability and outreach

Until the 1990s governance in relation to institutional performance was hardly a subject of discussion in the field of microfinance and credit programmes (Private Sector Corporate Governance Trust, 2002). Adams and Vogel (1986) argue that it is policies and not organisational form that appear to be the main determinant of institutional success or failure. PCSU (2000) notes that ten years ago the phrase 'corporate governance' was hardly used, while Gillibrand (2004) goes a step farther to state:

> *Even three years ago, the conventional approach to corporate governance regarded it as irrelevant for state-owned enterprises, family owned corporations, small and medium enterprises – and even unimportant in the banking sector. One of the main reasons was theoretical: the concepts of corporate governance were based on the principal-agent relationship, which was considered to apply only to joint stock companies.*

In contrast, however, most of the current literature underscores the importance of governance in institutional building and performance. For example, Gillibrand (2004) reports that Sir Adrian Cadbury has published a book on corporate governance for family-owned companies. Gillibrand (2004) further observes that today there are well-established codes for state enterprises and universities in many countries including India, Australia and New Zealand, and that the Commonwealth Secretariat has prepared guidelines of corporate governance for co-operatives and small and medium enterprises, while work is in progress for developing corporate governance guidelines for NGOs.

Noting the increasing importance of governance, CGAP (1997:1) argues that in emerging industries the person who starts the company is often a visionary. But as the business experiences some success, and there is a need to generate adequate income to pay workers competitive wages and salaries or attract an investor, professional management with effective oversight becomes crucial.

Otero and Chu (2002:221) argue that governance has assumed increasing importance in microfinance because as the MFIs grow in their outreach, the size of their assets (measured by their loan portfolio) also grows to a considerable size. Ensuring effective management of this growth requires an added input and involvement by a board.

Similarly, Mommartz and Schor (2002:76-9) observe: "an appropriate credit technology can only be effective if it is used in an appropriate institutional setting (in terms of governance and ownership structure)." In addition, resources must be acquired and combined for production in the most efficient and cost-effective way. This requires a desirable institutional ownership and governance structure. Thus, an effective governance structure is positively associated with sustainability and outreach, consistent with one of the hypotheses stated in section 1.5. The authors further note that lack of real owners of an MFI does not necessarily result in unstable and risky institutions. They cite the experience of MFIs that span the spectrum from very weak to very successful, not so much on account of ownership but rather on account of good governance. NGOs such as Compartamos in Mexico, ACP in Peru, ADEMI in the Dominican Republic, Kenya Rural Enterprise Program (K-REP) in Kenya, ABA in Egypt, RAC and ASA in Bangladesh, and Share in India do not have owners and yet they have been successful. These arguments suggest that ownership may not be an important issue in the performance of an MFI, but governance.

Following the Asian financial crisis and the Russian debt default, in 1998 the leaders of the G7 nations announced a new focus on corporate behaviour and incentives. By mid-1999 the OECD had adopted a set of basic principles. These principles have been endorsed by organisations such as ICGN and California Public Employees' Retirement System (CalPERS) (ICGN, 1999). The OECD Principles of Corporate Governance were arrived at following consultations with 30 member countries (OECD, 1999), and the principles are designed to ensure good practice in corporate behaviour.

In Uganda the government enacted the Micro Finance Deposit-Taking Institutions (MDI) Act, 2003 and Financial Institutions Act, 2004, which explicitly recognise the importance of corporate governance (Government of Uganda, 2003; 2004).

Empirically, rigorous studies which have investigated the effects of governance on institutional performance have focused on joint-stock companies (Gillibrand, 2004). In microfinance the existing evidence linking governance structure to institutional performance, especially with regard to sustainability and outreach, is not widespread, and in most cases are of a general and qualitative nature. For example, Klein (2002:3) finds that "adequate ownership structure, board composition and control mechanisms are essential.

The successful MFIs tend to be those that establish clear mission and business objectives at the outset."

In Indonesia Chaves and Gonzalez-Vega (1996) find that the design of institutions that perform financial intermediation matters a great deal, because it determines the performance of the organisation and hence its success or failure. In particular, the human element in institution building is noteworthy. Supporting this argument, Klein (2002:3) notes that it is very important that the management of an MFI is highly professional and remains free of government interference.

Adams and Vogel (1986) report that most of the subsidised credit programmes were unsuccessful, because the organisational form of the institutions through which the directed credit programmes were implemented was not suited to the conditions in the recipient countries, having been formed on the basis of the dominant economic philosophy of the donor country.

While the overall performance of directed credit programmes in the past was poor, the performance of a few programmes such as INVIENO Development Bank Program implemented in Nicaragua in 1975 indicate that about 80% of the targeted small farmers were reached in the region containing the largest number of small producers and lowest rural family incomes. According to Braverman and Guasch (1986), such performance was attributed to internal auditing of local office operations, low monitoring costs, technical help received for operational procedures, new methods of programme implementation, and the expeditious manner in which loan applications were processed and funds disbursed. These are major elements of governance.

4.2.3   Savings mobilisation

4.2.3.1 Concepts of savings and intermediation

The term 'saving' is widely used to mean income not spent on current consumption but put aside for future spending (Bannock *et al.*, 1998). It is often assumed that savings arise from the surplus income available for current consumption. However, in most developing

economies savings may not occur in the form of income not spent on current consumption, but on non-financial assets. Moreover, the savings may not necessarily be the result of surplus income, but a genuine sacrifice of current consumption for either investment to produce goods and services for future consumption or for an unforeseen eventuality (Robinson, 2001a). If saving has occurred and is placed in a financial institution, it becomes a financial product offered by that financial institution. Intermediation of savings means lending the money out at the risk of the lender (GOU, 2003).

4.2.3.2 The role of savings mobilisation

There is a large amount of literature on savings. Until recently, however, much of the literature focused on the role of savings in growth and development, determinants of savings, reasons for savings, and savings behaviour mainly at household and national levels. For example, in a review of alternative theories of savings, Jensen (2003:5) states that whenever a growth model is formulated, a theory of savings is adopted. This implies that savings were viewed as an important source of funds for investment to generate economic growth rather than as a product offered by financial institutions. In financial development theories the focus on savings has been from the point of view of ensuring its safety in the financial system, how to attract it, and the role it plays in granting loans. Savings seen as a financial product that attracts clients to a monetised financial system is a relatively recent development.

Citing Vogel (1984b), Robinson (2001a:224) argues that, despite the large demand for financial savings in rural areas of developing countries, savings remains forgotten in much of institutional microfinance. Adams and Vogel (1986) argue that the subsidised supply-led credit programmes of the 1960s and 1970s crumbled partly because savings were not viewed as an additional product useful for the low-income earners. It was argued that the low-income earners did not have the capacity to save or did not even know how to save. Therefore, prospective clients who did not need credit could not become clients of the programmes. Consequently, outreach was curtailed.

Sub-section 4.2.1 identifies sources and uses of funds as determinants of sustainability and outreach consistent with the traditional arguments of the role of savings in economic

growth and development. On the sources side, savings are identified as a source of funds for investment. However, apart from being a source of funds for investment, savings have other characteristics that affect sustainability and outreach. This sub-section discusses savings as a financial product and the implications of this for sustainability and outreach. The discussion is limited to savings, because several writers have noted that it is an important product that most MFIs do not provide, and yet it (savings) significantly affects sustainability and outreach (Otero and Rhyne, 1994; Seibel, 1996; Chaves and Gonzalez-Vega, 1996; Hulme and Mosley, 1996; Hollis and Sweetman, 1998; Schoombee, 1998; Morduch, 1999; Schreiner, 1999; Robinson, 1994, 2001a; Ledgerwood and White, 2006).

4.2.3.3 The implications of providing savings products for sustainability and outreach

Savings affect sustainability and outreach of MFIs through four main channels. In Uganda, for example, and as also argued in the Strauss Report (1996), savings are a source of relatively cheap loan funds compared to funds from commercial sources, because it (savings) usually attracts low interest rates (MOFPED, 2006). Cheap loan funds can be lent at relatively low lending interest rates, which in turn may attract more clients and, hence, increased outreach and revenue depending on the elasticity of demand for credit. More revenue may lead to increased profitability. There is, therefore, a positive relationship between savings and both sustainability and outreach.

The second way through which savings affect outreach is as a financial service. To illustrate this point, consider an MFI engaged in providing microfinance services. Assume that this MFI provides only two products: loans and savings, either directly or indirectly. These products can be accessed by savers only (do not borrow), borrowers only (do not save) or by both savers and borrowers. Given that the products of the MFI can be accessed by savers only, borrowers only or by both savers and borrowers, the outreach of this MFI denoted by OUTR is a summation of the number of savers only (NSO), the number of borrowers only (NBO), and the number of both borrowers and savers (NSOBO). Expressed algebraically, OUTR is:

OUTR = NSO+NBO + NSOBO---4.1

But NBO + NSOBO in equation 4.1 can also be expressed in terms of the number of non-repeat borrowers (NNRB) and the number of repeat borrowers (NRB). Substituting NNRB + NRB into equation 4.1 gives:

OUTR = NSO+NNRB+NRB--4.2

Equation 4.2 tells us that outreach of an MFI providing loans and saving products is a summation of: the number of savers only, the number of non-repeat borrowers and the number of repeat borrowers. For an MFI not providing saving services, NSO = 0, and therefore clients who would want to access saving services only would not be reached. In this case the outreach of the MFI may be lower than if the MFI provided saving services as well. Similarly, an MFI that pursues a policy of a high retention rate through granting repeat loans may reach fewer clients, although the institution may experience high growth in its loan portfolio. This is a signal that a high retention rate through repeat loans could actually conflict with the outreach objective. Furthermore, it has been argued that a high retention rate is positively related to financial sustainability. Thus, given that there can be a conflict between granting repeat loans and outreach, this conflict can be translated into a conflict between outreach and sustainability.

Studies have shown that low-income earners can and do save, and evidence from MFIs such as BRI, BancoSol and rural banking in Mexico has shown that there can be more savers than borrowers (CGAP, 2004; Morduch, 1999). Lafourcade *et al.* (2005) found that in 2003, the 163 MFIs in Africa reporting to MIX Market Inc served almost three times as many voluntary savers (6.3 million) as borrowers (2.4 million). Chaves and Gonzalez-Vega (1996:67) observe that in Indonesia, "in an interesting encounter, over 10 million savers use deposit services." CGAP (2004:3) argues that supply-driven microenterprise credit methodologies do not reach the millions of poor people who do not need loans, but other services such as savings, consumption credit, insurance, and money transfer services (see also Fernando, 2004:3). By providing savings services to the low-income earners, a significant level of outreach can be attained and sustainability improved.

The third channel through which savings affects sustainability and outreach is by providing relatively less expensive information for loan appraisal (Hulme and Mosley, 1996:3). Many

authors have identified information asymmetry as one of the major obstacles in the delivery of financial services to the low income earners, more so in rural areas (Bose, 1998; Hollis and Sweetman, 1998; Sharma and Zeller, 1997; Steel *et al.*, 1997; Chaves and Gonzalez-Vega, 1996; Stiglitz, 1990; Hoff and Stiglitz, 1990; and Udry, 1990). As clients deposit their savings and withdraw, the MFI gets information about their behaviour at a much lower cost than when the institution has absolutely no information about a potential borrower, which reduces the level of information asymmentry about the client. This channel affects sustainability through improving the repayment rate and lowering the cost of loan appraisal. High repayment rates and lower costs should be translated into profit for the MFI and increased outreach, although as Cull *et al.* (2006) have argued, many MFIs have not realised this promise.

Finally, savings may also improve governance of the MFI, because it heightens the board's and management's client orientation for effective supervision and oversight, leading to higher outreach (White and Campion, 2002:26). In some financial institutions, savings act as collateral for loans.

However, as argued in section 4.2.1, while savings may generate many benefits to an MFI, handling many small deposit accounts can be expensive due to the cost of complying with the legal requirements to mobilise deposits for intermediation, costs incurred in mobilisation and interest costs paid to depositors (Ledgerwood and White, 2006; Ledgerwood, 1999; Paxton and Fruman, 1998). Schreiner (1999:13) argues that the supply of passbook savings increases the overall cost of supply of financial services and thus leads to higher prices for those services such as loans – that directly earn revenue, reducing net gain to per borrower. Ledgerwood and White (2006) argue that in spite of the costs imposed on the MFI by deposit mobilisation, the net effect is positive on both sustainability and outreach, which is consistent with the hypothesis of this study stated in section 1.5.

4.2.4   Average loan size and the implications for sustainability and outreach

Empirical evidence suggests that subsidised and directed credit programmes perform poorly partly because their loan sizes are attractive to non-targeted clients. For example, figures

from BRAC's 1995 impact study indicate that 10% of members were from non-target families (Johnson and Rogaly, 1997:37).

Research has also shown that many potential poorer clients of MFIs are self-excluding, because the MFIs' loan products simply do not meet their cash flow patterns; as Johnson and Rogaly (1997:29) report, "ACTIONAID found, through the experience of running a group-based lending programme similar to that of the Grameen Bank, that many very poor people were nervous of taking a large loan…" Johnson and Rogaly (1997:13) further report that research on the effects of credit programmes on the empowerment of women found that women retained significant control over the use of the loan more often when the loan sizes were small.

An alternative to directly targeting low-income clients is to use design features that promote self-exclusion of the better-offs. One such design feature is the use of small loans. Richer people are less likely to be interested in accessing small loans. However, Johnson and Rogaly (1997:37) argue that while, on the one hand, indirect mechanisms for increasing outreach such as using small loan size are able to lower costs, on the other hand, targeting can be difficult to implement and monitor in terms of time and cost, especially in the fast expanding and large programmes.

Nevertheless, compared to programmes that do not use loan sizes, those that use them (loan sizes) as part of their design features tend to serve more low-income clients compared to those that do not (Johnson and Rogaly, 1997). This can be explained from two perspectives: in terms of the absolute loan size and self-selection.

To illustrate how absolute loan size affects outreach, assume a given loan fund of, say, US$15,000. Assume further that three different loan sizes are extended to clients: US$50, US$75 and US$100. This illustration assumes constant costs of delivering the loans, constant number of repeat loans and unlimited demand for loans.[24] From the illustration, the smaller the loan size, the greater the number of clients served and the greater the outreach. This means that MFIs that deliver small loan sizes, if not constrained by the

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[24] Throughout this study it is assumed that the demand for financial services provided by MFIs is a given (see Chapter Two).

amount of funds available for lending, can reach more clients and therefore achieve a greater outreach compared to those with relatively larger loan sizes.

The second channel through which loan size affects outreach is the self-selection mechanism. It is assumed that most of the people without access to financial services are low-income earners, who are interested and able to access only small size loans. For example, Christen, *et al* (1995) use average loan size as a proxy for client income, implying that low-income earners borrow small amounts. In view of the above arguments, it is hypothesised that small loan size is positively related to outreach.

SEEP Network and Calmeadow (1995:29) identifies average loan size as one of the three key factors that influence the level of activities and hence operational costs. Small loans tend to be very expensive to administer. Secondly, micro-borrowers usually live in rural areas, which may be sparsely populated and with poor infrastructure, making the provision of financial services to them expensive. In addition, low-income clients have no formal collateral and information about their business activities is frequently asymmetric. Due to the high cost of giving small loans and reaching low-income clients, it has been argued that institutions that target low-income clients cannot break even. Therefore, to continue providing financial services to low-income earners, these institutions must rely on subsidies. This has two implications. First, there is no guarantee that subsidies can last forever. Over time, therefore, institutions that cannot break-even collapse, which means that at some point in time outreach can drop to zero. The second implication is that if the clients and staff of an institution perceive it (the MFI) as temporary, they will be tempted to defraud it.

In a study of 72 MFIs reported in the Micro-banking Bulletin, Conning (1999:72) finds that it is more costly to serve lower-income clients than the higher-income clients, although as a result of inadequate data it was not possible to determine whether the higher costs are due to fixed or variable monitoring and delegation costs. Using anecdotal evidence, however, the author concludes that the higher costs are due to variable costs attributed to monitoring and delegation costs. Based on the theoretical and empirical evidence discussed above, it is hypothesised that small loan size is negatively related to sustainability.

4.2.5   Lending interest rates

4.2.5.1   The concept and role

Although contested in the literature (see, for example, Jackson, 2003:4; Smithin, 2005), it is generally accepted that the rate of interest is the price of borrowed money.[25] To a financial institution this rate is that charged to the institution when borrowing money or the rate the institution charges when lending money to its clients.

Three different types of lending interest rates can be distinguished: nominal, effective and real. The nominal lending interest rate is usually explicitly quoted by a financial institution, while an effective lending rate includes the nominal interest rate plus other charges that are directly associated with the loan granted (Ledgerwood, 1999; CGAP, 1996). Examples of such charges are fees, commissions, etc. The real lending interest rates and the real effective lending interest rates take into account the rate of inflation. Each of these lending interest rates has different implications for sustainability and outreach of an MFI.

In classical economic theory interest rates adjust sensitively to allocate all available funds for investment. In this instance it is a tool that links savings to investment. In other instances the role of interest rates is to clear the loans market (Hoff and Stiglitz, 1990; Stiglitz and Weiss, 1981). For example, an increase in the lending rate, apart from lowering the demand for credit and outreach as it (credit) becomes more expensive, also induces an increase in credit supply and investment. In the process the demand and the supply of credit converge, the equilibrium condition is attained and the market clears. The converse is also true, although as argued in Stiglitz and Weiss (1981), where there is credit rationing, the market does not clear.

In the liquidity preference theory Keynes argues that the interest rate is a reward for parting with liquidity. In this model the rate of interest is inversely related to liquidity preference.[26] By implication, therefore, to counter liquidity preference, the interest rate should be raised.

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[25] See Johnson and Rogaly (1997) for the definition of the rate of interest, and Stiglitz and Weiss (1981) and Stiglitz and Hoff (1993) for a discussion of the purpose of the rate of interest.
[26] Keynes uses the term liquidity preference to mean keeping significant sums in the sterile form of cash. Keynes assumes that people part with their savings only if offered an interest return.

However, this has been shown to be a fallacy, as interest rates are not the only factors that affect liquidity preference. For example, safety and convenience of the institutions into which the cash is placed are critical factors in liquidity preference.

Following the independence of a number of developing countries, lending interest rates were used to allocate loans by artificially fixing them at below market rates (Hulme and Mosley, 1996; Strauss Commission, 1996; Morduch, 1999; Robinson, 2001a). It was argued that subsidised interest rates lower the cost of credit and increase credit supply to boost economic growth and rural development. In Uganda targeted programmes have included the Rural Farmers Scheme implemented through the then Uganda Commercial Bank (UCB) during the late 1980s and early 1990s, the *Entandikwa* Credit Scheme instituted in 1994, and the current loans extended by Microfinance Support Center Limited (MSCL) (MOFPED, 2007).

There is, however, widespread evidence indicating that subsidised credit programmes lead to massive problems that include: (1) lack of sustainability of the institutions that provide it as a result of low lending rates; (2) high loan losses and low repayment rates; (3) limited outreach because only a limited number of low-income farmers and enterprises are reached; (4) widespread corruption; and (5) high cost of administering small loans (Adams and Vogel, 1986; Otero and Rhyne, 1994; Rhyne, 1994; Hulme and Mosley, 1996; Strauss Commission, 1996; Robinson, 2001a). Adams, Graham and von Pischke (1984) report that the repayment rates of some of the subsidised credit programmes at one time dropped well below 50 per cent; costs of subsidies ballooned; and there was widespread credit diversion to the politically powerful away from the intended recipients. In a Costa Rica study by Vogel (in Adams *et al.*, 1984:133-145), the author demonstrates that 'approximately 80 per cent of bank agricultural credit and hence about 80 per cent of the subsidy went to large farmers who received the largest 10 per cent of the loans, an indication that subsidised credit programmes often fail to reach intended recipients.[27] Low lending interest rates charged also means that bank managers and staff had little incentive and capacity to expand loan portfolios. It has also been argued that subsidised lending rates are a disincentive to savings mobilisation considered important for institutional sustainability and outreach (see sub-section 4.2.3).

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[27] In this regard see also Hulme and Mosley (1996:7) and Robinson (2001a:59).

4.2.5.2 The implications of lending interest rates for sustainability and outreach

From the perspective of the banking sector, Stiglitz and Weiss (1981:393) argue that banks making loans are concerned about the interest rate they receive on the loan, and the riskiness of the loan although the interest rate a bank charges may itself affect the riskiness of the pool of funds by either: 1) sorting potential borrowers or 2) affecting the actions of borrowers. Both effects derive directly from the residual imperfect information which is present in loan markets after banks have evaluated loan applications. When the price (interest rate) affects the nature of transactions, it may not also clear the market, which could lead to a lower outreach (discussed below).

To enable us investigate systematically the relationship between lending interest rates and sustainability, as well as lending interest rates and outreach, we use operational self-sufficiency (OSS) defined in this study as (see equation 3.10),

$$\text{OSS} = [[(NL*AvLz*i)(1-\gamma)]+Z]/[FINCO+OPCO+LLP] \text{ ------------------------------------- } 4.3$$

where OSS is a sustainability measure, NL is the number of loans disbursed by an MFI during a defined period, AvLz is the average loan amount disbursed to clients over the same period, i is the average nominal lending rate charged by the MFI, γ is the rate of default, Z is other operating income, FINCO is financing cost, OPCO is operating costs, including the cost of depreciation, and LLP is loan loss provision (see Chapter Three).

To identify the relationship between i and outreach in a systematic manner, let NL in equation 4.3 be expressed in terms of the number of clients i.e., single borrowers (NSB), the number of repeat borrowers (NRB) and the average number of times (ANT) repeat borrowers take loans in a defined period i.e. NL = NSB+(NRB*ANT). Note that outreach also includes non-borrower clients (NNB). Substituting NL by NSB+NRB*ANT in equation 4.3 gives:

$$\text{OSS} = [[((NSB+NRB*ANT)*AvLz*i)][1-\gamma]+Z]/[FINCO+OPCO+LLP] \text{ ------------------- } 4.4$$

From equation 4.4, i can affect sustainability and outreach through four broad channels. First, as argued in 4.2.1 and assuming other factors are held constant, a change in i directly affects OSS and through OSS affects outreach (NSB+NRB*ANT). For example, an increase in i leads to an increase in OSS and outreach, assuming the profit resulting from an increase in OSS is invested in expanding outreach. The converse may also be true. Evidence from Asia and Latin America has shown that financial institutions that charge commercial rates have attained sustainability and reached millions of low-income clients. Those that charge subsidised lending rates cannot achieve wide outreach (Chaves and Gonzalez-Vega (1996:70).

Chaves and Gonzalez-Vega (1996:70) further argue that the authorities in Indonesia have recognised that it is more useful, in terms of development, to promote organisations that provide financial services at market prices, in a permanent fashion, rather than to sponsor subsidised credit programmes with a short-lived impact. They find that charging a sufficiently high rate, positive in real terms, to cover costs and risks, was a more critical element in ensuring the success of the MFIs, both in terms of sustainability and outreach. This implies that MFIs should not only consider nominal interest rates while pricing their loans, but a broad range of charges summed up in Z, costs incurred in generating operational revenue, cost of default, and cost of inflation and other funding subsidies (see Otero and Rhyne, 1994; CGAP, 1996; Swaminathan, 1991; Braverman and Guasch, 1986; Adams and Vogel, 1986; Hulme and Mosley, 1996; and Adams and Von Pischke, 1992).

Conning (1999:52) argues that "The 'institutionist' or 'financial systems' approach that has become increasingly dominant (at least officially) at the World Bank and in much of the donor community, exhorts microfinance providers to aggressively pursue sustainability through raising interest rates and lowering costs." He also finds that lower-income clients also pay higher interest rates on loans than higher-income clients (see CGAP, 2004:3).

The second channel through which i affects sustainability and outreach is through the repayment rate. In the first channel it is implicitly assumed that an MFI can increase the lending rate progressively without any problem. This is not often true. As Stiglitz and Weiss (1981:393) argue, in imperfect financial markets, at higher interest rates borrowers with good projects are unlikely to borrow and mainly bad borrowers may be attracted. This

can exacerbate the default rate (γ) and cause the flow of revenue to the institution to reduce. Therefore, in the long term higher lending interest rates could lead to a lower sustainability and outreach. In this case lending rates are negatively related to sustainability and outreach.

The third channel through which i can affect sustainability and outreach is through the demand for loans. In the first channel it is argued that i is positively related to sustainability and outreach. This argument assumes that the demand for credit is given or highly inelastic and there is no credit rationing arising from information asymmetry in credit markets (Zeller, 1994; Hoff and stiglitz, 1990; Stiglitz, 1990; and Stiglitz and Weiss, 1981).

Following classical arguments, lending rates are negatively related to the demand for loans. This means that as lending interest rates increase, the loans become more expensive, which discourages demand. Lower demand for credit leads to a reduction in outreach and revenue generated by the institution, unless the average loan size increases to compensate for the decline in the amount of loans disbursed. The extent to which a higher lending interest rate discourages borrowing and leads to a lower level of sustainability and outreach, however, depends on the elasticity of demand for credit and the availability of alternative sources of external financing (Morduch, 1999).

Finally, and related to the preceding argument, is the cost channel. Hulme and Mosley (1996:19) derive break-even lending rates to show that costs have implications on lending rates (see Chapter Three, equation 3.8). Following their argument, in market economies costs affect sustainability and outreach through their effects on lending rates.

The above arguments indicate that the relationship between lending rates and sustainability and outreach is an empirical question. For the purpose of this study, holding other factors constant, it is hypothesised that lending rates are positively related to sustainability and outreach, because the higher the lending rate, the more the loan income that can be generated and loaned out to reach more clients.

4.2.6 Repayment rates and the implications for sustainability and outreach

One of the remarkable developments in the microfinance industry across the world is the high repayment rates recorded by MFIs such as BancoSol in Bolivia, Grameen Bank in Bangladesh, and BRI in Indonesia (Cull *et al*., 2006; Morduch, 1999; Ghatak, 1999; Bhatt *et al*., 1998; Sharma and Zeller, 1997; and Jain, 1996). This development has been attributed to a variety of factors, one of which is the innovative ways used by MFIs to deliver financial services. Chaves and Gonzalez-Vega (1996:70) argue that the almost endemic lack of access on the part of marginal clients to formal financial services is explained at least in part, by those (usually local) agents who have inexpensive access to information and monitoring mechanism, to ensure reasonable repayment rates. This argument underpins the crucial role the availability of relevant information plays in ensuring high repayment rates. It also implies that the extent of information asymmetry in a credit market and therefore its relationship with sustainability and outreach can be captured by the level of repayment rates.

In the analysis of the implications of lending interest rates for sustainability and outreach in sub-section 4.2.5, repayment rate is captured in the form of default rate (γ) in equations 4.3 and 4.4. Generally a repayment rate is defined as that proportion of the loan lent out (principal) that is eventually recovered (Ledgerwood, 1999). The repayment rate is the inverse of the default rate. Either of the rates indicates the extent to which an MFI is able to recover its loan portfolio. For example, a repayment rate of 100% or a default rate of 0% means that the MFI can fully recover the money it lends out.

The relationship between repayment rate and sustainability and outreach can be assessed through two channels: direct effects on OSS as AvLz *NL and repayment rate increase, and through its effects on OSS via cost (note that a low repayment rate imposes a cost on the MFI as the portfolio is not being recovered). In both of these cases the effects of the repayment rate on outreach are through OSS. In equation 4.4 an increase in γ (a decrease in the repayment rate) leads to a lower OSS and vice versa, assuming that disbursed loans are the only or the major source of income. This means that the repayment rate is positively related to sustainability.

The second channel through which the repayment rate affects sustainability and outreach is via costs, as already argued. In equation 4.4 γ is negative, which means that the default rate is a cost to the institution. The converse is also true (see sub-section 4.2.7).

Empirical research has underlined the contribution of high repayment performance in the success or failure of an MFI. Chaves and Gonzalez-Vega (1992) attribute the success of a significant number of MFIs in Indonesia to high repayment or low arrears rates. Pattern and Rosengard (1991:1) find that the long-term loan loss ratios for BRI-unit desa and BKK were only 1.35 and 1.98 percent respectively. Yaron (1992), Gurgand *et al.* (1994) and Hulme and Mosley (1996) have also underscored the importance of high repayment or low default rates in institutional performance.

However, as the experience of Grameen Bank in Bangladesh shows, high repayment rates are only a necessary but not sufficient condition for sustainability. In this study the effects of repayment rate are captured via costs and the disbursed loan amounts, since they are highly correlated, as argued above.

4.2.7   Costs and the implications for sustainability and outreach

Literature identifies information asymmetry as one major source of costs to the institution providing financial services. For example, Steel *et al*. (1997:818) argue that problems of imperfect information characterize low-income economies where economy-wide information flows are limited and financial information is lacking or costly to obtain. Poor information systems raise the cost to formal institutions of acquiring information on any but the largest clients. Hoff and Stiglitz (1990:237) argue that the new views of rural credit markets are based on the following three observations: 1) borrowers differ in the likelihood that they will default, and it is costly to determine the extent of the risk for each borrower – the *screening* problem; 2) It is costly to ensure that borrowers take those actions which make repayment most likely – the *incentive* problem; 3) it is difficult to compel repayment – the *enforcement* problem. Similarly, Udry (1990) argues that two organizations features have received particular attention in the literature on credit markets, one of which is the pledging of collateral in exchange for the receipt of a loan that directly reduces the cost to the lender of a default on the loan. The collateral serves to reduce the moral hazard

associated with lending in credit markets with widespread information asymmetry. These arguments underpin a strong relationship between the existence of imperfect information and cost.

There are various definitions of cost. Nicholson (1995:344) distinguishes at least three different notions of cost: opportunity cost, accounting cost and economic cost. While these are common notions of cost in standard microeconomics text books, the literature on microfinance has focused more on transaction cost (Johnson and Rogaly, 1997; Von Pischke, 1991). For this reason the rest of this sub-section focuses more on transaction cost. Johnson and Rogaly (1997) define transaction costs as costs other than interest repayment and they include cost of travel, opportunity cost, costs due to bribes or 'kickbacks,' etc. Von Pischke (1991:11) defines transaction costs as the costs of establishing and conducting financial relationships and they include costs incurred in marketing and client mobilisation, credit appraisal, security arrangements to protect cash, documents and other data, recording systems for transaction processing and decision making. These costs can be divided into two: costs to the institution providing the financial services and the costs to the clients accessing the financial services.

In the context of this study costs can broadly be defined as the expenditure incurred for the attainment of a goal (Free Dictionary website: http://www.thefreedictionary.com/costs; Investorwords.com website: http://www.investorwords.com/1148/cost.html both visited on 18 December, 2006). In equation 4.4 reproduced below as equation 4.5 and in the context of this study, these costs are FINCO, OPCO and LLP. Their value is the denominator in the OSS definition.

$$OSS = [[((NSB+NRB*ANT)*AvLz*i)][1-\gamma]+Z]/[FINCO+OPCO+LLP] \text{-------------------}4.5$$

From equation 4.5 and following arguments made in sub-section 4.2.5, costs affect OSS both directly and indirectly. For instance, an increase in costs leads to a decrease in OSS and by extension it leads to a decrease in outreach, and vice versa. This is a direct effect of cost on OSS and indirect effect on outreach. Costs can also affect sustainability and outreach through their effects on the demand for loans, as argued in sub-section 4.2.5. This is an indirect effect of cost on OSS and outreach.

Chaves and Gonzalez-Vega (1996) report that empirical evidence has shown that transaction costs incurred by clients in the process of accessing financial services are a major component in their decision to access a financial service. While these costs are not a direct charge to the clients by the financial institution providing the financial services, they (costs) have implications on the decision of the current and potential clients to access financial services from financial institutions. It is hypothesised in this study that costs negatively relate to OSS and outreach.

4.2.10 Microfinance institutions delivery mechanisms

4.2.8.1 Definition of a delivery mechanism

Figure 4.3 illustrates a delivery mechanism used by an organisation or institution, including an MFI to reach its clients with products/services. For a client to access a product/service from the supplier/seller, he/she must use the mechanism to get to the supplier/seller. In the same way, for the supplier/seller to make its product/service reach its client, it must also use the delivery mechanism. From this illustration a delivery mechanism can be defined as a bridge between a provider of a product/service and the recipient of the same. In sub-section 4.2.8.2 the MFI delivery mechanisms are discussed and sub-section 4.2.8.3 examines the implications of the two major delivery mechanisms: group-based and individual for sustainability and outreach.

| Financial institution | Delivery mechanism | Clients |

Figure 4.3   An illustration of a delivery mechanism

4.2.8.2   MFIs delivery mechanisms

It is widely documented that the traditional financial institutions (FFIs) in developing countries have failed to adequately meet the demand for financial services by the low-income earners and their enterprises mainly on account underdeveloped financial markets,

information asymmetry, high cost of information gathering and lack of physical collateral (Gine and Karlan, 2006; Schreiner and Woller, 2003; Vaessen, 2001; Robinson, 2001a; Paxton, Graham and Thraen, 2000; Ghosh *et al.*, 1999; Morduch, 1999; Sharma and Zeller, 1999, 1997; Hollis *et al.*, 1998; Bose, 1997; Otero and Rhyne, 1994; Hoff and Stiglitz, 1990). Attempts by donors and various governments of developing countries since the 1950s to expand access to financial services for low-income earners have also not yielded desired results (Morduch, 1999; Adams *et al.*, 1984).

The emergence of microfinance institutions with innovative delivery mechanisms has, therefore, been received as a welcome development. For example, Navajas *et al.* (2003:748) contend that the introduction of innovative lending methodologies and the achievement of economies of scale were key determinants of the expansion of the population of borrowers reached in Bolivia by MFIs. The authors also argue that some institutions established with donor funds have become self-sufficient and even profitable.

Otero and Rhyne (1994:117) identify four leading methodologies for providing financial services to micro-enterprises: solidarity group-based lending, credit unions, village banking and transformation lending. Ledgerwood (1999) identifies two major lending methodologies: individual and group-based lending, while Conning (1999) and Cull *et al.* (2006) identify three lending methodologies: individual, group and village banking.

A critical analysis of the four leading lending methodologies identified by Otero and Rhyne (1994) reveals that credit unions, and to a certain extent village banking, would qualify to be regarded as institutions rather than as a lending methodology because they (credit unions and village banking), may employ either individual and/or group-based lending methods. Transformation lending is not widely used (Reed and Befus, 1994). For these reasons, the rest of this sub-section focuses on two categories of delivery mechanisms: group-based and individual.

(a)   Group lending methodology

In this method borrowers in a group co-sign for loans to mitigate the problems created by informational asymmetry between the lender and the borrower, and therefore have

incentives to monitor each other and to exclude risky borrowers from participation without necessarily demanding formal collateral (Morduch, 1999; Hollis and Sweetman, 1998:1875; Otero and Rhyne, 1994; Breverman and Guasch, 1986). In so doing, costs of loan appraisal, recovery and enforcement are also reduced.

There are two widely known forms of group-based lending mechanisms: the Grameen Bank model (reviewed in 2002 and now called Grameen Generalized System (GGS) or the Grameen Bank II to distinguish it from the Grameen Classic System (GCS) or Grameen Bank I), and the solidarity group model pioneered by Accion International (Yunus, 2002; Morduch, 1999; Ledgerwood, 1999; Berenbach and Guzman, 1994). The basic tenet of both of these group-based lending mechanisms is that services are provided to or through a group, and the major form of loan contract is *joint liability* (Gine and Karlan, 2006; Van Tassel, 1999; Morduch, 1999; Ghatak, 1999; Aghion, 1999).

In the GCS groups are formed voluntarily and loans are made to individuals, but all members are liable for loan repayment. The group consists of five borrowers, and when lending, loans are first granted to two, then to the next two, and then to the fifth member of the group. Eight groups combine to form an economic group, which holds a meeting with bank staff on a weekly basis. This is designed to increase the caseload, that is, the number of clients handled by a bank staff member in order to benefit from economies of scale. If one member defaults, all the members in the group are denied subsequent loans. The mechanism takes advantage of the local information and "social assets" that are at the heart of local enforcement mechanisms.

In the GGS several rules and requirements in the GCS have been relaxed. These include dropping i) some loans, such as general and seasonal loans; ii) group fund; iii) branch- and zone-wise wide loan ceiling; iv) fixed size weekly instalment; and v) group liability that compels every member to repay a loan in time or else the rest of the group members repay the delinquent loan, or denial of future access to loans (Yunus, 2002).

The BancoSol solidarity group-lending model differs in some respects from the Grameen Bank model. First, it focuses on urban banking. Second, the loans are made to all individual members simultaneously, and a solidarity group is comprised of three to seven persons.

Repayment schedules and loan durations are flexible, allowing some borrowers to make weekly repayments and others to do so monthly. Borrowers in BancoSol are better-off than those in Grameen Bank, and the loans are larger.

Over the years both the Grameen Bank and BancoSol lending models have been adapted in various countries, and they can be distinguished by various characteristics (see Yunus, 2002; Robinson, 2001a; Morduch, 1999; Yunus and Jolis, 1999; Berenbach and Guzman, 1994; and Robinson, 1992a for an extensive analysis of these characteristics).

Yunus and Jolis (1999) argue that the idea of group-based lending was created to ensure successful operations of credit delivery and recovery (loan repayment) from the poor who could not access these services from the formal financial sector, partly because of their inability to provide the required physical collateral (Schreiner and Woller, 2003:1569). The methodology was designed after discovering that, individually, a poor person feels exposed to all kinds of hazards. From the client's perspective, group membership gives a feeling of protection as it provides group support, which Schreiner and Woller (2003:1569) call social capital. From the lending institution's perspective, group membership smoothes the behavioural pattern, creates pressure and makes the borrower more reliable. This tendency reduces moral hazard (hidden actions)[28] problem and enhances loan repayment.

The group-based method also provides the MFI with a platform to shift the supervision of operational activities to the group, thereby reducing the task of the MFI worker and cost of loan appraisal and administration, which have been major constraints in credit delivery to low-income earners. For example, the group does the appraisal of the applications for a loan and approves it. In the process the members feel morally responsible for the loan repayment, so that if any member falls in arrears, the group takes responsibility (relaxed in GGS) to put pressure on the individual to repay or the group repays the loan.

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[28] Mas-Colell *et al.* (1995:477) argue that the literature has traditionally distinguished between two types of informational problems: those resulting from hidden actions called moral hazard, and those resulting from hidden information called adverse selection. According to Darst (2001:228), "…Moral hazard may arise when a principal cannot observe all of the actions of an agent after a contract has been concluded, thus creating the possibility that the agent may act in ways that run counter to the interests of the principal." Dutta (1999:293) argues that moral hazard arises in insurance and refers to the fact that a person who has insurance coverage will have less incentive to take proper care of an insured object than a person who does not (see also Mas-Colell *et al.*, 1995:477). In this study Smokestack's (2001) broader definition of moral hazard is adopted.

(b)   Individual lending methodology

In the individual lending approach services are delivered directly to individuals and the MFIs use local agents and community leaders to capture information about borrowers in their community (Chaves and Gonzalez-Vega, 1996). In this way the gravity of information asymmetry is reduced as well as the cost of information gathering, while enhancing the loan repayment rate. A borrower also provides collateral that is loosely defined, allowing staff to increase loan size for reliable borrowers who may not be able to fully back loans with traditional assets such as land titles (Morduch, 1999:1577). For instance, in Uganda the common collateral MFIs accept is a chattel. Chaves and Gonzalez-Vega (1996:66) argue that the individual lending method uses local information and enforcement mechanisms as key components of the design of the service delivery, which renders the need for group formation redundant.

The methodology also uses less sophisticated methods of loan appraisal compared to those used by the traditional financial institutions. For example, loan applications are no more than one page and approvals are decentralised (Otero and Rhyne, 1994:15). Loan sizes and terms increase gradually, and staff of the institution are encouraged to develop an intimate relationship between the clients and themselves (Ledgerwood, 1999:67; Morduch, 1999). The method also combines some elements of the practices of the traditional formal financial institutions with those of informal financial providers such as moneylenders, which lowers transaction costs for both the lenders and borrowers (Schoombee, 1998:389).

4.2.8.3 The implications of MFI delivery mechanisms for sustainability and outreach

There is a lot of literature assessing the implications of MFI delivery mechanisms for sustainability and outreach. This sub-section surveys the relevant literature on the implications of group-based and individual-based lending for sustainability and outreach.

(a)   Group-lending methodology

Ghatak (1999) shows that *joint liability* credit contracts used by group-based lending schemes can achieve high repayment rates even when borrowers have no conventional

collateral to offer. Where it was found absolutely necessary to rely on any other form of collateral than joint liability, the potential borrower is asked to pledge collateral substitutes such as chattels (Rhyne and Otero, 1992:1562; Otero and Rhyne, 1994). This shift from relying on the traditional collateral to collateral substitutes has the potential effect of increasing outreach directly and indirectly through cost reduction, improved repayment rates and institutional profitability.

Similarly, Navajas *et al.* (2000:335) argue that a lender that does not need physical collateral to judge creditworthiness could serve poorer clients and achieve deeper outreach, *ceteris paribus*, than a lender that requires physical collateral. Borrowers repay their loans because of loan methodology, peer group and other social pressures, repayment incentives and intensive collection methods (Robinson, 2001a:81; Hulme and Mosley, 1996:55).

Morduch (1999:1571) argues that in Bangladesh, where the MFIs serve millions of people, although very few programmes require collateral, the major programmes report loan repayment rates that are in most cases above 95 percent. The programmes have also proven able to reach poor individuals, especially women, who are usually difficult to reach through alternatives approaches. As to whether a group-based model performs better than the rest, Aghion and Morduch (2005) and Morduch (1999) argue that the results are mixed.

The group-based lending model can also affect sustainability and outreach through its effects on overall cost and, more particularly, the cost of information gathering. Ghatak and Guinnane (1999) show that *joint liability* can achieve better screening to contend with adverse selection, encourages peer monitoring to reduce moral hazard, gives group members incentives to enforce repayment of loans, and reduces the lender's audit costs for cases where some group members claim inability to repay their loans.

Conning (1999:267) shows that peer groups enable fixed costs (such as cost of meetings, training seminars and business) to be imposed on clients, while minimising the programme's overhead costs. These costs deter bad clients from participating in the programme and increase the expected profits and sustainability for the good clients who participate in the programme and obtain loans. The good clients have an incentive to repay loans in order to obtain subsequent loans and avoid a bad credit rating. A group-based

method, thus, could lead to increased sustainability and outreach as it allows clients without formal collateral to access loans; it reduces lending and recovery costs for the lending institutions, and improves repayment rates. Lower costs can be translated into lower interest rates to the clients, which can boost demand and increase scale (Valenzuela, 2002).

Hulme and Mosley (1996:27) argue that group lending is by far the most important form of lending method that lenders can use compared to individual lending, because administrative costs are reduced for the borrower and, secondly, the probability of default is reduced as a result of peer pressure.

With respect to outreach, a study by Seibel and Parhusip (1998:81-83) established that a group-lending methodology was a major factor in increasing the scale of outreach. The authors compared the before and after effect of employing the group-based methodology and found that in one year the number of clients increased by 69% when the institution adopted a group lending methodology. Citing a widely held view, Gine and Karlan (2006) observe that, because of its ability to overcome adverse selection and moral hazard problems, the growth of the microcredit movement is attributed to the joint liability lending methodology, which is consistent with the hypothesis of this study that a group-based lending mechanism has a positive effect on OSS and outreach compared to an individual-based lending mechanism.

(b)   Individual lending methodology

Gine and Karlan (2006) and Morduch (1999) have argued that the role of group-based lending has been exaggerated, because it is not the only mechanism that differentiates microfinance contracts from standard loan contracts. The individual lending and other microfinance methodologies also use dynamic incentives, regular repayment schedules and collateral substitutes to help maintain high repayment rates. Thus, microfinance institutions' individual lending methodology also improves repayment performance compared with standard loan contracts. Similarly, Chaves and Gonzalez-Vega (1996) have argued that the demand for loans and deposit services is highly individualised, so much so that individual financial services would probably be welfare improving for clients as individuals than when in groups.

In line with Krahnen and Schmidt's (1994), Stiglitz's (1993a), Varian's (1990), and Besley, Coate and Loury's (1993) arguments, Chaves and Gonzalez-Vega (1996:66) further argue that "Loans through groups, *ceteris paribus*, impose transaction costs on individual borrowers as the formation of the group and the implicit risk-sharing and opportunities for moral hazard require significant bargaining and monitoring efforts on the part of the group members." In the same vein Gine and Karlan (2006:3) contend that one of the reasons why the shift from group liability loans to individual loans has accelerated in the recent past is because it is more costly for good clients.

Hulme and Mosley (1996:27-32) have also questioned the effectiveness of group-based lending in ensuring loan repayment, arguing that group pressure and peer monitoring can be effective only in small groups and where there is strong social cohesion. In large groups and where social cohesion is weak or does not exist, group-based lending cannot effectively ensure repayment. Using regression analysis on a sample of over 83 MFIs, they find that, contrary to theoretical arguments in favour of group-based lending, the organisation of borrowers in groups is neither necessary nor sufficient for success.

Citing Bratton (1996) and Paxton (1996b), Ledgerwood (1999:71) reports that, although institutions employing the group-based methodology have better repayment rates than those employing the individual-based, this is only in good years. In periods of crisis repayment rates crash and in many cases there are widespread outright loan defaults (Rhyne, 2002). In Grameen Bank, Jain (1996) finds that it is not group lending and joint liability that have contributed to the high repayment rates recorded by the MFIs but rather the institutional set-up, policies and enforcement mechanisms.

Adams and Vogel (1986:482) observe that the evidence of the effectiveness of group-based lending in reducing costs both to the institutions and clients is mixed. They report that, while group-based lending generally reduces loan transactions costs for borrowers, it has had a less positive impact on the costs of the institutions providing the services, more especially in terms of credit delivery and recovery. In the same vein Christen (1997:174) argues that most successful group-based methodologies do individual business evaluations for each member of the group and that the process accounts for a large part of the direct

operating cost. Additionally, group maintenance is costly in terms of extra visits to the borrowers' place of business.

Conning (1999:54-55) argues that a group-based methodology relies more on intensive loan monitoring and social sanctions instead of the traditional collateral. However, these practices can be costly. Intensive monitoring and delegation costs within the MFIs may increase exponentially as services are extended to poorer clients (Also see Schreiner, 1999). This could lead to a backward bending individual supply loan schedule and may lead to a trade-off between sustainability and outreach. It could also lead to higher average loan sizes, which are inconsistent with the low-income status of the majority of the MFI clients and therefore could result in lower outreach.

In a study of eight MFIs in Indonesia Chaves and Gonzalez-Vega (1996) find that the individual-based lending methodology was positively related to the success of MFIs, because it significantly leads to reduced transaction costs to the borrowers, thereby improving the quality of services rendered. The authors, therefore, conclude that individual lending was less costly and a more suitable method of service delivery to poor clients compared to group lending. Schadwinkel (2000) also reports the success of individual lending for the CERUDEB in Uganda. These empirical findings are, however, inconsistent with the hypothesis of this study that a group-based lending mechanism has a positive effect on OSS and outreach compared to individual-based lending mechanism.

4.2.11 Age of the institution providing microfinance and the implications for sustainability and outreach

SEEP Network and Calmeadow (1995:29) identifies maturity of the institution as one of the three key factors that influence the level of activities and operational costs. The others are turnover of the loan portfolio (related to loan term) and average loan size. Categorising 72 programmes studied by age, lending method, target group and level of sustainability, Morduch (1999:1588-89) finds that financial progress improves with the age of the institution, which means that the older the institution, the higher the level of sustainability.

The age of the organisation also affects sustainability and outreach through accumulated experience from learning by doing, the development of operating systems, experience and

training of staff, and the level of scale attained (SEEP Network and Calmeadow, 1995:29). Hulme and Mosley (1996:21) argue that, when the number of borrowers or the loan portfolio increases, the costs of operations are lowered due to economies of scale, and this number increases with time. With lower costs two outcomes are likely: increased incentives to bring in more clients and, second, improved financial performance that would build up more capital for lending and thereby increase outreach. But as already argue in this dissertation, scaling up also leads to higher costs. Therefore, the final effect on sustainability and outreach depends on the net effect between the revenue generated from increased scale of operations and the costs. Based on empirical findings reported above, it is hypothesised in this study that age correlates positively with OSS and outreach.

4.2.10 Economic, social and political environment

The viability of financial markets depends on the economic viability of the clients it serves. The main function of a depository financial intermediary is to mobilise savings from the surplus sectors and channel it to the deficit sectors. This means that, on the one hand, there must be savers who have funds that are of no immediate use and are willing to deposit them with a financial intermediary and, on the other hand, there must be investors with viable projects, but lack the necessary funds for investment. Financial markets also facilitate transactions and play the role of providing insurance and money transfer services.

In most developing countries, and more especially in the agricultural sector, the capacity of the people to save and invest is very low mainly, because of low returns on the economic activities (Adams *et al.*, 1984). Consequently, the demand for financial services is low, a situation that is often not improved by low, and sometimes inappropriate, investment in agriculture and other rural activities. Poor policy prescriptions and implementation is another area where there is a major weakness. Policy regimes have often included distorted exchange rate policies and price controls. These policies and the inherent risks in the agricultural sector mean that the viability of the borrowers becomes seriously constrained, because when they borrow, there is limited capacity to repay the loans. Similarly, the lending institutions are constrained by the same economic factors (Valenzuela, 2002).

The case of Indonesia is a clear example of the importance of a suitable environment for the success of MFIs. Chaves and Gonzalez-Vega (1996) report that Indonesia's dynamic and comparatively stable macroeconomic and political environments have offered an auspicious climate for financial intermediation. The authors also report that the country had enjoyed comparatively high rates of growth of output, rapid growth of rural incomes and a significant level of poverty reduction. Numerous profitable investment opportunities existed and physical infrastructure supported by heavy investment in public utilities had been developed. Besides, domestic markets had become integrated and the country pursued liberal trade policies.

Coupled with social cohesion in Indonesian communities and a favourable financial and legal environment, the external factors played a significant role in the successful performance of the majority of the MFIs in Indonesia. Similar results have been reported in Gurgand *et al.* (1994:4), who in a study of six rural finance in institutions in Africa find that a stable and liberalised economic environment is critical in achieving sustainability of RFIs. Therefore, for outreach to be increased and sustainability to be improved, apart from the determinants that have been identified and discussed above, the economic, social and political environment within which the clients and institutions operate is a significant factor as well, but these factors tend to affect all the institutions in the same environment more or less in the same way. In this study they have not been modelled.

4.3   Analysis of the relationship between sustainability and outreach

The relationship between sustainability and outreach is another area that has been intensely debated in the microfinance literature. As noted by Woller and Schreiner (2006:2), the often expressed fear in debate of the relationship between sustainability and outreach is that a focus on financial self-sufficiency will divert MFIs' attention and resources away from their core objective of poverty alleviation and core poor market ("Mission drift"). This fear is attributed to several reasons. The first is cost related. It is argued that the poor tend to concentrate in rural areas, which are isolated with very poor physical infrastructure and financial markets. As such, they are costly to reach, an argument also advanced in Schreiner (1999) and Johnson and Rogaly (1997).

The second argument advanced is related to risk, which in the formal market tends to be mitigated by the availability of physical collateral. Apart from engaging in economic activities perceived to be highly risky, low-income earners tend to lack the physical collateral required by the traditional formal financial institutions (Zeller, 1994).

Related to the issue of risk and cost is the information asymmetries prevalent in poor communities. Absence of credit information means chances of moral hazard and adverse selection are very high (Navajas *et al.*, 2003).

Finally, there is the question of loan size. Hulme and Mosley (1996) find that there is a negative relationship between loan size and cost of administration. The smaller the loan size, the higher the cost of administering the loan. As a result, high costs mean low revenue unless there are substantial economies of scale.

Despite the above arguments which suggest existence of a negative relationship between expanding access to financial services for low-income earners and financial sustainability, some authors believe that such an inherently dichotomous relationship does not exist (Woller and Schreiner, 2006; Christen with Drake, 2002; Schadwinkel, 2000; Schreiner, 1999; Christen, 1997).

Based on the six aspects of outreach, Schreiner (1999:13), for example, argues that the provision of microfinance hinges on the effects of length on its worth to clients, cost to clients, breadth, depth and scope. More length requires either more profit for the lender or more donations. All else constant, more profit for the lender requires higher prices and thus implies more cost to clients, less profits to clients, and less net gain per client. In practice, the drive for profit for the lender also tends to reward innovations that either increase worth or decrease costs to clients. The drive for profits for the lender may also lead to long-term increases in breadth and length that may off-set short-term decreases in net gain per client. Donations provide weaker incentives for innovation than profits because donors do not reward innovation and punish stagnation as consistently as clients because their own welfare is not directly at stake. Donations do, however, reduce the need for higher prices, which also else reduces the cost to clients and increases net gain per client.

Schadwinkel (2000:14) finds that commercial orientation and the commitment to improve socio-economic status of low-income population are not necessarily contradictory objectives. By providing innovative financial products and adopting methodologies tailored to the needs of clients, it is possible for an institution to serve poor market segments sustainably. In a related study Paxton and Fruman (1998) find that there is a strong positive correlation between the depth of outreach and sustainability. Similarly, Seibel and Parhusip (1998:81) also find a positive relationship between sustainability and outreach.

Examining the objective of the MFI, Ledgerwood (1999:34) notes that,

> *Depending on which target market is selected, there are consequences to the MFI's financial position, because costs will be affected. In the short run, there are trade-offs involved in the decisions about objectives and how to reach them...For example, if the MFI's objective is to reach the very poor with financial and other services, its target market will differ from an MFI that wishes to serve [the] economically active poor with only financial services.*

As implied in the above quote, providing financial services to the very poor has implications for the sustainability of the financial institution in question. If providing financial services to the very poor leads to loss of sustainability, that loss is the opportunity cost of serving the poor, which is a net benefit to the clients because of access to financial services. When the clients benefit, the economy benefits, although the MFIs may be unsustainable. Often however, the benefits of providing financial services to the poor are assumed to be less than the costs of doing so. In this regard, subsidies have been encouraged to fill the gap.

However, in most of these empirical studies the focus is on the relationship between sustainability and depth of outreach or more broadly, the social benefits of microfinance. An analysis of the relationship between sustainability and scale of outreach measured by the number of clients has received limited attention, hence the empirical focus of this study.

4.4 Summary and Conclusion

In this chapter the determinants of sustainability and outreach have been identified and discussed as well as the relationship between sustainability and outreach.

The determinants of sustainability and outreach discussed are summarised below.

1)   Sources and uses of funds: It is hypothesised that the sources of funds are positively related to OSS and outreach, and the uses are negatively related to OSS and positively to outreach.

2)   Governance: Two aspects of governance identified are effective governance, hypothesised to be positively related OSS and outreach, and the legal status, hypothesised to be positively related to OSS and outreach, if the MFI is a SACCO or an MDI, and negatively related to OSS and positively to outreach, if the MFI is an NGO. In both cases, the reference point is a private company.

3)   Savings mobilisation is hypothesised to be positively related to OSS and outreach.

4)   Average loan size is hypothesised to be positively related to OSS and negatively to OUTR.

5)   Various interest rates are discussed in the chapter, and it is hypothesised that real effective lending interest rate is positively related to OSS and outreach.

6)   Repayment rates: These are argued to be positively related to OSS and outreach. However, it is also argued that their effects on OSS and outreach can be captured via costs and disbursed loans. As a result, repayment rate has not been explicitly modelled as an explanatory variable both in the sustainability and outreach models.

7)   Cost of loans is hypothesised to be negatively related to OSS and outreach.

8) Delivery mechanisms: Two delivery mechanisms are identified and discussed, namely group-based and individual-based. Using the latter as a reference point, it is hypothesised that group-based mechanism is positively related to OSS.

9) The age of the MFI is positively related to OSS and outreach.

10) Economic, social and political environment. This is discussed as a broad category of determinants of sustainability and outreach, but has not been modelled.

The relationship between sustainability and outreach is noted as one of the most intensely debated aspects of microfinance. One of the fears often expressed is that a focus on financial self-sufficiency will divert MFIs' attention and resources away from their core objective of poverty alleviation and core poor market. This implies that sustainability and outreach could be conflicting objectives. It is hypothesised in this study that OSS and OUTR are positively related.

CHAPTER FIVE: THE THEORY OF THE FIRM, SUSTAINABILITY AND OUTREACH

5.1   Introduction

Whatever the purpose of specifying, estimating and testing a model, there are two aspects to it: the end (outcome), which can be called the output, and the means, which can be called the inputs (determinants). Chapter Three presents the output in the sustainability model (OSS)) and that of the outreach model (OUTR)) served by an MFI in a specified period. The determinants of sustainability and outreach are analysed in Chapter Four.

Hulme and Mosley (1996: 55) argue that the design features of MFIs can be seen as inputs into a production function whose output is sustainability, while Chaves and Gonzalez-Vega (1996:66) state:

> *We adopt the criteria used by Yaron (1992) to judge success. The first criterion is the number of clients served and the quality of services provided. This is an outreach objective…The second criterion is self-sustainability. This requires that the RFI be able to generate enough income to cover at least the opportunity cost of all the factors of production and assets (e.g., funds) under its command…*

Following Hulme and Mosley (1996) and Chaves and Gonzalez-Vega (1996), therefore, an outreach model can be constructed on the basis of a production function, and a sustainability model can be constructed on the basis of a profit function defined and discussed in sections 5.3 and 5.4 respectively.

Chapter Four identifies the determinants of sustainability and outreach with reference to different theories. For example, the theory of information asymmetry identifies the delivery mechanism as a determinant of outreach (Gine and Karlan, 2006; Stiglitz and Weiss, 1981; Hoff and Stiglitz, 1990), while the agency theory explains the relationship between sustainability and corporate governance, and outreach and corporate governance.

Notwithstanding the above, the theory central to the analysis in this dissertation is the theory of the firm. In particular, this study has adopted the production function as it helps in a systematic identification of the factors of production and how they are related to the

respective outputs, which have been identified in this study as sustainability and outreach. Previous studies in microfinance have not used this approach to identify the determinants of sustainability and outreach.

The layout of the rest of the chapter is as follows. Section 5.2 reviews the concept of the firm and theory of the firm in order to identify the widely accepted definition of a firm; provides a benchmark for equating a firm to a microfinance institution; and outlines the major views on what constitutes the theory of the firm. To specify the relationship between the inputs and the outputs, section 5.3 presents and discusses the neoclassical production function, and section 5.4 presents and discusses the profit function. Section 5.5 describes a microfinance institution and how it operates, citing practical experiences. Section 5.6 then argues that a microfinance institution is not significantly different from the firm in the theory of the firm. An application of the profit function to the sustainability model and an application of the production function to the outreach model is presented in sections 5.7 and 5.8 respectively. Section 5.9 is a summary of the determinants of sustainability and outreach as well as the hypotheses tested in this study. Section 5.10 concludes the chapter.

5.2   The concept and the theory of the firm

5.2.1   The concept of the firm

Case and Fair (2002:133) describe a firm as an entity that purchases inputs (labour, capital, natural resources, etc.) to produce and sell outputs (useful things) ranging from computers to string quartet performances (see also Intrilligator *et al.,* 1996:275). Consistent with Case and Fair's (2002) definition of the firm, the neoclassical economists define the firm as a production unit whose single goal is profit maximisation conditioned on a given production function and a market structure (Williamson, 1981).

Kasper and Streit (1998:258-9) argue that a firm is an economic organisation, with more or less durable planned arrangements set up to pool productive resources in order to pursue one or several shared material purposes. These resources are coordinated within some kind of hierarchical order by a mix of institutions and commands, with the aid of human resource input. See also Nicholson (1995) and Rutherford (1993) for a similar definition of

what a firm is. Institutions and commands are defined here as man-made rules which constrain possible arbitrary and opportunistic behaviour in human interaction (Kasper and Streit, 1998:28). The physical resources of an industrial firm consist of tangible things such as plant, equipment, land, natural resources, raw materials, semi-finished goods, waste and by-products, and even unsold stock of finished goods (Penrose, 1995:24). Penrose (1995:24) further states that "Strictly speaking, it is never *resources* themselves that are the 'inputs' in the production process, but only the *services* the resources can render."

Penrose (1995:9) further argues that "A 'firm' is by no means an unambiguous clear-cut entity; it is not an observable object physically separable from other objects, and it is difficult to define except with reference to what it does or what is done within it." The author suggests three ways in which a firm can be defined: (1) a basic unit for the organisation of production, more especially in market economies; (2) an administrative organisation; and (3) a collection of productive resources.

Mas-Colell *et al.* (1995:127) describe a firm as a productive unit that must also represent the productive possibilities of individuals and households, while Joskow (2006:4) notes that firms were conceptualised as production sets that defined the technologically most efficient opportunities to transform inputs into outputs.

The above discussion of what a firm is can be seen in summary form in Figure 5.1. Viewed as an administrative unit, a firm is represented by Block II. However, viewed more broadly, a firm is all four blocks, i.e. a unit mobilising external factor inputs, an organisation, a producer and seller of goods and services, a productive unit and a durable administrative unit. It is also significant to note that economists hardly agree on how to conceptualise a firm (Harrod, 1939; Hawkins, 1979; Williamson, 1981; Douma and Schreuder, 1998; Wikipedia, the Free Encyclopedia). As Foss *et al.* (1998:1) state, for a long time there has been economics with the firm but not economics of the firm.
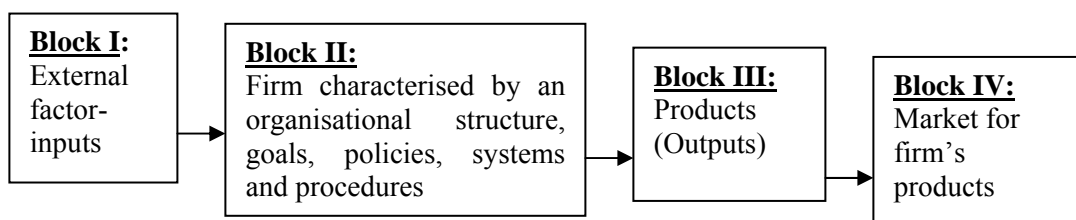
Figure 5.1:   **An illustration of an industrial firm and its boundary**

5.2.2   The theory of the firm

5.2.2.1 The definition of the theory of the firm

The theory of the firm has been defined in different ways. Foss (1996:470), for example, defines the theory of the firm as a theory that addresses the issues of the existence, the boundaries and the internal organisation of the multi-person (the firm). Mas-Colell *et al.* (1995:127) argue that the theory of the firm deals with questions such as: Who owns the firm? Who manages it? How is it managed? How is it organised? What can it do? Similarly, Bannock *et al.* (1998:163) define the theory of the firm as the study of the behaviour of firms in respect of: (a) the inputs they buy; (b) the production techniques they adopt; (c) the quantity they produce; and (d) the price at which they sell their output. Understood in this manner, knowledge of the way firms behave is essential in determining such major variables as investment, employment of factor inputs, wages, and output levels and prices (Hawkins, 1979:7).

Several views have been expressed in reaction to the above definitions of the theory of the firm. Some question whether the theory is really the theory of the firm (Jensen and Meckling, 1976:3), while others question the assumptions underlying it (Nelson and Winter, 1982; Koutsoyannis, 1979; Hawkins, 1979; Baumol, 1965). The views are generally based on the basic framework underlying the theory, which is essentially the classical view of what determines value, and the subsequent neoclassical propositions.

Generally, two basic approaches to the theory of the firm can be identified: (a) the neoclassical approach which assumes that firms aim to maximise profits, whether they are

monopolists or perfect competitors (Mas-Colell *et al.*, 1995:135); and (b) the modern theories that attempt to capture the actual characteristics of modern firms (Bannock *et al.*, 1998:163; Baumol, 1965:296). In the former case, Romer (2006:340) argues that a central assumption of most economic models is that agents maximise simple objective functions: consumers maximise expected utilities, and firms maximise expected profits (see also Pindyck *et al.*, 1998; Mas-Colell *et al.*, 1995; Varian, 1992). In the latter case, Baumol (1965:296) argues that there is no reason to believe that all firms must maximise profit all the time.

Despite the disillusionment with the neoclassical theory of the firm, it continues to hold sway over modern approaches because of lack of a generally acceptable alternative theory of the firm that gives precise and definite results about the firm's behaviour as does the neoclassical theory of the firm (Hawkins, 1979:8; Penrose, 1995:11; Nicholson, 1995:415). Consistent with this assertion, Romer (2006:340) argues that the assumption of maximising expected profits is not that it leads to perfect descriptions of the behaviour of firms, but that it leads to reasonably good approximations in most cases. Mas-Colell *et al.* (1995:152) show that, under reasonable assumptions, the goal of profit maximisation is the goal that all owners of the firm would agree on, while Pindyck and Rubinfeld (1998:252) argue that the assumption of profit maximisation is frequently used in microeconomics because it predicts business behaviour reasonably accurately and avoids unnecessary analytical complications. In the rest of the following sub-sections, the major theories of the firm and the critiques are briefly reviewed to highlight their relevance to the present study.

5.2.2.2 The neoclassical theory of the firm

(i)   The basic assumptions

From the neoclassical definition of the firm, Koutsoyannis (1979:257), Douma and Schreuder (1998) and Nelson and Winter, 1982:196) discern the following basic assumptions that constitute the neoclassical theory of the firm:

1.   The entrepreneur of the firm is also its owner;

2. Firms choose to maximise profits or present value of their output in the long run, given the external conditions they face. However, this goal has to be attained both in the short and long run by equating marginal cost (MC) to marginal revenue (MR);

3. The firm has full knowledge about its past performance, the present conditions and future developments (global rationality). For example, it is assumed that the firm knows with certainty its own demand and cost curves (information asymmetry is assumed to be non-existent). The cost curves are U-shaped both in the short and long run. It is also assumed that the firm learns from past mistakes and uses the acquired knowledge to appraise the present and the future;

4. The entry into the market is governed by the respective market conditions (i.e. at any time firms are viewed as facing a set of alternatives regarding the inputs and outputs they will procure and produce respectively); and all relevant markets are in equilibrium;

5. The firm acts with a certain time horizon that is influenced by such factors as the rate of technological progress, the nature and gestation period of the product, capital intensity of the methods of production and so on; and

6. No firm can improve its position given what others are doing, except if the supply of factor inputs expand and production sets are augmented.

(ii)   The Limitations of the neoclassical theory of the firm

Over the years there have been sustained criticisms of the traditional neoclassical theory of the firm on a number of grounds (Nicholson, 1995; Nelson and Winter, 1982; Koutsoyannis, 1979; Baumol 1965). The first set of criticisms was based on the core model of the theory of the firm, i.e. the perfectly competitive market model. To address these criticisms the theory was further developed in the 1930s with the publication of two books on imperfect markets and monopolistic competition by J. Robinson (1933) and E. Chamberlin (1933) respectively to include oligopoly models and monopolistic competition

(Koutsoyannis, 1979:202). However, this revision has been found unsatisfactory and the criticisms of the theory have continued, mainly on two counts.

The first is with regard to the main assumptions that constitute the neoclassical theory of the firm, maximising the expected profits. The second concerns the reasons why the firm exists, which is widely premised on Coase's (1937) seminal paper. Coase's paper points out that economics had no positive theory to determine the bounds of the firm. The author characterises the bounds of the firm as that range of exchange over which the market system was suppressed and instead the authority allocated the resources both in the firm and in the market (Jensen and Meckling, 1976:7). Williamson (1967) extended Coase's view of why firms exist to include asset specificity and opportunism. These criticisms are further discussed below under three main themes: criticisms of the goal of profit maximisation; criticisms of equating MC to MR; and criticisms of the facilitating assumptions. Views on why firms exist are elaborated on in sub-section 5.2.2.3.

(a)   Criticisms of the goal of profit maximisation

The criticisms of the goal of profit maximisation are two pronged. First, it is argued that firms cannot attain the goal of profit maximisation, because they do not have the necessary knowledge, information and/or ability. The firms do not know with certainty their demand and cost curves as assumed in neoclassical theory (bounded rationality) and therefore they cannot apply the principle of MC=MR. Secondly, it is argued that even if the firm wanted to pursue profit maximisation, it could not do so because there are many other goals to pursue. For example, Williamson (1963) and Baumol (1965) argue that managers have discretion to pursue policies that maximise their own utility rather than that of the shareholders, measured by profits. The managerial utility includes such variables as salary, security, power, status, prestige and professional excellence (Penrose, 1995). In this respect, profit acts as a constraint to the managerial behaviour in that the financial market and the shareholders require a minimum profit to be paid out in the form of dividends, failure of which puts the job security of the managers in danger.

Similarly, Pindyck et al. (1998) argue that in large firms managers may deviate from pursuing profit maximisation and be more concerned with goals such as revenue

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maximisation for firm growth and payment of dividends, and maximising short-run profits. However, the managers' freedom to pursue these goals other than long-run profit maximisation is limited, because shareholders can replace them, the firm can be taken over or the firm may not survive in the long term.

Baumol (1959) developed the concept of a managerial utility function, which postulates that managers maximise sales instead of profit. See also Baumol (1965) for similar arguments. Gordon, Simon and Margolis (1958) cited in Koutsoyannis (1979) developed a model of satisficing behaviour, which postulates that instead of pursuing profit maximisation, firms pursue satisfactory profits, satisfactory sales, etc. In a model of long-run survival and market share, Rothschild (1947) postulates that firms aim at long-run survival and maintaining or increasing their market share instead of profit maximisation. Similarly, Nicholson (1995:415) argues that when firms are uncertain about the demand curve they actually face, or when they have no reliable notion of the marginal costs of their output, their decision to try to maximise sales may be a reasonable rule of thumb for assuring their long-run survival.

In a related argument Koutsoyannis (1979) reports that several writers have suggested that the goal of the firm is to prevent new firms from entering the market, partly to avoid uncertainty associated with new entrants and also to maintain or increase market share. However, a critical examination of this goal suggests that the ultimate motive of preventing new firms entering the market could be for maximising profits in the long run.

(b)   Criticisms of equating MC to MR

While the objective of the firm in the long run is profit maximisation, the equilibrium condition for profit maximisation, MC=MR, must be attained in the short and long run. This, the neoclassical economists argue, is because the time periods are independent in the sense that decisions taken in any one period do not affect the behaviour of the firm in other periods, which is a contradiction of the postulation that firms accumulate knowledge to guide future decisions.

The critics of this condition argue that the results of the studies conducted do not support the view that firms follow the MC = MR rule in their decision-making. For example, in Hall and Hitch (1939) it was established that firms set their price on the basis of the average-cost price principle that aims to cover the average variable cost (AVC), the average fixed cost (AFC) and a normal profit margin (NPM). It is argued that the firms follow this principle because they do not know their demand curves and marginal costs. They also believe that AVC+AFC+NPM is the 'right price', since it covers their cost of production when the plant is 'normally' utilised, and includes an acceptable profit level. Mongin (1997:558) notes that "Typically, the company would make an ex ante estimate of average cost, as determined by some notion of its normal output, and then add to it one or more percentage margins (the mark-up)." This means that firms' main preoccupation is price and not output levels, as the traditional theory of the firm suggests. They set prices based on reasons other than profit maximisation (Elmore *et al.*, 2006). Furthermore, it is argued that, although firms in general would adhere to the AVC+AFC+NPM principle, they would be prepared to depart from it to secure a big order or goodwill.

Various inquiries followed Hall and Hitch's (1939) study, as noted in Elmore *et al.* (2006), Mongin (1997) and Koutsoyannis (1979). Mongin (1997:559) cites Andrew's Manufacturing Business (1949) and Harrod's non-optimising model in his *Economic Essays* (1952) as some of the studies that have followed Hall and Hitch's (1939) study. The studies suggest that profit maximisation should be replaced with the full cost principle to be understood as a novel theoretical construct. However, Mongin (1997) further argues that the more widespread view in the 1940s and 1950s was that the full cost principle referred to an empirical finding rather than a theoretical principle.

As cited in Koutsoyannis (1979:266), Gordon (1948) has argued that the industrial world is extremely complex, with too many variables that vary continuously, determining demand and costs. This requires continuous adjustments of MC=MR. Entrepreneurs do not have the ability to continuously adjust MC=MR. Furthermore, the complexity and dynamism of firms mean that they cannot learn from their past experience. Instead they use the AVC+AFC+NPM principle, which they think is a more practical action than MC = MR. In addition and as already observed, particularly by Baumol (1965), firms tend to pursue other goals such as sales maximisation, retention of employees, goodwill, etc. While such goals

are related to the level of profit, it is not certain that the additional goals are compatible or competing with the goal of profit maximisation, although Baumol (1965) argues that not all firms pursue profit maximisation. In many organisations managers at any one time tend to concentrate on solving local problems such as machine break-down, industrial strike, etc. without applying MC=MR. Preoccupation with solving these institutional issues does not necessarily lead to profit maximisation, but is important for attaining any goal of the firm.

(c)   Criticisms of the assumptions of owner-manager and market structures

- **The assumption of owner-manager**

The attack on the assumption of ownership and management is based on the fact that in modern firms, especially in industrialised economies, most equity holders are not managers, who ultimately determine not only their own productivity, but also that of all other operating units in the firm (Mas-Colell *et al.*, 1995; Leibenstein, 1966). Consequently, managers have the discretion to pursue goals that do not necessarily entail profit maximisation. Fama (1980) argues that the inadequacy of the neoclassical theory of the firm has led to the development of behavioural and managerial theories of the firm which focus on the motivation of a manager who controls but does not own the firm (See Baumol, 1959; Simon, 1959; Cyert and March, 1963; and Williamson, 1964 for these theories).

The agency theory attempts to deal with the issue of aligning the interests of the equity holders with those of the managers (Cella, 2003; Martimort and Verdier, 2002; Foss *et al.*, 1998). It refers to a set of propositions in governing a modern corporation, which is typically characterized by large number of shareholders or owners who allow separate individuals to control and direct the use of their collective capital for future gains (see subsection 4.2.2). These individuals, typically, may always own shares but may also possess relevant professional skills in managing the corporation. The theory offers many useful ways to examine the relationship between owners and managers and verify how the final objective of maximizing the returns to the owners is achieved, particularly when the managers do not own the corporation's resources.

Simpson (2006) argues that following Adam Smith (1776), Berle and means (1932) initiated the discussion relating to the concerns of ownership and control in large corporations. However, the concerns were aggregated by Jensen and Meckling (1976) into the 'agency problem' in governing the corporation. The author further argues that Jensen and Meckling (1976) identified managers as the agents who are employed to work for maximizing the returns to the shareholders, who are the principals (see sub-section 4.2.2.2). It is assumed that because the agents do not own the corporation resources, they may pursue interests different from those of the shareholders.

While the agency theory still views the firm as a production set, it allows for the professional manager to make production choices (e.g. investment, effort, etc.). The manager deals with day-to-day operations of the firm and the equity holders may probably appoint a board to strategically direct, control and oversee their activities. Under these conditions it is impossible for the equity holders to implement their optimal profit maximisation plan.

To minimise the potential for agency problems, Jensen (1983) recognizes two important steps: first, the principal-agent risk-bearing mechanism must be designed efficiently and second, the design must be monitored through the nexus of organizations and contracts. While these arrangements may reduce the problem of modern representative firms, it is possible only up to a point where the incentive scheme is effective enough to align the interests of equity holders with those of the managers.

Another criticism of the owner-manager assumption is that managers of modern firms do not act with global rationality, as postulated in the neoclassical theory. They are constrained by the availability and cost of acquiring the relevant information, the technical ability and time required to act with global rationality as well as information asymmetry. Similarly, Leibenstein (1966:407) argues that important inputs are frequently not marketed or, if they are traded, they are not equally accessible (in equal terms) to all potential buyers. For example, in developing countries the capacity to obtain finance may depend on family connections. In this respect, therefore, instead of assuming that managers act with global rationality, it is more appropriate to assume that they work with bounded rationality, in part due to information asymmetry.

- **The assumptions on market structures**

Critics of the assumptions of market structures argue that the neoclassical theory is silent on the entry conditions in some markets. For example, while the conditions of entry are clearly defined in the case of perfect competition, monopolistic competition and monopoly, it is not in the case of oligopoly. The classical duopoly models, in particular, are said to be closed in that the number of sellers in the final equilibrium does not change from that at the initial situation. The potential entry and its effects on decision making are also not dealt with in the traditional theory. Furthermore, empirical evidence such as that by Hall and Hitch (1939) as cited in Elmore *et al.* (2006) and Koutsoyannis (1979) also shows that firms are interdependent (continuously conscious of the reactions of the other competitors), which contradicts the postulates of perfect or monopolistic competition. Duopoly theory, based on assumptions of constant reaction patterns of competitors, also seems inadequate to deal with oligopolistic interdependence and ensuing uncertainty regarding the demand for the products of oligopolistic firms (Koutsoyannis, 1979:264).

5.2.2.3 Transaction cost theory and other views of the firm

Major attempts have been made to substitute the neoclassical theory of the firm with other models, with each attempt motivated by the conviction that the former is inadequate in two major respects (Joskow, 2006:4; Nicholson, 1995; Penrose, 1995:10; Fama, 1980:289; Jensen and Meckling, 1976:3; Leibenstein, 1966; Hawkins, 1979:8). The first has already been covered above (assumptions). The second is generally associated with Coase's (1937) article. Foss (2003:3; 1996:470) argues that as the story is normally told, "The theory of the firm traces its existence back to Coase's landmark 1937 article, 'The Nature of the Firm.'" Holmstrom and Tirole (1989) also observe that, while substantial progress has been made on the description and analysis of market performance, firm behaviour and organisation have remained poorly understood. Jensen and Meckling (1976:3) are even more emphatic, as captured in the following conclusion:

> *While the literature of economics is replete with references to the "theory of the firm," the material generally subsumed under the heading is not actually a theory of the firm but rather a theory of markets in which firms are generally actors. The firm is a "black box"*

operated to meet the relevant marginal conditions with respect to inputs and outputs, thereby maximising profits or more accurately, present value...A number of major attempts have been made during recent years to construct a theory of the firm by substituting other models for profit or value maximisation, with each attempt motivated by a conviction that the latter is inadequate to explain managerial behaviour in large companies...

Coase (1937) and the proponents of his view (see, for example, Foss, 2003; Cella, 2003; Martimort and Verdier, 2002; Foss *et al.*, 1998; Kasper and Streit, 1998; Demsetz, 1997; Holmstrom and Tirole, 1989; Williamson, 1981; Leibenstein, 1966) argue that, while it is theoretically conceivable that a producer may each day buy all the inputs (e.g. labour service, raw materials, etc.) s/he needs for production from the market place, such a way of mobilising factors of production would not only involve extremely high transaction costs in, for instance, discovering the relevant information on prices, negotiating the prices, drafting and monitoring the execution of contracts, and where necessary, enforcing the contracts, but some factors may not be marketed. Thus, relying exclusively on one-off contracts would result in enormous costs. This is why, according to Coase and the proponents of his view, repetitive production is normally coordinated within organisations called firms to reduce such costs (Kasper and Streit, 1998:261; Douma and Schreuder, 1998: Joskow, 2006). Thus, a firm exists to reduce transaction costs.

Williamson (1985) extended Coase's (1937) view of the firm as a transaction cost-reducing agency by introducing the concepts of asset specificity and opportunism. He argues that owners of capital, knowledge and other resources are often obliged for technical reasons to commit their resources irreversibly and for a long time to specific firms. The owners of a company who have invested their capital in buildings and equipment cannot readily switch out of those investments. They also acquire specific knowledge, which they can use only if they remain in specific operations. These investments will only pay expected returns if specific assets can be operated undisturbed for a long time. However, the owners of other complementary resources, such as flexible skilled labour may want to exploit the inflexibility of the capital owners and holders of specific knowledge by 'holding up' operations and extorting higher pay. A way of mitigating against this opportunistic behaviour, Williamson (1985) argues, is to sign contracts to bind providers of complementary resources into an organisation. In many cases this may even be the precondition for a specific investment to go ahead in order to avoid possible risks (Kasper and Streit, 1998:261-2). Thus, firms exist as a nexus of contracts.

As argued above, the main bone of contention between the neoclassical economists and the transaction cost theorists is how and where the factor inputs are acquired from and their implications for the rest of the other variables for production and exchange. In the neoclassical theory factors of production are acquired from the market via the price system and the firm plays no central role in the process. In the transaction cost theory factor inputs are acquired from within the firm and are heavily influenced by the firm's structure, rules and procedures, and the incentive system occasioned by the agency theory. In the latter case the existence of the firm has significant implications for its performance, while in the former, to put it in the words of Mas-Colell *et al.* (1995:127), "The firm is viewed merely as a 'black-box', able to transform inputs into outputs" with no other central role to play (see also Leibenstein, 1966). The essential difference between economic activity inside the firm and economic activity in the market is that the former is carried on within an organisation coordinated by policies, systems, procedures and guidelines, while the latter is not (Penrose, 1995:14).

5.2.2.4 Areas of consensus on the theory of the firm

(i)   The goal of profit maximisation

In all the criticisms of the goal of profit maximisation, the interesting question is whether it is possible for the firm to exist in the long-run if it significantly deviates from the goal of profit maximisation. The consensus, however, is that earning a profit in the long-run is not only an essential element for all business firms, but under reasonable assumptions profit maximisation is the goal all firm owners would agree upon (Romer, 2006; Pindyck *et al.*, 1998:252; Intrilligator *et al.*, 1996:275; Penrose, 1995:30; Mas-Colell *et al.*, 1995:152; Haven *et al.*, 1966:303; Cyert and March, 1963). Penrose (1995:30) argues, "Firms will never invest in expansion for the sake of growth if the return on the investment is negative, for that would be self-defeating." Romer (2006:341) argues "A firm that fails to maximise profits is likely to be out competed by more efficient rivals or purchased by individuals who can obtain greater value from it…And managers who fail to maximise profits for owners of their firms are likely to be fired and replaced by ones who do." Similarly, Williamson (1981) argues that transaction cost theory is not inconsistent with profit

maximising behaviour, a point Jensen and Meckling (1976) agree with when they retain the notion of maximising behaviour on the part of individuals in the analysis of the theory of the firm. Therefore, while firms may be motivated by other objectives, pursuit of profit is a necessary constraint in their production function.

(ii)   The objectives of the neoclassical theory of the firm

Some authors believe that some of the attacks on the neoclassical theory are misdirected and/or do not recognise its objective, which is principally to explain the process of resource allocation and price determination in a market economy. For instance, Demsetz (1997) notes that the neoclassical theory of the firm serves an important objective of conceptualising an economy in which there is interdependence between the households and firms, whether a firm is a multi-person or not. He further observes that the firm in the neoclassical model is quite different from the firm in R.H. Coase's 1937 classic paper on the nature of the firm in which managed coordination, presumably involving more than one person, defines the firm. The prime objective of Coase's article was to explain the existence of firms and their importance relative to price mechanism, but markets cannot substitute production. They only provide the framework for exchange. There must be a producer before an exchange can take place. Firms produce and then exchange takes place.

Case and Fair (2002:134) and Pindyck and Rubinfeld (1998:175) argue that production is not limited to business firms, private, public or corporation. Households also engage in transforming factors of production into useful things (outputs). Similarly, the government also combines factors of production to produce public services for which demand exists.

In the same vein Penrose (1995:11) notes "The 'theory of the firm' – as it is called in the literature – was constructed for the purpose of assisting in the theoretical investigation of one of the central problems of economic analysis – the way in which prices and allocation of resources among different uses are determined." The author concludes that only those aspects of the behaviour of the firms that are relevant to the problems that the wider theory is designed to solve should be considered.

Cyert and March (1963:15; also Demsetz, 1997) observe that:

> *…much of the controversy is based on a misunderstanding of the questions the conventional theory of the firm was designed to answer. The theory of the firm, which is primarily a theory of markets, purports to explain at a general level the way resources are allocated by a price system. To the extent to which the model does this successfully, its gross assumptions will be justified.*

Thus, many of the attacks on the neoclassical theory of the firm are not so much proper critiques of the received theory of the firm, but more or less arguments for the development of a theory appropriate to answer the different questions or interests at hand (Holmstrom and Tirole, 1989; Penrose, 1995:11).

(iii)   Useful purposes served by the production function

The transaction costs theorists' main focus of attack on the neoclassical theory of the firm is the production function, which the neoclassical economists assume to be given, as discussed in section 5.3. However, the attacks are not that the production function is irrelevant, but rather the assumptions that underlie it. For example, Williamson (1981:1539) observes that:

> *The Neoclassical theory treats the firm as a production function to which profit maximisation has been ascribed. Albeit useful for many purposes, such a construction is unhelpful in attempting to assess the purpose served by hierarchical modes of organisation. The firm as a production function needs to make way for the view of the firm as governance structure…*

The above observation does not negate the usefulness of the production function, but rather its usefulness when, for example, assessing the purpose served by hierarchical modes of organisation. On the other hand, in analysing the determinants of production, the production function is a fundamental tool, as it provides the framework for identifying the inputs into a production process, the process of allocation of the inputs and the resulting output (Pindyck *et al.*, 1998). It is, however, important to note that the traditional neoclassical production function is inadequate in the analysis of the production function behaviour of modern firms.

5.3   The production function

5.3.1   Analysis of the production function

The production function is one of the pillars of the theory of the firm. In its general form it is a purely technical relationship between quantities of inputs and quantities of output (Pindyck and Rubinfeld, 1998; Mas-Colell *et al.*, 1995; Varian, 1992; Koutsoyannis, 1979). However, Koutsoyannis (1979:70) argues that in practice the measurement of output has been done in value added terms, which destroys the purely technical nature of the production function. Hence, the relationship between factor inputs and the corresponding output can be described as both technical and economic (see also Varian, 1990:300). The technical part of the relationship is called the technological production function and can be used to identify the levels of inputs used to produce corresponding level(s) of output(s). Wallis (1979:38) posits that the technical production function summarises the efficient production possibilities open to a firm, a technical maximisation problem having been solved. The economic part of the relationship may be described as the economic production function, used to identify the least-cost combination of inputs in a feasible production set.

In Figure 1 the firm is illustrated to constitute external and internal factor inputs combined to produce output, which is exchanged. For a systematic exposition of the production function and its development, let us begin with the neoclassical model that has only two factor inputs: labour and capital, denoted by L and K respectively (Wallis, 1979:38; Zellner, Kmenta, and Dreze, 1966:784). Land is considered constant for the economy as a whole, although it may not be constant for individual sectors or firms, and for this reason it is conventional to lump it together with capital. Expressed in a general mathematical form, this is represented as:

$Q = f(\text{L, K})$---5.1

where Q is output, L is labour input, and K is capital input. All variables in equation 5.1 are flows, that is, they are measured per unit of time, and $L \geq 0$ and $K \geq 0$ and the function is a single-valued, continuous, and at least twice differentiable (Mas-Colell *et al.*, 1995; Varian, 1992; Varian, 1990; Wallis, 1979).

The development of the traditional neoclassical model has incorporated returns to scale (T), normally experienced in the long-run and an efficiency parameter (GM) as illustrated in a general mathematical equation 5.2 (Koutsoyannis, 1979:69).

$$Q = f(L,K,T, GM) \text{--}5.2$$

where Q, L, and K are as defined above.

Leibenstein (1966) identifies two broad categories of efficiency: allocative efficiency resulting from allocation of resources via the free market mechanism, and X-efficiency (see Meador *et al.*, 1997 for the definition of X-efficiency). This study confines its investigation of the significance of efficiency in the production process to entrepreneurial-organisational efficiency in general, but more specifically effectiveness of governance. For example, two business concerns with all factors of production identical may differ just because of the differences in the entrepreneurial-organisational efficiency. Indeed, Kasper and Streit (1998:18) argue that China's excellent technology, especially in the Sung dynasty (960-1278), was never translated into an industrial revolution because of lack of rules, which are entrepreneurial-organisational aspects. Penrose (1995) expresses similar views, while Leibenstein (1966:401) argues that "Clearly there is more to the determination of output than the obviously observable inputs. The nature of management … and the incentives employed are significant."

Equation 5.2 shows that Q is affected by L, K, T, and GM, but it does not tell us the direction of the relationship. Moreover, the variation of the explanatory variables is tied to the time period over which each can be varied. Economists have categorised the period over which factor inputs can be varied into four: the momentary run, the short run, the long run, and the very long run (Lipsey, 1993; Pindyck and Rubinfeld, 1995; Samuelson and Nordhaus, 1996). The momentary run is a period within which a firm cannot adjust the factor inputs to increase output. This normally happens because in every transaction, when orders to supply a product are placed with a firm, they (orders) must first be scrutinised and confirmed before taking any supply decisions. This takes time, which means that a firm

cannot respond to a placed order at short notice. It is this period when the firm is unable to respond to a placed order for its product that is referred to as a momentary run.

The short run is a period in which firms can adjust production by changing variable factors such as raw materials and some labour, but cannot change fixed factors such as capital and land that can only be changed in the long run. In the very long run technology can also be changed through research and development that results in innovation of, say, new products, new techniques of production or new inputs.

5.3.1.1 Short-run analysis

Since our interest is more on what happens to Q in equation 5.2 when the factor inputs vary, the momentary run is of less importance and therefore it is disregarded in the subsequent analyses. The analysis begins with the response of Q to variations in the postulated determinants in the short run. For ease of exposition and in line with the short-run arguments, assume that L is the only variable factor in the short run, while the rest of the factors are fixed. Given this assumption, and assume further that a production function is a representation of an efficient relationship between a set of inputs and output, y can only increase if L is increased (Mas-Colell *et al.*, 1995). An increase in Q resulting from a very small unit increase in L is known as the marginal product of labour (MP_L), represented algebraically as $MP_L = \partial Q / \partial L$. Similarly, an increase in Q resulting from a very small unit increase in K is known as the marginal product of capital (MP_K) represented algebraically as $MP_K = \partial Q / \partial K$.

In principle the marginal product of a factor may assume any value, positive, zero or negative. However, the basic production theory concentrates only on the efficient part of the production function, that is, on the range of output over which the marginal product of the factor inputs are positive (Koutsoyannis, 1979:71-2; Pindyck and Rubinfeld, 1998:245). Rational firms would not employ any other factor inputs beyond a point where the marginal product is zero, because beyond this point any addition of a factor input reduces the total output. Furthermore, the basic theory of production usually concentrates on the range of output over which the marginal product of factor inputs, although positive, decreases, that

is, over the range of diminishing but non-negative productivity of the factors of production. These conditions are mathematically expressed as follows (see Varian, 1990:305):

$MP_L > 0$ but $\partial(MP_L)/\partial L < 0$; $MP_K > 0$ but $\partial(MP_K)/\partial K < 0$; $-\partial K/\partial L = MRTS$[29] (the slope of an isoquant) $\neq MP_L/MP_K$, but are closely related (Pindyck and Rubinfeld, 1998:192).

Empirical studies show that diminishing returns occur in practice (Samuelson and Nordhaus, 1996; Pindyck and Rubinfeld, 1998) but might not hold for the entire range of inputs. For example, Pindyck and Rubinfeld (1998:200) observe that "Most studies of railroad industry indicate increasing returns to scale at low and moderate freight densities, but decreasing returns to scale begin to set in after a certain point..." In other production lines the first inputs such as labour might show increasing marginal products, while the last unit might show negative marginal products as workers begin to interfere with one another's activities and enthusiasm wanes. Therefore, for rational firms the relationship between output and additional number of staff, for example, is positive as long as the diminishing returns are positive.

5.3.1.2 Long-run and very long-run analysis

In the long run all factors become variable and the firm can combine different factors of production to achieve different levels of output (Koutsoyannis, 1979:76). This means that a decision to increase Q can be executed by varying all the relevant factor inputs. This leads to a new concept called returns to scale (Pindyck and Rubinfeld, 1998: 197; Mas-Colell *et al.*, 1995:132; Varian, 1990:308). Technically expressed, returns to scale reflect the responsiveness of total product when *all* the inputs are varying *proportionately*.

Three important concepts of returns to scale are: constant, decreasing and increasing (Mas-Colell *et al.*, 1995:132). Using Q as the designated letter for output, X as the designated letter for all the inputs, and Δ as the symbol for a proportional change, we can express the three concepts as follows: constant returns to scale denote a situation whereby $\Delta Q = \Delta X$. For example, doubling of inputs leads to doubling of output. Decreasing returns to scale

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[29] MRTS is marginal rate of technical substitution

occur where $\Delta X > \Delta Q$. For example, an increase of inputs by 30% results in an increase of output by 25%. Increasing returns to scale arise when $\Delta X < \Delta Q$.

While the potential of scale economies are great in many sectors, the law of returns to scale dictates that decreasing returns to scale are inevitable. For instance, as a firm becomes larger and larger, the problems of management and coordination (ownership and control) increase. As a result additional inputs into production make economic sense only when returns to scale are positive.

Empirical research has shown that most production activities should be able to attain constant returns to scale. Based on the results of the estimates of Cobb-Douglas, production function for the macro-economy of the United States and New Zealand, Douglas (1948, as cited in Intrilligator, 1996:270), concludes that production exhibits approximately constant returns to scale and that factors of production receive approximately the share they would receive under perfect conditions, given the elasticity of output with respect to the factor. While these conclusions have been questioned, economists generally think that production functions exhibit constant returns to scale (Samuelson and Nordhaus, 1996).

5.3.2   Introduction of costs into the production function

Up to this point the discussion of the production process has focused on the relationship between the physical units of output and inputs. But the decision to produce and the combination of inputs to use is often an economic one (Wallis, 1979:44). Production technology and factor prices determine the cost of production (Pindyck and Rubinfeld, 1998:205). Thus, the main purpose of a production function is to provide the technical relationship between the inputs and the outputs necessary for attaching cost to the different input combinations to aid in making economic decisions. Further examination of the production function and its relationship with the cost of the factor inputs is provided below.

Equation 5.3 is derived from a general form of a production function (equation 5.2):

$Q = f(L, K, T, GM)$---5.3

As was argued earlier in this chapter, to produce Q a firm must combine the relevant factors of production postulated on the right-hand side of equation 5.3. These factors are acquired at a cost (price). When the price of each factor is known, then the total quantity of each factor is multiplied by the relevant price, after which a sum is obtained to arrive at the cost of all the factors of production. To illustrate this, let us designate total cost of inputs by TC, and the prices of L, K, T, and GM by w, r, θ and η respectively such that:

$$TC = wL + rK + \theta T + \eta GM \text{---}5.4$$

Assuming TC captures all the relevant costs, equation 5.4 tells us that to produce Q units of output, the firm must spend $wL + rK + \theta T + \eta GM$ outlay of resources to acquire L, K, T and GM volume of factors of production. Rational firms normally choose a combination of factor inputs that maximises output given the cost of inputs or vice versa.

From equations 5.3 and 5.4, the Lagrangean function can be written as:

$$Q^* = wL + rK + \theta T + \eta GM - \lambda\{Q\text{-}f(L, K, T, GM)\} \text{---}5.5$$

The first order conditions are:

$$\partial Q^*/\partial L = w + \lambda\, f_L = 0 \text{---}5.6$$

$$\partial Q^*/\partial K = r + \lambda\, f_K = 0 \text{---}5.7$$

$$\partial Q^*/\partial T = \theta + v\, \lambda\, f_T = 0 \text{---}5.8$$

$$\partial Q^*/\partial GM = \eta + \lambda\, f_{GM} = 0 \text{------------------------------------}5.9$$

so that

$$f_L/w = f_K/r = f_T/\theta = f_{GM}/\eta \text{--}5.10$$

and $\partial Q^*/\partial \lambda = \text{-}Q + f(L, K, T, GM) = 0 \text{---}5.11$

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such that the firm remains on its production function. Thus, the optimal solution occurs when the ratios of each factor to its price are equal for all the factors of production. Solutions to equations 5.6, 5.7, 5.8, 5.9, and 5.11 give the cost of minimising input levels in terms of prices and the fixed output level. These would be the input levels that a firm conscious of minimising its costs of inputs used in production would choose.

Note that, while the exposition of the production function has been done under the assumption of perfect competition, the extension of the theory of the firm to cover imperfect markets has generally retained the same basic framework and decision-making processes postulated in the perfect competition model (Cyert and March, 1963:7; Bannock *et al.*, 1993:163).

5.4   Profit function

The profit function defines the relationship between the revenue earned by a firm and the associated costs. Mas-Colell *et al.* (1995:135), Varian (1990:311), and Zellner, Kmenta and Dreze (1966:785) define profit as revenue minus cost, while Varian (1992:23) and Nicholson (1995:347) distinguish between the term profit and economic profit, but define economic profit essentially in the same way as the other authors define profit.

For a systematic exposition of the profit derivation, the following symbols and letters are defined:

Π =   profit of the firm
P =   average price of the output of the firm
Q =   average quantity of the output of the firm
X =   average quantity of a vector of the inputs of the firm (measured in the same units)
c =   average price of the inputs of the firm.

$\Pi = TR - TC$ --5.12

where TR = P*Q, TC = X*c. Q, in this case, is obtained from the production function. It is assumed that all that is sold is produced by the firm. In the neoclassical formulation Q is the maximum output attainable from alternative combinations of conceivable factor inputs (Pindyck and Rubinfeld, 1998; Varian, 1992). Where neoclassical conditions are violated, as may happen in the real world, the output is sub-optimal (Pindyck and Rubinfeld, 1998:177; Leibenstein, 1966:407). That is, production does not take place at the frontier.

Equation 5.12 shows that profit is a function of prices of factor inputs, quantities of factor inputs, quantity of output and output price. The function is continuous, homogeneous of degree one, convex, decreasing in prices of inputs and increasing in the price of output.

Maximising profit by choice of TR in equations 5.12 calls for choosing Q such that,

$$(\partial \Pi / \partial Q)\,(Q) = P - (\partial TC / \partial Q)\,(Q) = 0 \text{ ---5.13}$$

Thus, the first-order condition for profit maximisation is

$$P = (\partial TC / \partial Q)\,(Q) \text{ --5.14}$$

The second-order condition is

$$\partial^2 \Pi / \partial Q^2 = \partial^2 TC / \partial Q^2 \leq 0 \text{ --5.15}$$

Equation 5.15 shows that the firm is maximising profit at Q and at this level of output price = marginal cost. Q is at maximum, while the cost of combinations of inputs (TC) is at minimum and therefore profit (Π) is at maximum.

5.5   A description of a microfinance institution

This section provides a description of an MFI, building from its definition in Chapter One to provide a basis for equating an MFI with the firm in the theory of the firm. Figure 5.2 illustrates an MFI and its boundary. From the Figure it can be seen that an MFI is a collection of resources obtained from external sources (Block I), internal sources (Block II) with the purpose of producing outputs for sale (Blocks III and IV) similar to the firm in the theory of the firm (see Figure 5.1). Table 5.1 captures the balance sheets of three MFIs. In broad terms, external inputs are net worth and liabilities of the MFI.
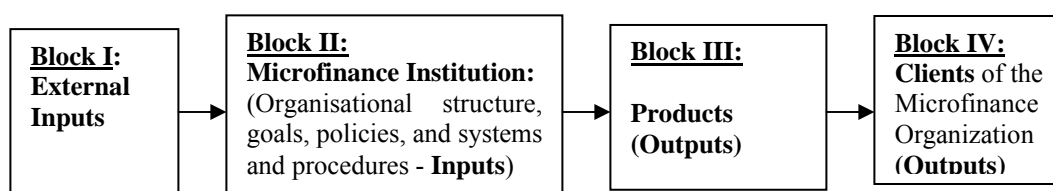
Figure 5.2:   **An illustration of a typical MFI and its boundary**

Table 5.1:   **Balance sheets of three of the MFIs surveyed in this study (the Currency is Uganda shillings)**

Assets	31 Dec 2002 (MFI1)	31 Dec 2002 (MFI2)	31 Dec 2002(MFI3)
Cash and bank current accounts	424,745,050	46,235,490	276,691,284
Short-term investments	188,001,365	399,607,450	-
Outstanding loan portfolio	3,240,837,794	4,402,275,440	6,557,103,337
(Loan loss reserve)	(64,816,756)	(80,986,872)	(10,779,585)
Long-term investments	-		750,000,000
Property and equipment	140,760,545	968,039,490	721,073,353
(Accumulated depreciation)	(45,862,527)	(368,070,160)	(84,455,000)
Other assets	117,723,522	340,836,740	98,131,803
Total Assets	**4,001,388,993**	**6,606,051,642**	**8,307,765,192**
Total liabilities + net worth	**31 Dec 2002**	**31 Dec 2002**	**31 Dec 2002**
Short-term borrowing	906,330,990	-	1,434,121,604
Client savings (deposits)	1,528,660,890	-	2,256,949,585
Other liabilities	-	751,731,273	1,723,332,834
Net worth/Equity (donations/grants)	1,172,047,133	2,325,165,400	2,033,675,131
Retained net surplus/Accumulated losses	415,028,803	2,351,821,510	179,769,000
Current year surplus/deficit	133,862,180	253,957,215	679,917,038
Total liabilities + Net worth	**4,155,929,996**	**5,682,675,398**	**8,307,765,192**

Source: This survey was conducted between 2003 and 2006.

With the exception of banks, finance companies, co-operatives and indigenous associations and organisations providing microfinance, most classical (typical) MFIs started as NGOs, but are now transforming and commercialising due to limitations of NGOs (Ledgerwood and White, 2006). Table 5.2 shows that out of 16 MFIs randomly identified, eight have transformed into deposit-taking financial institutions for reasons that include i) the desire to access sustainable funding sources e.g. from financial markets; ii) gaining financial independence; and iii) acquiring an appropriate institutional form for sustainable outreach and effective governance (Ledgerwood and White, 2006).

MFIs have organisational structures, policies, systems and procedures to aid staffing and internal controls. For example, ASA in Bangladesh has developed a flat management structure with only three tiers to minimise bureaucracy. A typical branch in ASA has one manager, 4-5 credit officers and one support staff (Fernando and Meyer, 2002). To minimise cost and enhance efficiency ASA's approach and philosophy have been adopted in various countries, including Uganda. Fernando and Meyer (2002:2) also report that ASA's good performance is due to its simple, effective and rigid systems and procedures.

Ledgerwood (1999:34) argues that MFIs have two long-term goals: outreach and sustainability. Mr Choudhury (managing director of ASA) combines these two long-term goals into sustainable outreach, and argues that this is central to MFIs (Fernando and Meyer, 2002:2). This means that MFIs must balance maximising outreach and sustainability. A survey of the goals of 16 MFIs summarised in Table 5.2 indicates that these are the goals of many MFIs expressed in various ways. For example, the goal of Commercial Microfinance Limited in Uganda is to provide quality financial services on a sustainable basis, while that of Grameen Bank in Bangladesh is to provide small loans to disadvantaged people on a sustainable basis.

Table 5.2: **The ownership and governance of 16 MFIs**

MFI	Institution and ownership	Sources of funding	Missions/Goals
BancoSol in Bolivia	Private commercial bank. Formerly NGO	NGOs Private sources	Provide microfinance to mitigate socio-economic effects of poverty
CERUDEB in Uganda	Commercial bank started by a Church	Church, private sources, and donors	Provide savings and loan products on profitable basis
Uganda Microfinance Ltd	MDI. Formerly NGO.	Donors Private sources	Provide quality financial services in a reasonable, fair and transparent manner
Finca-Uganda Ltd	MDI. Formerly NGO.	NGOs Private sources	Provide microfinance, especially to women
Commercial Microfinance Limited (Uganda)	Private finance company	Private sources	Provide quality financial services on a sustainable basis
Pride Microfinance Limited -Uganda	MDI. Formerly government owned	Government, donors and private sources	Provide sustainable financial services to micro- and small enterprises
Grameen Bank in Bangladesh	Private bank. Formerly NGO.	Donors and private sources	Provide small loans to disadvantaged people on a sustainable basis
Bank Rakyat Indonesia (BRI)	State Bank	Government and private sources	Provide very small loans and savings for economic empowerment
BRAC in Bangladesh	Government credit programme	Government funds	Provide uncollateralised small loans mainly to women
K-Rep Bank Ltd – Kenya	Private bank. Formerly NGO.	NGOs, private and quasi-private sources.	Provide financial services to disadvantaged people on a sustainable basis
ASA in Bangladesh	NGO	Donors and private sources	Cost-effective lending and financial self-sufficiency
Caja Los Andes Procredit in Bolivia	Privately regulated Finance Company Ltd. Formerly NGO.	Private sources	Provide sustainable financial services to micro-enterprises
Uganda Finance Trust Ltd	MDI. Formerly NGO	Donors and private sources	Offer quality financial services to empower women
Kenya Equity Building Society	Non-bank financial institution	Private sources	Maximise value and economically empower clients
Badan Kredit Kecamatan – Indonesia	Sub-district credit agencies	Government and private sources	Provide very small loans on a sustainable basis
Pride-Tanzania	Company/NGO	Donors	Provide financial services to micro-entrepreneurs

Source: Compiled by the author of this dissertation

An analysis of the staff recruitment policy of a number of MFIs reveals that MFIs are cost-minimising. Of the six MFIs from Uganda included in Table 5.2, five have a recruitment

policy that emphasises recruitment and deployment of staff based on qualification, experience and performance. Similar policies are pursued in other MFIs such as Badan Kredit Kecamatan (BKK) and Kredit Usaha Rakyat Kecil (KURK) in Indonesia and Association of Social Advancement (ASA) in Bangladesh (Hulme and Mosley, 1996; Fernando and Meyer, 2002).

MFIs provide loans, savings, payment transfers, insurance services and social intermediation services such as group formation, development of self-confidence, training in financial literacy and management capabilities among members of a group to low-income earners and their enterprises (Ledgerwood, 1999; Mckenan, 2002).

5.6   Can a microfinance institution be equated to the firm in the theory of the firm?

In section 5.2 the firm and the theory of the firm are presented and discussed. In section 5.5 a brief description of an MFI is presented. In this section the question addressed is: can a microfinance institution be equated to the firm in the theory of the firm?

The theory of the firm in general, and of production function in particular, is widely understood to be more applicable to industrial firms producing tangible goods. Its application particularly to microfinance institutions that provide a kind of a different service (not like a hair-cutting service) to its customers, rather than a physical product raises the question of whether or not it is appropriate. For example, a deposit-taking financial institution accepts deposits and gives out loans (financial intermediation). In this intermediation process loan appraisal and granting are not done the same way as when offering other services. The process involves a customer applying for a loan and the MFI appraising the application, normally by visiting the client's project or household to assess the viability of the project. In this way the process of providing a financial service is different from that of providing other services, let alone the production of tangible goods. In short, providing a financial service such as extending a loan tends to be prolonged.

The traditional neoclassical theory of the firm treats the firm as a black box, as argued in section 5.2.2.3. That is, what takes place within the firm and how that affects its performance is not explained. However, treating the firm in this way does not make it

different from an MFI, since both mobilise external factor inputs to produce outputs. Secondly, the process of transforming the inputs into outputs is similar and can be understood in terms of the production function presented in sub-section 5.3.1. The economic decision taken in the process of choosing the least-cost combination of inputs is similar in the two institutions. Besides, the sustainability model can be explained in terms of the profit function.

Turning to the institutional arrangements, both the firm in the theory of the firm and a financial institution make decisions within an administrative system designed on similar principles. Both institutions have goals, policies, procedures and systems. Depending on their level of development and legal status, both categories of firms have organisational structures to guide their operations (see section 5.5).

Other similarities and differences between a microfinance institution and a non-financial firm can be captured with the aid of typical items that appear in the balance sheets of both types of the institutions/organisations. The balance sheet items can provide indications as to whether a firm is a financial institution or not.

Table 5.3 is a summary of a list of typical items that would appear in the balance sheet of a microfinance institution and that of an industrial firm. From the Table the major similarities and differences listed below can be identified.

1. Fixed assets appear in both balance sheets. This is because formal business organisations are usually required to have fixed locations, indicated by buildings and equipment. In addition, the organisations use equipment such as vehicles, motorcycles, etc. to facilitate implementation of their activities. However, differences are in the structure and value of some of the fixed assets, such as plant, machinery, land and buildings. In an MFI plant and machinery are normally not required, while they may be major items in a non-financial firm. Similarly, land and buildings may form a small proportion of the total assets of an MFI (some MFIs rent offices) (MOFPED, 2006), but may be substantial in the case of a non-financial firm, and more specifically an industrial firm.

2.   Some of the current assets, such as cash and bank balances appear in both balance sheets. These are normally used to pay for operational expenses such as office supplies, staff salaries, etc. MFIs can also use cash and bank balances for disbursing loans and, where the MFI takes deposits, for payment of withdrawals. For these reasons deposit-taking MFIs normally keep a substantial amount of their assets in cash and bank balances or near liquid investments such as treasury bills with short time maturity periods. In non-financial institutions cash and bank balances can also be used to purchase raw materials used in the production process.

3.   Investments that appear in both balance sheets are significant for both institutions.

4.   The balance sheet of a non-financial firm shows that debtors (receivables), work in progress (raw material) and closing stock (inventory) are a major feature, which is not the case with an MFI.

5.   The biggest asset of an MFI is the loan portfolio. A non-financial firm does not have loan portfolio in its balance sheet. In addition, for a deposit-taking MFI loan portfolio is partly financed by public deposits.

6.   Finally, the equity and retained earnings appear in both balance sheets. For many MFIs a major source of equity is donations, which is seldom the case for many private non-financial firms. Borrowings are also reflected as a source of funds for financing assets of both institutions, except that for MFIs a significant portion of the borrowings may be from public savings or loans contracted at below the market rate (subsidised), whereas a private non-financial firm usually borrows at a market rate.

From the perspective of the production process and the framework for decision making, an MFI is not significantly different from the firm in the theory of the firm. Differences emerge from the nature of inputs used in production, the institutional set-up, product delivery methods, terms and conditions of product delivery, and the type of output produced. Thus, the theory of the firm can still be applied to explain the behaviour of microfinance institutions, because the decision variables essentially remain the same and

the production process involves the transformation of inputs into outputs with an incentive to maximise profits (Rose and Fraser, 1988; Case and Fair, 2002).

Table 5.3:   **Comparative analysis of balance sheet contents of a typical MFI and a non-financial firm**

Assets	MFI	Non-financial firm
Current Assets		
Cash and bank balances	Yes	Yes
Balances with the central bank	Yes	No
Loans outstanding (net)	Yes	No
Investments	Yes	Yes
Work in progress/raw materials	No	Yes
Debtors (receivables)	No	Yes
Closing stock/inventory	No	Yes
Fixed Assets		
Plant and machinery	No	Yes
Office equipment and automobiles	Yes	Yes
Property (land and buildings)	Not major	Yes
(Accumulated depreciation)	Yes	Yes
Liabilities		
Borrowings	Yes	Yes
Client deposits	Yes	No
Creditors (payables)	Not major	Yes
Deferred revenue	Yes	No
Net worth/Equity		
Equity	Yes	Yes
Retained earnings	Yes	Yes

Source: Adapted from SEEP Network (1995); Maurere *et al.* (1995)

5.7   Application of the production function to the outreach model

Section 5.3 defines and discusses a production function of a non-financial institution. The section argues that the production function describes the relationship between inputs and outputs in a firm. In the traditional neoclassical production function with capital and labour as inputs, for example, the output can be the number of bushels of wheat or tons of maize.

In the case of a depository financial institution, Rose and Fraser (1988:15) argue that it exhibits a two-stage production process whereby in the first stage it employs original factors of production, namely land, labour, capital and management skills to mobilise savings which, after putting aside a portion to meet short-term demands for cash, the remaining portion goes to stage two of the institution's production process. At stage two the

financial institution continues to utilise the original factors of production, which are then augmented by the remaining portion of savings generated in the first stage.

Using the factors of production described above, a depository financial institution can provide a range of services depending on its legal status. For example, a commercial bank in Uganda accepts deposits (call, demand, savings and time), provides loans, overdrafts, foreign exchange, participates in inter-bank clearing systems, and provides and assumes guarantees, bonds, and other warranties on behalf of others (Financial Institutions Act, 2004). An MDI accepts deposits (mainly savings) and extends loans (MDI Act, 2003).

Traditionally, outputs of financial institutions such as commercial banks and MDIs are measured in terms of values of services provided. However, based on the principle on which national income and product accounts are compiled, it is argued in this study that the output of these institutions can also be measured, for example, in terms of the number of depositors and borrowers, since deposits and loans are deposited and received by depositors and borrowers respectively, often referred to as clients (see sub-sections 3.3.2 and 4.2.3.5).

Denoting the number of clients served by an MFI in a defined period by OUTR, land by LAND, labour by L, capital by K, management skills by GM, and additional loan funds from savings by D, the production function of a deposit-taking microfinance institution can be represented as

OUTR = f[LAND, L, K, GM, D]---5.16

Equation 5.16 is comparable to equation 5.2 (section 5.3), implying that the determinants of outreach can be analysed within the framework of a production function.

For a non-depository MFI, D = 0. For reasons given in sub-section 5.3.1, LAND and K are normally combined, which reduces equation 5.16 to equation 5.17. GM, discussed in Chapter Four under governance and replaced by GINDEX in Chapter Seven, captures the influence of an increasingly important role played by institutional structures in organisational performance (Rutherford, 1996; Kasper and Streit, 1998; Williamson, 1981; Leibenstein, 1966).

OUTR = f[L, AK, GM]--5.17

where AK is K+D + LAND.

The effects of offering savings product for outreach examined in sub-section 4.2.4 is captured in equation 5.18 by the variable, SP (a dummy variable explained in Chapter Seven),

OUTR = f[L, AK, GM, SP]--5.18

In addition to the determinants of OUTR specified in equation 5.18, Chapter Four identifies the following determinants of outreach: real effective lending interest rates (RELRD), average loan size relative to the national per capita income (AvLz)), the unit cost of loans disbursed (CLD), the dominant product delivery method (DDM, a dummy variable explained in Chapter Seven), debt-equity ratio (DER), the legal status (LS, a dummy variable explained in Chapter Seven), and the age of the institution (AGE), all captured in equation 5.19. Note that all these variables are fully described in Chapter Seven.

OUTR = f[L, AK, GM, SP, RELRD, AvLz, CLD, DDM, DER, LS, AGE]----------------5.19

All the variables in equation 5.19 are defined on $L \geq 0$, $AK \geq 0$, $GM \geq 0$, $RELRD \geq 0$, $AvLz \geq 0$, $AGE \geq 0$, $DER \geq 0$, and $CLD \geq 0$ are single-valued, continuous and at least twice differentiable. Factor inputs L and part of AK can be viewed as traditional factors of production according to the neoclassical production theory (equation 5.2) and are captured by WL and GOLP respectively (see Chapter Seven).

In the traditional production function L and AK are considered homogenous factor inputs measured in terms of services provided per unit of time. Where data on input per unit of time are not available, the inputs are typically measured by the amount utilised or available in the production process. Labour is typically measured as man-hours employed, sometimes as the number of employees or labour costs per period (Varian, 1992; Inrtilligator *et al.*,

1996). In this study labour has been measured in terms of salary/wage bill, because it was difficult to capture data in terms of man-hours.

Capital input is typically measured by net capital stock (net of appreciation) or sometimes by the gross capital stock and certain direct measures, such as the number of tractors in use in agriculture. To avoid the complexities involved in the measurement of capital, in this study GOLP has been used as a proxy for capital or AK (Intrilligator *et al.*, 1996:263).

5.8 Application of the profit function to the sustainability model

Chapter Three (sub-section 3.2.2) examines the relationship between profitability and sustainability, thereby conceptually laying the framework for estimating the sustainability model in this study. This section concentrates on identifying the determinants of sustainability within the framework of a profit function discussed in section 5.4, and also taking into account the relationship between profitability and sustainability discussed in sub-section 3.2.2. To do this, equation 3.3 is reproduced below:

$$\Pi = P*Q–TC \text{---5.20}$$

where Π, P, Q and TC are as defined before. In the traditional profit model (equation 5.20), the factors that affect the profit levels are average price (P), output (Q), average price of inputs (c), and quantity of inputs (X) – See equation 5.12, section 5.4. In the sustainability model measured by OSS, the determinants of sustainability are shown in equation 5.21 reproduced from equation 4.4 in Chapter Four.

$$OSS = [[((NSB+NRB*ANT)*AvLz*i)][1-\gamma]+Z]/[FINCO+OPCO+LLP] \text{ -----------------5.21}$$

The variables are as defined before.

Comparing the variables in equations 5.20 and 5.21, as argued in Chapter Three, P can be equated to appropriately combined i and Z; (NSB+(NRB*ANT))*AvLz can be equated to Q; and FINCO+OPCO+LLP can be equated to TC. This leaves out the rate of default (γ) discussed in Chapter Four under repayment rate and the implications for sustainability and

outreach. γ is treated as a cost in the sustainability and outreach models (see sub-section 4.2.6).

In addition to the real effective lending interest rates (RELRD), average loan size relative to the national per capita income (AvLz)), and the unit cost of loans disbursed (CLD), other determinants of sustainability identified and discussed in Chapter Four are: DDM, DER, LS, GM and AGE. Thus, together with L, AK and SP, the determinants of sustainability can be specified as

OSS = f[L, AK, SP, RELRD, AvLz, CLD, DDM, DER, LS, GM, AGE]------------------5.22

All the variables in equation 5.22 are defined on $L \geq 0$, $AK \geq 0$, $GM \geq 0$, $RELRD \geq 0$, $AvLz \geq 0$, $AGE \geq 0$, $DER \geq 0$ and $CLD \geq 0$, and? are a single-valued, continuous and at least twice differentiable. Note that in Chapter Seven L is denoted by WL, GM is denoted by GINDEX, and AK is denoted by GOLP.

5.9 Summary of the determinants of sustainability and outreach, and the hypotheses

Section 4.2 has presented and analysed the determinants of sustainability and outreach based on the literature surveyed. Up to this section, Chapter Five has examined the determinants of sustainability and outreach in the context of the theory of firm. Table 5.4 gives a summary of these determinants and the hypotheses.

Table 5.4   Determinants of sustainability and outreach and the hypotheses

Explanatory variables	Dependent variable: OSS	Dependent variable: OUTR
	Hypotheses	Hypotheses
DER	Positive	Positive
GOLP	Negative	Positive
GM (GINDEX)	Positive	Positive
SP is a dummy = 1 for an MFI providing savings product, 0 otherwise	Positive	Positive
AvLz in relation to the national per capita income	Positive	Negative
RELRD	Positive	Negative
CLD	Negative	Negative
DDM is a dummy = 1 for a dominant delivery mechanism, 0 otherwise.	Positive	Positive
AGE	Positive	Positive
L (or WL) is average salary/wage and benefits in relation to the national per capita income	Positive	Positive
LS is a dummy = 1 if the MFI is SACCO, NGO or MDI, 0 if private company	MDI is positive, SACCO is positive and NGO is negative	MDI is positive, SACCO is positive and NGO is positive

5.10   Conclusion

This chapter has discussed the concept and theory of the firm and their application to MFIs. The chapter has argued and illustrated that the firm in the theory of the firm is similar to an MFI, because they both mobilise external and internal resources to produce outputs, which are eventually sold in the market. Secondly, the decision variables in both the firm in the theory of the firm and an MFI are essentially the same. Therefore, sustainability can be understood within the framework of the profit function while outreach can be understood within the framework of the production function. In the case of the sustainability model the output is OSS, while in the case of the outreach model the output is the number of clients served by an MFI in a specified period – in this study in one year.

CHAPTER SIX: REGULATION OF MICROFINANCE INSTITUTIONS AND THE EFFECTS ON SUSTAINABILITY AND OUTREACH

6.2   Introduction

The literature indicates that one of the compelling reasons for financial regulation is the asymmetric distribution of information between the depositors and depository intermediaries, on the one hand, and the lending institutions and the borrowers, on the other hand (Staschen, 1999:4; Schmidt and Willardson, 2004). In view of this argument and given that microfinance activities are both rapidly expanding and seen as a tool for poverty alleviation, and the development of financial systems in many developing countries, there have been widespread discussions on whether or not to regulate microfinance institutions (Ledgerwood, 1999; Staschen, 1999; CGAP, 2000; AMFIU, 2005; Ledgerwood and White, 2006). If there is to be regulation, then when, how and what should be regulated and what are the implications for sustainability and outreach? Answers to these questions are important for the regulators, practitioners, clients and the economy as a whole.

In Uganda a legal and regulatory framework, called the MDI Act, 2003, was enacted to provide a licensing and regulatory framework for MFIs. In addition, and as required by the MDI Act, 2003, the government of Uganda (GOU) has issued a statutory instruments supplement (Implementing Regulations) to provide supervisory benchmarks for the licensed MFIs (Bank of Uganda, 2004). The Act and the Implementing Regulations define the boundaries within which the microfinance business can be conducted. For example, the Act and the Implementing Regulations define what constitutes a microfinance business, how a potential applicant can be licensed, the minimum capital requirement, ongoing capital requirements, and so forth. An outline of this regulation and other banking laws in Uganda, and their effects on sustainability and outreach of MFIs from a theoretical and empirical perspective, are presented and analysed in sub-section 6.4.2.

Generally, three main reasons are considered fundamental for regulating MFIs, namely, 1) to provide a legal mandate for the institutions to engage in mobilising savings from the general public for intermediation; 2) to protect depositors; and 3) to ensure the safety and soundness of the financial system (Rose and Fraser, 1988; Chaves and Gonzalez-Vega,

1994, 1995; Ledgerwood, 1999; Falkena and Llewellyn, 1999; Carmichael and Pomerleano, 2002; Theodore and Loubiere, 2002; AMFIU, 2005; Ledgerwood and White, 2006). As argued in section 6.3, the latter two reasons are not mutually exclusive, as attainment of one embodies attainment of the other.

However, while regulation of MFIs is considered a necessary intervention to protect depositors and promote economic growth, it should not limit the capacity of the financial sector to evolve. That is, the costs of regulation should be weighed against the benefits, so that it does not turn out to be more costly to regulate than not to regulate. Furthermore, given the twin long-term goals of MFIs, namely, outreach and sustainability, the question of the possible effects of regulating MFIs on these goals naturally comes to mind. This chapter surveys the literature on costs and benefits of regulating MFIs and the possible effects on their sustainability and outreach.

The chapter is arranged as follows. The concept of regulation and financial regulation are discussed in section 6.2 to lay a foundation for analysing the benefits and costs of regulating the financial system as a whole and MFIs in particular (section 6.3). In section 6.4 the instruments for financial regulation of MFIs are presented and their effects on sustainability and outreach analysed, mainly within the Ugandan context. In sub-sections 6.4.2.1 to 6.4.2.5 the key provisions using the CAMEL framework are first outlined under A and their possible effects on sustainability and outreach of MFIs are investigated under B. Note that the S component of the CAMELS is not analysed in the subsequent discussions, because it has not yet been developed into a framework that would lend itself to a rigorous assessment. In sub-sections 6.4.2.6 to 6.4.2.8 other key provisions of the MDI Act, 2003 are outlined under A and their possible effects on sustainability and outreach of MFIs are investigated under B. Section 6.5 concludes the chapter.

6.2   The concept of financial regulation

Financial regulation, which is the focus of this chapter, is a sub-set of regulation. In this regard this section first defines regulation as a set of enforceable rules that restricts or directs the actions of market participants and, as a result, alters the outcomes of those actions. These rules are binding on the entities and individuals involved. Carmichael and

Pomerleano (2002:22) define financial regulation as rules that govern commercial behaviour in the financial system, while Ledgerwood (1999:20) defines it as a body of principles, rules, standards and compliance procedures that apply to financial institutions.

Financial regulation can be: i) prudential or preventative, and ii) protective. Chaves and Gonzalez-Vega (1994:56) define prudential financial regulation as a set of general rules or legal rules that aim to contribute to the stable and efficient performance of the financial institutions and markets (see AMFIU, 2005:52). Protective regulations offer protection to depositors or the intermediaries taking the deposits. Such protection takes the form of a deposit insurance fund and emergency assistance or bailouts.

6.3 Economic benefits and costs of regulating the financial system with emphasis on the microfinance institutions

6.3.1 Economic benefits for regulating the financial system

Economists generally agree that the scarcity of resources in relation to the demand for them can be adequately addressed in perfectly competitive markets. In the financial sector it is widely acknowledged that the market fails due to one or more of the following reasons: (i) anti competitive behaviour; (ii) market misconduct; (iii) information asymmetry; and (iv) systemic instability (Carmichael and Pomerleano, 2002:25).

In addition, Llewellyn (1995, as cited in Jordaan, 1997:31) argues that market imperfections or failures that would justify regulation are: (i) inadequate depositors' protection; (ii) under-investment in information by consumers; and (iii) inability of the depositors to assess the quality of financial products and institutions. While under-investment in information by consumers leads to information asymmetry, it is also the result of depositors being resource constrained. This implies that with adequate resources at the disposal of the depositors, *ceteris paribus*, the purpose of regulation becomes redundant.

Chaves and Gonzalez-Vega (1994:56) identify three basic goals for government intervention in the financial sector: 1) ensure solvency and financial soundness of all

intermediaries in order to protect payments system; 2) protection of depositors; and 3) ensure efficient system performance and competition. Reasons 1 and 2 are embodied, but the competitive aspect of reason 3 may conflict with the goal of protecting the consumers and securing the payments system, because competition tends to weed out inefficient financial institutions, which may jeopardise the deposits in those institutions, thus affecting the confidence of the depositors in the system.

The discussions of the reasons for financial regulation can be grouped under two theories: public and private interest, also known as regulatory capture theory (See Jordaan, 1997).

Under the public interest theory, financial regulation is an attempt to create a 'second best' market to improve on the stability of the financial system and protect small depositors. Regulatory capture, on the other hand, results from the interplay of political and economic interests in the regulated industry (AMFIU, 2005; Jordaan, 1997; Samuelson and Nordhaus, 1996). The theory posits that regulation is the outcome of a struggle between various interest groups, each of which seeks to ultimately maximise its own economic benefits. These benefits take various forms including profits that go to the regulated institutions, and votes and stakes in the regulated firms that go to the regulators or lawmakers.

Thus, while the regulators may have been initially motivated by public interest, over time they become corrupted or captured, and design regulation that is both in their own interests and in the interests of the more powerful regulated institutions. While this theory appears plausible, it is generally agreed that financial regulation is in the interest of the economy or the public, because of the grave potential consequences that may result from any improper practices.

6.3.2 Economic benefits of regulating microfinance institutions

Several reasons have been advanced for regulating MFIs. CGAP (2000:1-2) identifies the following specific objectives for regulating microfinance institutions:

1.   The desire for the unlicensed MFIs to take deposits from the public for intermediation. In the process the MFIs extend deposit facilities such as savings to the

rural poor to fill the gap left by the traditional banks (The Microfinance Network, 1997; Van Greuning *et al.*, 1999; CGAP, 1996; Robinson, 2001a). It is argued that the poor and their enterprises can and do save. All they lack is access to safe and appropriate savings facilities and instruments (Rutherford, 1999; The Microfinance Network, 1999; CGAP, 2004:3);

2. Some MFIs, governments and the donor community believe that regulation will promote and improve the MFI business and their operations through adopting standards of good practice contained in the regulatory instruments, thereby creating an environment for the emergence of sustainable MFIs through deposit mobilisation and prudent lending (Ledgerwood, 1999; Ledgerwood and White, 2006);

3. Because of the nature of their operations many MFIs charge high interest rates that some authorities think are exploitative. As a result regulatory authorities want to curb the high interest rates through regulatory means;

4. Where MFIs are already taking deposits, regulatory authorities are interested in setting up a legal framework to protect the depositors. Similarly, Ledgerwood (1999:20) and Ledgerwood and White (2006:22) argue that MFIs should be regulated if and when they mobilise deposits from the public, because individual depositors cannot be expected to monitor the health of an MFI due to information asymmetry and inability to invest in information gathering and analysis. In this regard regulation and supervision of MFIs, like other financial institutions, is viewed as a public good that should be provided by the state;

5. In some countries, faced with the weaknesses of MFIs and poor coordination within the industry, authorities have embraced the regulation of MFIs in order to address these problems through restricting entry into microfinance business;

6. Consistent with Hannig and Bruan's (2000:8) and Ledgerwood and White's (2006:22) arguments, regulatory authorities sometimes react to political interests that motivate them to regulate microfinance institutions; and

7.   Finally, arising from the huge and growing demand for financial services offered by MFIs, and the fact that in developing countries almost all of them rely exclusively on donor funding, their regulation is widely viewed as a vehicle for raising funding from commercial sources to be able to cope with the expanding demand for financial services, while simultaneously ensuring institutional sustainability (see Christen with Drake, 2002; Ledgerwood and White, 2006).

Also important to note is the question of ownership and governance. Banks are generally strong because they are required to have clear corporate structures, competent boards of directors and management teams defined by a relatively high level of academic and other qualifications as well as experience (GOU, 2003, 2005; BOU, 2004). In addition, there should be effective internal controls and documented policies and procedures. As much as the regulatory requirements impose costs on the institutions being regulated, they also strengthen corporate governance. Based on these reasons, it is generally believed that regulated MFIs will be strong institutions in the same way that banks are.

Equally significant is the likelihood of banks linking with the regulated MFIs either by lending to them or through them to the final clients. While there is limited empirical evidence to back this hypothesis, the increasing competition in the stronghold of the traditional commercial banks may force them to identify new avenues to expand their services. Rhyne and Otero (2006:4) and UNESCAP (2006:5) report that the formal banking sector has started entering the microfinance market and is competing with specialised MFIs. Regulation of MFIs, thus, offers an opportunity for them to link with banks, which may lead to reduced costs of funds, increased access to loan funds and increased outreach (Accion International, 2007:2).

In the context of sustainability and outreach, those arguing in favour of regulating MFIs can be grouped in two camps: those in support of extending financial services to the low-income sections of the population (poverty camp), and those in favour of institutional sustainability (sustainability or institutionalist' camp) (Woller *et al.*, 1999; Mathie, 2002). Protection of depositors forms part of both the sustainability and the poverty camps. Savings are considered a source of relatively cheap funds for MFIs, while protection of savings is considered more important to low-income earners than the wealthier ones,

because the marginal value associated with the loss of a unit of savings by a poor person is higher than the loss of the same unit by a wealthier one (Rutherford, 1999).

For the regulatory authorities the primary concern for regulating the financial system is to protect small depositors and to ensure that reckless lending does not threaten the stability of the financial system. Access to financial services by low-income earners is a secondary issue. In addition, because of the large number of existing MFIs, the majority of which are relatively small, regulators are more inclined to reduce the cost of regulation by restricting the number of licensed microfinance operators under their supervision (Hannig and Bruan, 2000; Microfinance Network, 1997, 1995).

Furthermore, hitherto regulators in some developing countries have been more familiar with conventional banking operations. Because of the operations of MFIs that are more rural based, the regulators would need to build their capacity in microfinance regulation and increase the number of personnel if they are to be effective (Hannig and Braun, 2000:13; Theodore and Loubiere, 2002). With increased operational expenses as a result of increased and more intense levels of operations, these requirements pose a big challenge to the regulators. On the other hand, the MFIs and the advocates of MFIs as a tool for poverty alleviation are more inclined to see MFIs regulated as development finance institutions that give them the leeway to emphasise outreach as well as sustainability.

Arising from the dichotomous views of the regulators and proponents of MFIs as vehicles for poverty alleviation, regulators are faced with the challenge of addressing the necessity of regulating MFIs based on the principles of sustainability and regulating them as development finance institutions.

In Uganda the regulators have underpinned the need to ensure the safety and soundness of microfinance operations in the long term as opposed to regulating them as development finance institutions. This decision has been premised on the belief that financial self-sufficiency is a pre-requisite for expanding outreach based on experiences of regulated MFIs such as BancoSol and Caja Los Andes in Bolivia.

6.3.3 Economic costs of regulating microfinance institutions

Staschen (1999:4) observes that in every regulation costs are incurred. However, the critical costs are the additional costs incurred as a result of financial regulation. These costs can be incurred by the regulators, the regulated MFIs, the regulated industry, the clients of the MFIs, and/or the economy as a whole. Who finally bears these costs is influenced by the extent to which the costs can be shifted to other parties. In the following sub-sections, these costs are discussed.

6.3.3.1 Economic costs of regulating MFIs for the regulators

The costs of regulating MFIs for the regulators arise mainly from: 1) licensing the MFIs; 2) supervision of the licensed MFIs; and 3) management take-over, closing down the MFI, and/or liquidation (see AMFIU, 2005:53). Kay and Vickers (1988:14) argue that licensing and supervision entail regulation of structure and conduct respectively.

1) Economic costs of licensing MFIs (regulation of structure)

It is a regulatory requirement that before an agent undertakes any activity that is being regulated, that agent must seek and obtain permission from the regulatory authorities. To be granted such permission, the applicants are usually asked to satisfy prescribed requirements. For example, to be granted an MDI licence in Uganda, the applicant is required, among other things, to submit to the regulator the following (Government of Uganda, 2003:15):

(a) a copy of the memorandum of association and articles of association or other instruments under which the company is incorporated;
(b) verified official notification of the company's registered place of business;
(c) the prospective places of operation, indicating that of the head office and branches;
(d) biographical data on each of the founders, proposed directors and officers;
(e) the information which is necessary for assessing the trustworthiness of the applicant;

(f) the information which is necessary for assessing the professional qualifications, as required for managing the institution, and the proprietors;

(g) a copy of the latest balance sheet of the company or such other suitable evidence of the resources needed for business operations; and

(h) a feasibility study of the company showing the nature of the planned business, organisational structure and planned internal monitoring procedures as well as the strategic vision, mission and objectives of the company.

On receiving the application together with the required documentation, the licensing authority scrutinises and verifies it to ensure that the applicant satisfies all the conditions laid down. To execute this, the regulator needs to employ people with the requisite skills. In some instances the regulator has to carry out intelligence work to verify the information submitted. Executing these activities incurs costs in terms of time and finance, and to the extent that the regulator cannot transfer these costs to the applicants, they (costs) have to be borne by the regulator.

Related to the cost of licensing the MFIs is the cost of publishing the names of companies authorised to transact the business of a microfinance institution in a given country. In Uganda, for example, the Central Bank is required, once a year, to publish in a newspaper circulating in the whole country the names of all the companies authorised to conduct microfinance business locally (Government of Uganda, 2003:19). This can involve a significant amount of money.

2.   Economic cost of supervision of the licensed MFIs (regulation of conduct)

Financial supervision involves examining, monitoring and directing licensed organisations to ensure compliance with the regulatory requirements (Chaves and Gonzalez-Vega, 1994:67; AMFIU, 2005:53). Traditionally supervisors use two approaches in the process of supervising licensed financial institutions: off-site and on-site supervision. Off-site supervision is done through analysis of the statutory returns submitted by the regulated financial institutions primarily to determine compliance with the regulatory requirements.

To determine compliance with the regulatory requirements, key statutory ratios, namely capital adequacy ratios (CARs), liquidity ratios, profitability ratios (e.g. ROE and ROA), credit limits and provisions for loan portfolio, are computed. Other analyses done include examining the steps designed to mitigate against: (1) strategic risk;[30] (2) credit risk;[31] (3) operational risk;[32] (4) liquidity risk; and (5) market risk. Some of the most important board committees required by the regulators to be in place in a financial institution for the purpose of risk assessment and management are: audit, asset/liability management and staff. Qualitative indicators are normally verified during on-site supervision.

On-site supervision involves undertaking on-site visits by a team of examiners from the regulatory authority for on-the-spot observations and verification. Activities undertaken during such supervision include authenticating the documents submitted to the supervisor for off-site supervision, establishing whether all the positions in the organisational structure are filled, assessing whether the reported assets are of the desired quality, etc. While the process of undertaking the on-site visits varies from one regulatory authority to another, it is a common practice that, before departing, teams going for on-site supervision have to be constituted and substantially prepared, especially with respect to gathering the necessary documents and scrutinising them to obtain clues on the areas that they should concentrate on while conducting the on-site supervision.

Depending on the size of the institution to be visited, its level of automation, its performance status and the variety of skills required in a team, a typical team of examiners can be 3-4 people (Opio *et al.*, 2003). It is often recommended, for example in the BOU, that on-site supervision should be done in teams to safeguard the integrity of supervisors and enhance teamwork. The number of days spent in the field also depends on the size of the institution visited, its level of automation and its status as derived from the off-site analysis.

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[30] Including the level of growth and expansion of the institution, and the extent to which investment is diversified.
[31] Covering new products and their testing in the market, credit policies and procedures, and credit administration.
[32] With an emphasis on internal audit, branch network and internal controls, reconciliation, cash management, and management information systems (MIS).

The requirements of the bank supervisors during on-site visits vary from country to country. Generally, however, they require facilitation in form of vehicles, per diems, contingency allowances, and in some instances personal, vehicles and equipment insurance. These often amount to a relatively significant cost to the regulator.

3.   Economic cost of management take-over and liquidation of the MFIs

Regulation is basically a three-phased activity: (1) the licensing phase, which may be equated to the entry phase; (2) the ongoing phase; and (3) the exit phase. Often the focus is on the first two phases discussed above. In practice there is no economy or sector where licensed organisations do not collapse. One main reason why a financial institution (and indeed any other organisation) may collapse is if it is insolvent (Ochieng, 1998:2; Saltzman and Salinger, 1998).

The MDI Act, 2003 provides that, where the Central Bank considers that an institution is in an unsound financial condition and is not operating in accordance with sound administrative and accounting practices and procedures, the Central Bank may take it over and eventually close it down. This may be described as the exit phase and the regulator incurs costs in the process. The magnitude of the cost, however, depends on the provisions of the legislation. In the case of Uganda the cost of management take-over is fully met by the regulated financial institution. However, the Central Bank may incur costs in terms of expenses on staff and security required to close down a financial institution.

From the above analysis it can be concluded that the main cost of regulating MFIs for the regulator comes from supervision. CGAP (2000:6) argues that, while the costs of the supervisory agency itself tends to be relatively low in the case of banks, supervision of MFIs is likely to be more expensive, because of their relatively small asset base, large numbers of low value accounts, high degree of decentralisation and the labour-intensive nature of the operations. Moreover, for banks the supervisory costs may be transferred to the clients in the form of additional costs. This may not be the case for MFIs.

In cases where the regulators are not familiar with microfinance operations, to begin to do so means that the regulators will have to undergo training to know how the MFIs operate

and then design an appropriate regulatory and supervisory framework for implementation. This process may require recruitment of additional staff, additional training and facilitation with more physical equipment. Besides, the regulators may require improved information management systems and other necessary internal controls. All of these have financial implications and could incur substantial direct costs for the regulators.

In Bolivia, for example, the regulators of the MFIs incurred high start-up costs in establishing an adequate management information system with an internal private network allowing for real-time reporting from each MFI (Theodore and Loubiere, 2002:261). Another area of expenditure for the Bolivian regulators was training staff. However, the ongoing costs are reported to be lower, although data were not available to determine the level of specific costs, because of the integrated nature of operations. This implies that the regulators need to be cognisant of additional regulatory costs to be able evaluate the benefits against the costs of regulation.

6.3.3.2 Economic costs of regulating MFIs for the MFIs

Empirical literature on the direct costs of regulation for the regulated MFIs is very scanty. This is probably because quantification and attribution of the costs incurred in the process of financial regulation has proved to be difficult in practice. Nevertheless, there have been estimates of the costs generally referred to as compliance costs (i.e. the extra costs incurred by the regulated institutions in the process of complying with the regulations) as well as costs incurred in the process of preparing to be regulated (Microfinance Network, 1997). In a liberalised financial sector, these costs are incurred in the form of payment for a licence, installing and maintaining a management information system (MIS), communication systems, stationery, personnel, training, installation and maintenance of the physical infrastructure, report transmission and publications costs.

Ledgerwood and White (2006:459) report that Uganda Microfinance Limited took three years to prepare to become an MDI, during which period there were intensive preparations, planning and negotiations. Activities performed included restructuring operations, formalising policies and procedures, hiring new staff and investing in training, upgrading systems, redesigning products and negotiating with potential investors.

There are also direct costs such as the cost of financing a deposit insurance fund and other contributions stipulated in the regulations. These costs, however, do not include those incurred in the process of securing a licence (see sub-section 6.3.3.1(1)), which could be substantial – so much so that many potential MFIs actually fail to meet them. Based largely on the experience of Uganda, Ledgerwood and White (2006:xxxiii) report that transforming to a regulated financial institution entails a considerable amount of financial and human resources as well as significant commitment from the board and management. However, the authors hasten to add that these costs can be recovered as a result of a steady flow of lower-cost funding and higher economies of scale exploited after obtaining a licence. The latter assertion remains an issue to be empirically tested/verified.

According to the Microfinance Network (1995:32), estimates of the costs of complying with financial regulations such as disclosure and reporting range from 30 per cent of the total profits of the MFIs in the United States to 20 per cent of the total operating costs of the MFIs in Colombia. In Bolivia CGAP (2000:6) reports that complying with the bank superintendency's reporting requirements alone costs an amount equal to 5 per cent of the bank's portfolio in the bank's first year of operation, but this declined over the years to 1 per cent. In Uganda, only to get a licence an MDI is required to pay a minimum of US$600 annually. Banks that provide microfinance pay more than US$600 annually for a licence (Bank of Uganda, 2004).

Non-quantifiable costs of regulation to the regulated financial institutions are mainly associated with the time consumed in the process of preparing reports for the regulators, responding to regulators' queries whenever they arise, preparing for on-site visits and time spent in meetings with the regulators, and on the possibility of innovation being stifled (CGAP, 2000). For example, the MFI may be compelled to abandon its original corporate culture such as flexible operating procedures, informal communication patterns and close-knit personal relations in favour of formal, standardised methods of work (Ledgerwood and White, 2006:460). Although it is difficult to attach a monetary value on the time consumed in complying with the regulatory requirements in terms of opportunity costs and the shift to standardized methods of operations, it is perceived to be quite substantial.

6.3.3.3 Economic costs of regulating MFIs for the microfinance industry, their clients and the economy

The costs of regulating microfinance institutions for the microfinance industry, their clients and the economy as a whole is difficult to determine with any precision as they tend to arise from moral hazard and institutional failure. For example, MFI management may believe that, if the amount of money lent to a certain type of borrower is less than the prescribed regulatory limit, then the amount lent is safe. Regulation thus may induce the regulated institutions to take more risks as long as they avoid violating the prescribed regulatory benchmarks, leading to a possible reduction in the level of prudence, which in turn may increase the danger intended to be avoided. In the case of an MFI collapse, it may be a cost for the microfinance industry and the economy in terms of loss of confidence in the financial sector. This may be detrimental for savings mobilisation and investment, and therefore economic growth.

Moral hazard could also be a real problem from the depositors' perspective. In the absence of regulation, depositors would have to evaluate the safety of the financial institutions in which to deposit their funds, but because of regulation the depositors assume that the regulated institutions are safe. Where a depositors protection fund exits, the depositors may assume that their funds will be refunded in case of the collapse of the financial institutions in which they have deposited their funds. While this is a benefit arising from regulation leading to the confidence people have in the financial institutions, if the depositors put funds in excess of what can be legally compensated, this may make it easier for badly managed financial institutions to access funds that they could put at risk. According to Jordaan (1997), Di Cagno (1990) shows that banks are likely to react to regulations by increasing the level of risk of their loan portfolios in order to compensate for the costs of regulation by investing in high-yielding but more risky ventures.

Another set of costs of regulating MFIs for the industry, their clients and the economy arises from the agents performing fewer transactions than they would normally do in the absence of regulation and restricted competition (AMFIU, 2005:53). As already argued, complying with regulatory standards requires additional inputs in terms of time and other resources. These additional requirements do not only impose restrictions on entry into the

industry, but they also imply that the existing institutions have to increase their resource outlay to maintain or increase their volume of operations. As a result there is bound to be reduced amount of activity at the MFI level and reduced competition at the industry level if the MFI cannot increase its resource base. This could be translated into an overall reduction in the level of expansion and efficiency in the economy.

6.4   Instruments for financial regulation and the possible effects on sustainability and outreach of microfinance institutions

6.4.3   Instruments for financial regulation in Uganda

Section 6.2 spells out the forms of financial regulation that this study focuses on. These are usually externally imposed by the state through the enactment of laws and regulations that are hereafter called instruments. The Parliament of Uganda enacts the financial sector laws and the responsible ministers issue supplements on statutory instruments detailing the regulations. In 2003 Parliament enacted the MDI Act, 2003 and the Minister in charge of the financial sector issued a Statutory Instruments Supplement No. 34, 2004, called Implementing Regulations.

In general the instruments that provide for licensing financial institutions in Uganda include the BOU Statute of 1993, the Financial Institutions Act (FIA) of 2004, the MDI Act of 2003, the Uganda Development Bank Act of 1972, the NGO Statute of 1989, the Co-operatives Act of 1991, Chapter 85 of the Companies Act of 1964, and the Moneylenders Act of 1952. Commercial banks and credit institutions are licensed under the FIA, 2004 and the MDIs are licensed under the MDI Act, 2003, all of which are supervised by the BOU (BOU, 1999). Other MFIs, categorised as Tier 4 MFIs, are not licensed under these laws and are not supervised by the BOU (BOU, 1999). They are licensed under other instruments listed above (see Staschen and Akampurira, 2003:2). MFIs licensed under the MDI Act, 2003 are called MDIs.

6.4.2 Possible effects of financial regulation of MFIs on their sustainability and outreach

Section 6.3 discussed the economic benefits and costs of financial regulation in general terms. This sub-section, with an emphasis on Uganda's financial regulation of MFIs, outlines key provisions and investigates their theoretical effects on sustainability and outreach. The sub-section also provides a framework for the analysis of empirical findings on the effects of financial regulation of MFIs on their sustainability and outreach. For ease of presentation and analysis, the modified CAMEL framework has been adopted, with some adjustments to accommodate other important provisions that cannot be analysed under it. CAMEL is an acronym for five measurements of the performance of a financial institution: **C**apital adequacy (C), **A**sset quality (A), **M**anagement (M), **E**arnings (E) and **L**iquidity management (L). This framework was originally designed to enable North American bank regulators to evaluate the financial and managerial soundness of United States of America commercial lending institutions using key ratios, indicators, and institutional policies and procedures (Saltzman and Salinger, 1998).

CAMEL subsequently became a framework for regulating commercial banks in many countries around the world and, in some countries such as Ghana and Uganda, sensitivity/market risk analysis denoted by S has been added to the CAMEL framework and it is now abbreviated as CAMELS in these countries. Similar principles to those underlying the CAMELS framework have been adopted for regulating MDIs in Uganda.

6.4.2.1 Capital adequacy (CA)

A.   Capital adequacy requirements

Capital adequacy requirements operate at two levels: 1) minimum capital requirement (MCR); and 2) capital adequacy ratios (CARs).

MCR, the amount of money that an applicant must have in a specified form, is one of the preconditions for getting a licence to establish a financial institution. The Basle Core Principles for Effective Banking Supervision do not prescribe a particular amount, but

recommend that banking supervisors must set prudent and appropriate MCRs for all banks and by implication for all similar financial institutions.

In Uganda banks, credit institutions and MDIs are required to have MCR of Uganda shillings (UGX) four billion, one billion and 0.5 billion respectively (GOU, 2004, 2003)[33]. This MCR should be in the form of: a) notes and coins which are legal tender in Uganda; b) balances with the Central Bank; c) balances with banks and other financial institutions licensed to accept deposits in Uganda; d) money at call in Uganda; e) treasury bills issued by the government and maturing within three months, excluding days of grace; and f) such other assets as the Central Bank may from time to time approve.

Once an MFI has obtained a licence, it has to adhere to a certain CAR, the level of capital that must be available in the institution to cover unexpected risk. The CAR determines the maximum level of debt versus equity that a financial institution can have (Ledgerwood, 1999:23). It is calculated in the form of ratios of core capital (CK) or total capital (TK) to total risk-weighted assets (TRWA).

The Statutory Instruments Supplement No. 34 of 2004 for MDIs defines CK and TK as:

$$CK = FEK + SP + RE + NPL - UIFC - ACLO \text{---6.1}$$

$$TK = CK + SK \text{--6.2}$$

where FEK is the shareholders' equity in the form of issued and fully paid-up share capital, SP is share premium, RE is retained earnings, NPL standards for net after-tax, current year-to-date profit, UIFC is any unconsolidated investment in financial companies, ACLO is accumulated losses, and SK is secondary or supplementary capital (Bank of Uganda, 2004).

The current international capital adequacy standards outlined in the Basle Accord provide a maximum leverage ratio of core capital (CK) to TRWA for banks of 8 per cent. In Uganda there are two CARs; one derived by dividing the CK (primary capital) by total TRWA, and the other derived by dividing TK (primary plus secondary capital) by total TRWA. For an

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[33] In 2003, the exchange rate between US$ and Uganda Shilling (Ushs) was US$1 to Ushs1,964

MDI the CK/TRWA is 15 per cent and TK/TRWA is 20 per cent. This was apparently arrived at on the basis of the consensus in the literature that CARs for the MFIs should be higher than for the traditional banking sector, because MFIs have a significantly higher level of operating costs in relation to the outstanding loan portfolio (Micro-Finance Network, 1997; Saltzman and Salinger, 1998).

B. Effects of Capital adequacy requirements on sustainability and outreach of MFIs

The effects of capital adequacy requirements on sustainability and outreach of MFIs can be assessed at the level of MCR and CARs.

1) At the level of MCR

Holding other requirements constant, an MFI is required to mobilise the MCR before being issued with a licence. With more equity and the mandate to leverage deposits and other sources of funds, a licensed MFI may boast a substantial capital base. Besides, and as argued in section 6.3, a licensed MFI can also provide savings and other financial products to the poor, thereby encouraging savings mobilisation, capital formation and investment. With a larger capital base and an expanded product range, the outreach of the MFI can substantially increase.

However, the increase in outreach resulting from granting loans depends on other factors that include the primary goal of the MFI and other regulatory requirements such as the level of CARs, the lending conditions, earnings and information disclosure requirements. Some of these factors, as further discussed below under asset quality, impose direct and indirect constraints on the volume and quality of loans that regulated MFIs can extend, and can actually lead to a reduction instead of an increase in the level of outreach.

Imposing MCR is also important in a number of ways: 1) it provides protection against risks, allows for absorption of losses from the institution's own capital, and therefore gives confidence to investors, lenders, clients and regulators, and ensures financial sector stability/sustainability (Christen, 1997; Ochieng, 1998; Saltzman and Salinger, 1998); and

2) it elicits prudence in institutional governance and operations that enhances sustainability and protection of deposits.

Regulation of MFIs also aims at making them less donor dependent. Thus MCR, in this case, is an attempt to make the MFIs self-reliant, which is critical because donations are by their very nature unpredictable. For predictable development and sustainability, MFIs need to rely more on their own funds than donations.

On the other hand, imposition of the MCR could result in very few MFIs being licensed, while those unlicensed have to be restructured or closed down (Government of Uganda, 2003). Although licensing even one MFI is a positive development, if regulation results in several unlicensed MFIs scaling down their operations or closing down, then outreach is likely to be reduced, especially in the short run. Licensing few MFIs may also result in limited competition and efficiency in the microfinance industry, the effects of which could be high costs of intermediation with negative effects on their sustainability and outreach.

2)   At the level of CARs

Regulators are interested in CARs because they are a measure of financial solvency or sustainability. They also limit the proportion of assets that can be financed by debt and ensure that organisations mobilise their own funds for investment rather than borrowing. As a result CARs enhance prudence in management and investment of institutional resources.

On the other hand, CARs constrain lending by attaching risk weights to various assets. For example, the risk level for loans is 100 per cent. This means that an additional unit of a loan granted increases TRWA by 100 units. If CK or TK remains constant or decreases due to an increase in unconsolidated investment in financial companies (see equation 6.1) and/or mounting losses, the regulated MFI must increase its equity to leave CAR unchanged. Thus, CARs constrain the value of loans a regulated MFI can grant unless the level of equity is raised, holding other factors constant. The higher the CARs as in the case of MDIs in Uganda, the more constraining they are. By constraining lending, CARs constrain outreach from the perspective of the number of borrowers that can be served.

High CARs may also impede deposit mobilisation unless the licensed MFIs have alternative less risky investment opportunities such as in government papers with appropriate maturity periods. This arises from the view that savings mobilisation costs money and, if the cost is to be recovered, then the savings must be profitably invested.

6.4.2.2 Asset quality (AQ)

A. Asset quality requirements

AQ refers primarily to the quality of the institution's main asset (loan portfolio). Whether the institution is for profit or not, the criteria for analysis of asset quality are the same.

The analysis of asset quality is normally divided into three areas: (1) portfolio quality, which includes the portfolio at risk and loan loss rate (loan write-off/write-off policy), (2) portfolio classification system (aging of loans into, for example, between 1-30 days, 30-60 days, etc.), and (3) other assets. In category (3) the consideration is the productivity of the fixed assets, the policy of investing in them, and their adequacy in terms of meeting the needs of staff, clients and the standards stipulated in the regulations.

The MDI Act, 2003 requires that: (1) 1% of the total loan portfolio be placed aside to cater for general provisions; (2) 25% of the sub-standard loan portfolio[34] be placed aside to cater for the sub-standard loans; (3) 50% of the doubtful loan portfolio[35] be placed aside to cater for the doubtful loans; and (4) 100% of the loan portfolio considered unrecoverable[36] be placed aside to cater for the loans considered unrecoverable. Similar provisions apply for restructured loans with marginal modifications.

Besides providing for bad loans or arrears, the regulations require deposit-taking institutions to adequately secure loans by taking adequate collateral, and to register such collateral with legal authorities in order to have legal mandate over them. The MDI Act, 2003 recognises compulsory savings/or loan insurance as collateral and group-lending as an important mechanism in providing financial services to low-income earners.

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[34] A loan portfolio is sub-standard if the principal or interest is due and unpaid for 31-60 days,
[35] A loan portfolio is doubtful if the principal or interest is due and unpaid for 61-90 days.
[36] A loan portfolio is considered unrecoverable if the principal or interest is due and unpaid for over 90 days.

With regard to credit extension, two major limits are imposed: (1) the MDI must not lend more than 1% of its core capital to an individual borrower; and (2) the MDI must not lend more than 5% of its core capital to a group of borrowers. The MDI Act, 2003 also requires that the MDI must not pay a dividend or any other income to its shareholders, unless it has made adequate provisions against loan losses, and has taken adequate steps to ensure compliance with capital adequacy conditions.

B.   Effects of asset quality requirements on sustainability and outreach of MFIs

Requirements under asset quality may affect the sustainability and outreach of MFIs in a number of ways. First, the regulatory requirements tend to restrain the regulated financial institutions from reckless lending and other adverse investment practices. Thus, depending on the strictness of the requirements, particularly the outreach of MFIs could be adversely affected. On the other hand, the stricter the regulatory requirements under asset quality, the better could be the quality of the assets, and therefore the better the microfinance institution in terms of high standards of good practice and sustainability. Note that the level of loan repayment is an important indicator of the health of a lending institution. The higher the repayment rate, the better the institutional performance.

The consensus in the literature appears to be that asset quality requirements should be more stringent for the MFIs than for traditional commercial banks because of the nature of the activities financed (Micro-Finance Network, 1997). In this respect, therefore, outreach of MFIs is likely to be significantly reduced. This situation could be worse, if the operational procedure for supervising the MFIs' loan portfolio also takes the same trend as that for banks whereby a sample of loans is taken for a thorough examination rather than performing a snap-shot analysis of each loan. Examining a sample of loans could result in a substantial portion of the MFI portfolio being found highly risky and categorised as unrecoverable. This would attract higher provisions that would adversely affect profitability of the MFIs and subsequently their outreach. In addition, strict collateral requirement means that borrowers without the required collateral cannot access credit, which may reduce outreach. The MDI Act, 2003 recognises compulsory savings/or loan insurance as

collateral and group lending as an important mechanism in providing financial services to low-income earners , and this is important for enhancing outreach.

Loan aging and provisioning directly affect the profitability of the regulated institutions. For example, if the MFI has many delinquent loans, some of which might be several months old, the MFI is required to provide for the sub-standard, the doubtful or the unrecoverable loans. These provisions are required to be reflected in the profit and loss statement as expenses, which lead to a reduction in the profitability of the MFI. While this may call for prudent lending to avoid having delinquent loans, it may affect the image of the MFI and even scare away clients, who may perceive the MFI as a bad institution.

Credit limits are designed primarily to help the MDIs diversify credit risks and reach many clients. However, limiting credit to 1% of core capital has a potentially negative effect of crowding out borrowers who may want more than 1% of the core capital, unless the MFI can raise its capital base. Moreover, it would be beneficial to the financial institution to diversify its portfolio between small and relatively large loans, given the negative correlation between loan size and administrative costs (Hulme and Mosley, 1996).

Tied to asset quality are human resource issues. To maintain high asset quality and ensure prudent investment, microfinance institutions require competent risk managers. These are in short supply in the microfinance industry, given that it is a relatively new industry and those available tend to price their services highly. Thus, the requirement of high asset quality and prudent investment of resources may lead to a reduced sustainability and outreach. The MFIs are also required to provide and maintain adequate physical infrastructure and security. This requirement could lead to some potential MFIs failing to be licensed. The effects of this have already been discussed.

Finally, there is the issue of paying dividends. It is a prudent practice to tie payment of dividends to adequate loan provisions and compliance with the regulations, but this could be a disincentive to purely commercially oriented investors in MFIs (Otero and Chu, 2002).

6.4.2.3 Management (M)

A.   Management Requirements

The analysis of management in the CAMELS framework covers five broad areas: governance; human resources; processes, controls and audit; information technology system; and strategic planning and budgeting (Saltzman and Salinger, 1998). These five areas can be captured under ownership and governance. Chapter Four provides an exposition of the concept of governance. Ownership is defined as ownership of equity or shares in an organisation. For purposes of the MDI Act, 2003, corporate governance covers the overall environment in which the MDI operates and consists of checks and balances which promote the healthy balancing of risk and return (Government of Uganda, 2003:27).

In order to promote an effective ownership and governance for licensed MFIs, the MDI Act, 2003 contains the following regulatory provisions:

- The operations of every institution shall be directed by a board consisting of at least five directors and no person shall become a director without the approval of the Central Bank.

- The board of directors of an institution shall be responsible for:

  o The institution's good corporate governance and business performance;
  o The institution's affairs and business operations;
  o Ensuring that the institution's business is conducted in a safe and sound manner;
  o Ensuring and reporting to shareholders at the annual general meeting that the institution's internal controls and systems, and management information systems:

    ▪ provide reasonable assurance as to the integrity and reliability of the financial statements;

- adequately verify, safeguard and maintain accountability of the assets;
- are based on established and written down policies and procedures and implemented by trained and skilled officers with an appropriate segregation of duties; and
- are continuously monitored, reviewed and updated to ensure that no material break-down occurs in the functioning of such controls, procedures and systems.

- The board is responsible for ensuring that a report made and submitted to the institution by its external auditor is forwarded to the Central Bank within four months after the end of its financial year.

- An institution shall preserve the corporate accounting and other financial records as defined in the Act for a period of at least ten years.

- The MFIs must appoint technically qualified and experienced officials to perform functions and duties prescribed by the regulations.

B. Effects of management requirements on outreach and sustainability of MFIs

As noted in Chapter Four, the current literature has underscored the importance of corporate governance in institutional building and performance. This explains why several provisions in the MDI Act, 2003 and FIA, 2004 are on governance. While in modern institutions governance must not only exist but be effective, the requirements to set up an effective governance structure can be expensive and a deterrent to actually establishing the expected institution. To become an MDI in Uganda, for example, the applicant must ensure that all the above governance provisions are fulfilled. It can be difficult and costly, especially for the MFIs that are located far away from the capital city, to find the people with the required qualifications and experience to be board members of an MDI. As a result only a handful of MFIs located in the capital city or nearby places can be licensed and the effects of this have been discussed under capital adequacy.

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Staffing is also another issue of governance. In BancoSol in Bolivia, several new staff with banking experience, particularly in the areas of operations and accounting, and cashiers had to be hired. This led to an increase in personnel expenses. Caja Los Andes, also in Bolivia, had a similar experience when personnel expenses increased substantially because of additional staff recruited to undertake evaluation of credit risk (Theodore and Loubiere, 2002:255). Given the requirement that the MFIs must appoint technically qualified and experienced officials to perform functions and duties prescribed by the regulations, the required official might not only be expensive to employ, but also not easy to find in the new microfinance industry in Uganda.

On the positive side corporate governance requirements are likely to result in the strengthening of internal controls in the licensed MFIs. Theodore and Loubiere (2002:254) report that BancoSol in Bolivia had virtually no internal controls before transformation into a regulated MFI; the internal audit function had many other operational requirements. Ledgerwood and White (2006: 459) report that when Uganda Microfinance Union (UMU) was preparing for transformation to become an MDI, it embarked on restructuring operations, formalising policies and procedures, hiring new staff and investing in training, upgrading systems and redesigning products. While these requirements impose costs to the institutions being regulated or transforming to become regulated, they are important for effective and efficient institutional structures for better performance and sustainability.

6.4.2.4 Earnings (E)

A.   Earnings requirements

In this study earnings are defined as the net income of a company during a specific period. In the commercial banking sector earnings are assessed using both quantitative and qualitative measures such as return on equity, return on assets, operational efficiency measures, and lending rate(s) of interest. The same framework is applied for MDIs. For example, the earnings performance of the MDIs in Uganda in 2005 was assessed using ROA and ROE (BOU, 2005:21). Besides, the MDI Act, 2003 and the Implementing Regulations of 2004 require the MDIs to make a profit.

B.   Effects of earnings requirements on sustainability and outreach of MFIs

While it is straightforward to assess the relationship between earnings and outreach, it is not so between earnings and sustainability. However, following the discussions presented in Chapter Three, sub-section 3.2.2, earnings can be related to a measure of sustainability. In this respect equation 4.4 of Chapter Four reproduced below with some modification can be used to assess the effects of the earnings requirements on sustainability and outreach.

$$FSS = [[((NSB+NRB*ANT)*AvLz*i)][1-\gamma]+Z]/[FINCO+OPCO+LLP+INDCO+ICS]---6.3$$

where, except for INDCO and ICS, the rest of the variables are as defined in equation 4.4. INDCO is in-kind expenses that would be incurred for technical assistance received but not paid for by the MFI, and ICS is the cost of maintaining the value of equity relative to inflation and the surplus revenue resulting from subsidised loans.

In Chapter Four (section 4.2) the various ways in which the variables on the right hand side of equation 6.3, except INDCO and ICS, affect FSS are examined. The effects of INDCO and ICS on sustainability and outreach of MFIs are similar to those of FINCO, OPCO, LLP and γ. Notwithstanding the effects of these variables on FSS and outreach, given that the MDI Act, 2003 and other banking laws require the regulated MFIs to make a profit, the effects of earnings requirements on both sustainability and outreach are positive. On the other hand, failure to comply with earnings requirements would lead to the MFI being closed down, which implies that the effects of earnings requirements on sustainability and outreach could also be negative. However, it is generally the case that the earnings requirements affect sustainability and outreach positively.

6.4.2.8 Liquidity management (LM)

A.   Liquidity management requirements

Saltzman and Salinger (1998:59) note that "Liquidity is traditionally defined as the ability to meet obligations as they become due. It is the institution's ability to accommodate decreases in funding sources and increases in assets, and to pay expenses at a *reasonable*

cost." For licensed MFIs the major sources of demand for liquidity are usually applications for loans, withdrawals by customers, payments of salaries and wages, and purchase of fixed assets. Liquidity management evaluates the ability of an institution to cope with inflows and outflows of funds without causing any panic, particularly among depositors. It is assessed by the movements and composition of asset and liability structures and the cash flow projections. The MDI Act, 2003 requires MDIs to hold 15 per cent or more of total deposit liabilities in liquid assets.

B. Effects of liquidity management requirements on sustainability and outreach of MFIs

Literature on the empirical effects of liquidity management requirements on sustainability and outreach of MFIs is scanty. However, given that the liquidity held in the licensed MFI may attract zero returns while attracting a positive cost resulting from deposit mobilisation, custody and payment of interest, a liquidity management requirement will negatively affect profitability and thus sustainability. On the other hand, given that low-income clients tend to engage in short-term transactions, it is important that the MFIs maintain a high level of liquidity to meet the possible demand, especially from borrowers and depositors, which should positively affect outreach.

6.4.2.9 Supervision and compliance

A. Supervision and compliance requirements

According to the MDI Act, 2003, the Central Bank is responsible, among other functions, for continuously supervising the licensed MFIs and their affiliates and associates to ensure compliance with the provisions of the Act. To fulfil this function the Central Bank uses all or any of the following methods:

a) Analysis of documents and information supplied by the licensed MFIs as stipulated in the Act and the relevant regulations (off-site supervision). The documents include:

1. Weekly returns on Liquidity;

2. Monthly Portfolio Quality Returns;

3. Monthly Statement of Assets and Liabilities;

4. Monthly Computation of Capital Adequacy;

5. Monthly Statement of Income and Expense;

6. Monthly Schedule of Provisions for Bad Debts;

7. Monthly Statement of Loans extended to Insiders;

8. Monthly Reports on Lending Limits; and

9. Reports on Ownership of Shares.

b) Inspection and analysis of corporate accounting, financial and non-financial records of the MDI at its premises (on-site supervision) must be conducted at least once a year.

c) Any other lawful means that the Central Bank considers appropriate.

In addition, the MDI Act, 2003 requires licensed MFIs to:

- Within four months after the end of every financial year, submit audited accounts approved at its annual general meeting together with the auditor's report and management letter;

- Prepare and maintain adequate books of account vouchers, securities, records, computer systems, and relevant other financial and non-financial records;

- Within four months after the end of its financial year, publish in a newspaper circulating in the whole of Uganda a copy of its audited accounts together with the auditor's report;

- Promptly report to the Credit Reference Bureau established by the Central Bank all the information as prescribed in the Act;

- Have adequate physical infrastructure in the form of buildings, security, counters, a strong room with a safe, and safety provisions such as fire extinguishers;

- Appoint, with the approval of the Central Bank, an internal auditor and a firm of accountants to be the external auditors of the institution; and

- Pay an annual license fee of UGX one million, the amount paid by a credit institution.

Failure to comply with the regulatory requirements attracts penalties or may result in a management take-over, which might lead to liquidation.

B. Effects of supervision and compliance requirements on sustainability and outreach of MFIs

Supervision of MFIs has two broad but conflicting effects on their sustainability and outreach. On the one hand, supervisory requirements increase the operational costs of the MFIs, because they have to compile several reports and submit to the supervisor, install efficient and effective information management systems, employ competent personnel such as internal auditors and risk managers, publish financial statements in the media, and where they fail to comply with the regulations, they are fined. In addition, the MFIs must hire external auditors, keep records and produce financial reports based on international accounting standards, purchase a licence and put in place the required physical infrastructure. The sum of all these can be a huge cost to the MFI. With poor communication networks and power/electricity in the rural areas of developing countries such as Uganda, MFIs that operate in the rural areas can find supervision very costly. Furthermore, while disclosure requirements increase transparency, there is the potential danger that if the information provided is misinterpreted as indicators of poor institutional performance, it might send a negative signal to both the existing and potential clients, and cause them to withdraw, leading to both reduced sustainability and outreach.

On the other hand, effective supervision leads to improved quality of the operations of the supervised MFIs and thus of the industry. The effects of this on the sustainability and outreach of MFIs could be significantly positive.

Often, though, depending on the country context, the effects of regulation may extend beyond the regulated institutions as discussed in section 6.3. Documentation, for example, presents a significant challenge for MFIs, whose clients tend to be mostly illiterate. Theodore and Loubiere (2002:259) report that paper trails may sometimes not exist for illiterate applicants and the loan officers have to collect information directly from the borrowers and construct documentation such as cash flow statements to analyse the creditworthiness of borrowers. But this may not be acceptable to regulators, who may

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regard such internally generated documentation as insufficient. This could have a negative effect on the outreach of licensed MFIs.

Turning to management take-over and closing down of an insolvent MFI, the literature has argued that putting MFIs on receivership and liquidation may potentially lead to more widespread negative implications than would be the case with traditional banks (Micro-Finance Network, 1997). This is because the MFIs deal with low-income earners who have not been accessing financial services from formal financial institutions for a long time. Having just been introduced to banking, if the institutions they have been dealing with get taken over and/or subsequently liquidated, they will naturally withdraw, and it can take quite a while for such people to be attracted back into the formal financial system. It is also argued that, because of the large number of the clients involved and the high marginal value that low-income earners attach to their savings, a collapse of an MFI may have a substantial effect on the motivation to save and, therefore, reduce outreach.

6.4.2.10   Deposit protection fund (DPF)

A.   Deposit protection fund requirements

Deposit protection funds are one of the measures some countries such as Uganda, the Philippines and the United States of America have put in place to operationalise protective regulations. This fund is set up to offer protection mainly to small depositors or the intermediaries taking the deposits. In Uganda an MDI must contribute at least 0.2% of the average deposit liabilities in its previous financial year to the DPF (Government of Uganda, 2003). In addition, an MDI is required to pay into the DPF all contributions and other payments stipulated in the governing laws and regulations. An MDI whose overall performance shows an unsatisfactory or marginal rating shall be required to contribute to the DPF on a quarterly basis.

B.   Effects of DPF on sustainability and outreach of MFIs

The implications of DPF on outreach and sustainability of MFIs can be viewed from three perspectives: (1) moral hazard; (2) actual protection of small depositors; and (3) the actual contribution to the DPF by the MDIs. The moral hazard perspective has already been discussed under sub-section 6.3.3.3. If the protection of small depositors enhances confidence and trust in the licensed MFIs, then it is likely to lead to increased sustainability and outreach through increased levels of deposits and increased number of clients respectively. With respect to the contribution to DPF, while it may be a relatively insignificant amount for larger MFIs, it may be significant for the smaller ones and, therefore, affect their sustainability and outreach.

6.4.2.8   Other licensing conditions and their effects on sustainability and outreach of MFIs

A.   Other licensing conditions

Additional requirements stipulated in the MDI Act, 2003 that also require scrutiny to assess their effects on sustainability and outreach are outlined below.

1.   No person or a group of related persons shall hold more than 30% of the shares of an institution from the time of the coming into force of this Act, unless such an institution already existed, in which case other rules apply.

2.   An institution must be licensed either as a bank, credit institution or an MDI to carry on microfinance business (Government of Uganda, 2003:11).

3.   An application to carry on a microfinance business must be accompanied by documents certifying that the institution interested in carrying on the stated business is a legal company. The applicant is also required to provide the information as set out in subsection 6.3.3.1 (1). Furthermore, before an institution is granted a licence to operate as an MDI, it must be a company limited by shares, and these have to fulfil additional conditions. In Uganda companies are registered under the Company Act, 1964, which has its own requirements.

B. Effects of other licensing conditions on sustainability and outreach of MFIs

Ownership requirements impose restrictions especially on NGOs that have been providing microfinance and may want to transform into MDIs. Unless they get new investors that agree with their mission and vision, the transformation of the existing MFIs into MDIs can be a daunting process. Empirical findings in Latin America indicate that one of the challenges NGO-MFIs face is to assemble a group of founders-co-owners that meets the requirements of the banking authorities (Theodore with Loubiere, 2002). Where the NGO-MFIs and other potential MFIs fail to meet the licensing requirements, only a few MFIs may be licensed and this could lead to a reduction in outreach.

The transformation process of MFIs is also likely to be more complicated by the fact that the institutions must exist as shareholding companies before being licensed. CGAP (2004:3) argues that NGOs, while essential for conducting research and developing new models, face serious challenges in terms of governance and legal limits on their operations. Most have not reached a massive scale or independence from their donors. Similarly, regulators generally believe that unless the shareholders of a financial institution have placed their capital at risk and the directors take fiduciary responsibility in the MFI, there will be less incentive from the owners and directors to ensure that the MFI remains in good health. The majority of the potential MDIs in Uganda are likely to be affected by this provision and, consequently, very few might actually meet the required conditions for obtaining a licence. The survey results presented in Chapter Eight show that since the enactment of the MDI Act, 2003, four MFIs have been licensed as MDIs.

In general, while the ownership requirements are necessary, they are likely to lead to fewer MFIs being licensed and this is likely to lead to reduced outreach, although there is the possibility of those being licensed improving their level of sustainability. There is also likely to be positive industry effects on the unlicensed MFIs arising from the desire to improve on their operations to obtain a licence.

Experience has shown that registering a private limited company with share capital in Uganda is not a problem. The problem could be the persons or institutions to register a

shareholding company, but not the registration itself. Therefore, the effects of this requirement on sustainability and outreach of MFIs is minimal.

6.5   Conclusion

This chapter has defined financial regulation as rules that govern commercial behaviour in the financial system as well as a body of principles, rules, standards and compliance procedures that apply to financial institutions.

The chapter presents and discusses the framework for evaluating the effects of financial regulation of MFIs on their sustainability and outreach. While the effects of financial regulation on sustainability and outreach of MFIs are diverse, the overall hypothesis is that the potential and actual effect of financial regulation of MFIs on their sustainability and negative is positive. For example, as a result of regulation a few MFIs may be licensed to conduct microfinance business, while the rest have to restructure or fold up. In such situations there is likelihood that overall outreach could be reduced. On the other hand, regulation may improve sustainability and corporate governance of both licensed and some unlicensed MFIs because of the prudent and more streamlined operations required by regulations. On-going requirements such as CARs, asset quality, management, earnings, liquidity and supervision tend to lead to improved operations of the licensed MFIs, although they are also likely to reduce their outreach, which could be translated into lower sustainability in the long term.

Therefore, a decision to regulate or not, when and how should be preceded by an exhaustive identification and quantification of benefits and costs of regulation as approached in this chapter. Where the costs are greater than the benefits, regulation is uncalled for.

CHAPTER SEVEN: **RESEARCH METHODOLOGY**

7.1.   Introduction

Chapter One outlined the specific objectives of this study. To realise these objectives certain specific methods were used. It is important that these methods are documented for two main reasons: i) to provide a basis for evaluating the extent to which the study in question is scientific; and ii) for comparative analysis. Conventionally, methods employed in a study of this kind are covered under methodology (see Paul *et al.*, 2005 for the definition of methodology). This study has presented and discussed some of the methods employed in Chapters Three, Four, Five and Six.

In Chapter Three the concept of sustainability and outreach and their measures were presented and discussed. These are the dependent variables in the sustainability and outreach models respectively. Chapters Four and Five identify and discuss the explanatory variables and their measures with regard to sustainability and outreach models as well as the hypotheses tested. To complete the specification of the analytical framework, Chapter Six discusses financial regulation and examines the effects of financial regulation of MFIs on their sustainability and outreach.

The remaining components of the research methodology are presented and discussed in this chapter except variable selection presented and discussed in Chapter Eight. They include the specification of the sustainability and outreach models, data description and generation process, and model selection and estimation. The descriptive statistics and the empirical results are presented and analysed in Chapter Eight.

The chapter is organised in five sections. Section 7.2 presents the specification of the econometric equations of sustainability and outreach. Section 7.3 presents the method employed in estimating sustainability and outreach models. Section 7.4 covers the selection of MFIs studied. The data, data capture and method of analysis are discussed in section 7.5.

7.2   Specification of econometric equations of sustainability and outreach models

7.2.1   Introduction

The theoretical and empirical literature offers limited guidelines on the specific functional relationship between OSS and its determinants and OUTR and its determinants. However, as argued and demonstrated in Chapter Five, an MFI can be viewed as a firm whose output is OSS and the determinants are the inputs into the business (Hulme and Mosley, 1996; Thompson Jr. and Formby, 1993; Henderson and Quandt, 1984). This perspective allows us to use the profit function to relate OSS and its determinants and the production function to relate OUTR and its determinants.

Based on the theory of the firm and empirical applications, production functions are depicted as non-linear and usually transformed into log-linear functions for easy estimation using most of the available estimation methods such as Ordinary Least Squares, and the widely used production function is the Cobb-Douglas with some modifications (Fraser, 2002:39).

Recent applications of the Cobb-Douglas production function have included more variables on the right hand side, such as raw materials, fuel, land, unskilled labour, skilled labour, plant and machinery, real money balances, etc, besides labour and capital (Intrilligator *et al.*, 1996:285; Khan and Ahmad, 1985:336). In addition, the restrictive assumption of constant returns to scale has also been relaxed to allow either decreasing or increasing returns to scale. These developments allow for incorporating more variables into the production function instead of only two traditional factors of production.

7.2.2   Econometric specification of the sustainability model

The measure of sustainability as discussed in Chapter Three is Operational Self-Sufficiency (OSS). The determinants of OSS identified in Chapters Four and Five and the hypotheses are:

i) Debt-Equity Ratio (**DER**). It is hypothesised that OSS and DER are positively related;

ii) Ratio of gross loan portfolio to total assets (**GOLP**). It is hypothesised that OSS and GOLP are negatively related;

iii) Effectiveness of governance (**GINDEX**). It is hypothesised that OSS and GINDEX are positively related;

iv) Providing savings product (**SP**). **SP** = SP1 if the MFI is providing savings product and = SP0 if not. It is hypothesised that **SP1** is positively associated with OSS compared to **SP0;**

v) Average loan size divided by the national per capita income (**AvLz**). It is hypothesised that OSS and AvLz are positively related;

vi) Real effective lending interest rate (**RELRD**). It is hypothesised that OSS and RELRD are positively related;

vii) Unit cost of loans disbursed (**CLD**). It is hypothesised that OSS and CLD are negatively related;

viii) Average salaries/wages and benefits divided by the national per capita income (**WL**). It is hypothesised that OSS and WL are positively related;

ix) The dominant delivery mechanism (**DDM**). DDM = DDMg if the dominant delivery mechanism is group-based and = DDMi if individual-based is dominant. It is hypothesised that **DDMg** is positively associated with OSS compared to **DDMi**;

x) The legal status of an MFI (**LS**). It is hypothesised that being SACCO and MDI is positively associated with OSS compared to being a private company (COMP), while NGO is negatively associated with OSS compared to COMP; and

xi) **AGE**. It is hypothesised that OSS and AGE are positively related.

Given the above, the OSS equation can be generally specified as

OSS = f (DER, GOLP, GINDEX, SP, AvLz, RELRD, CLD, WL, DDM, LS, AGE) - -7.5

where DDM, SP and LS are dummies, as explained in section 7.5.

Following Cobb-Douglas production function, the specific functional form for a sustainability model is

$$\ln OSS_{it} = \ln B + \beta_1 \ln DER_{it} + \beta_2 \ln GOLP_{it} + \beta_3 \ln GINDEX_{it} + \beta_4 SP_{it} + \beta_5 \ln AvLz_{it} + \beta_6 \ln RELRD_{it} +$$
$$\beta_7 \ln CLD_{it} + \beta_8 \ln WL_{it} + \beta_9 DDM_{it} + \beta_{10} LS_{it} + \beta_{11} \ln AGE_{it} + u_{it} \text{ -----------------------7.6}$$

Variables DER, GOLP, GINDEX, SP, AvLz, RELRD, CLD, WL, DDM, LS and AGE are as defined above, B is the intercept, and $u_{it} \sim IID(0, \sigma^2)$. In addition, u_{it} is normally distributed. The elements $\beta_1 \ldots \beta_{11}$ are unknown population parameters/coefficients to be estimated. As to whether equation 7.6 is an FE or an RE model is tested in subsection 7.3.2.

7.2.3 Econometric specification of the outreach model

As discussed in Chapter Three, the measure for outreach (OUTR) used in this study is the number of clients served by an MFI during a defined period. The determinants identified in Chapters Four and Five are:

i)   Debt-Equity Ratio (**DER**). It is hypothesised that OUTR and DER are positively related;

ii) Ratio of gross loan portfolio to total assets (**GOLP**). It is hypothesised that OUTR and GOLP are positively related;

iii) Effectiveness of governance (**GINDEX**). It is hypothesised that OUTR and GINDEX are positively related;

iv) Providing savings product (**SP**). **SP** = SP1 if the MFI is providing savings product and = SP0 if not. It is hypothesised that **SP1** is positively associated with OUTR compared to **SP0**;

v)   Average loan size divided by the national per capita income (**AvLz**). It is hypothesised that OUTR and AvLz are negatively related;

vi) Real effective lending interest rate (**RELRD**). It is hypothesised that OUTR and RELRD are positively related;

vii) Unit cost of the disbursed loan value (**CLD**). It is hypothesised that OUTR and CLD are negatively related;

viii) Average salaries/wages and benefits divided by the national per capita income (**WL**). It is hypothesised that OUTR and WL are positively related;

ix) The dominant delivery mechanism (**DDM**). It is hypothesised that **DDMg** and OUTR are positively related compared to **DDMi**;

x) The legal status of an MFI (**LS**). It is hypothesised that being SACCO, MDI and NGO is positively associated with OUTR compared to being a private company (COMP); and

xi) **AGE**. It is hypothesised that OUTR and AGE are negatively related.

Given the above, the OUTR equation can be generally specified as

OUTR = f (DER, GOLP, GINDEX, SP, AvLz, RELRD, CLD, WL, DDM, LS, AGE) ---7.7

where DDM, SP and LS are dummies, as explained in section 7.5.

Following the Cobb-Douglas production function, the specific functional form for the outreach model is

$$lnOUTR_{it} = lnA + \alpha_1 lnDER_{it} + \alpha_2 lnGOLP_{it} + \alpha_3 GlnGINDEX_{it} + \alpha_4 SP_{it} + \alpha_5 lnAvLz_{it} + \alpha_6 lnRELRD_{it}$$
$$+ \quad \alpha_7 lnCLD_{it} + \alpha_8 lnWL_{it} + \alpha_9 DDM_{it} + \alpha_{10} LS_{it} + \alpha_{11} lnAGE_{it} + u_{it} \text{ --------------------7.8}$$

Variables DER, GOLP, GINDEX, SP, AvLz, RELRD, CLD, WL, DDM, LS and AGE are as defined above, A is the intercept, and is $u_{it} \sim$ IID $(0, \sigma^2)$. In addition, u_{it} is normally distributed. The elements $\alpha_1 \ldots \alpha_{11}$ are unknown population parameters/coefficients to be estimated. As to whether equation 7.8 is an FE or an RE model is tested in subsection 7.3.2.

7.3   Selection and estimation of the sustainability and outreach models

7.3.1   Model selection

To determine whether to fit linear models using data in levels or in a transformed form, equations 7.9, 7.10, 7.11, 7.12, and 7.13 were estimated both for FE and RE models. The results are reported in Tables 7.1 and 7.2.

Following Osborne (2002), before taking the square roots and logarithms, a variable with negative observations was first transformed by adding the next whole number greater than the absolute value of the highest value of the negative observation in order to make its value ≥ 1[37].

i) $y = \alpha_0 + \beta sqrtX$--7.9
ii) $Logy = \alpha_1 + \beta LogX$--7.10
iii) $y = \alpha_1 + \beta LogX$--7.11
iv) $Logy = \alpha_1 + \beta X$--7.12
v) $y = \alpha + \beta_1 X + \beta_2 X^2$--7.13

Table 7.1   The results of the OSS estimations of various transformations

Function	Model	R-sq: within	R-sq: between	R-sq: overall*
$y = \alpha_0 + \beta sqrtX$	FE	0.130	0.008	0.026
	RE	0.120	0.092	0.100
$Logy = \alpha_1 + \beta LogX$	FE	0.233	0.011	0.057
	RE	0.213	0.142	0.169
$y = \alpha_1 + \beta LogX$	FE	0.196	0.183	0.014
	RE	0.182	0.099	0.125
$Logy = \alpha_1 + \beta X$	FE	0.097	0.027	0.035
	RE	0.072	0.177	0.125
$y = \alpha + \beta_1 X + \beta_2 X^2$	FE	0.173	0.006	0.002
	RE	0.140	0.163	0.155

* In all the cases, p-value for Wald chi2 = 0.000 and p-value for F-test for overall model fit = 0.000

Table 7.2   The results of the OUTR estimations of various transformations

Function	Model	R-sq: within	R-sq: between	R-sq: overall
$y = \alpha_0 + \beta sqrtX$	FE	0.383	0.062	0.003
	RE	0.304	0.570	0.528
$Logy = \alpha_1 + \beta LogX$	FE	0.651	0.336	0.094
	RE	0.599	0.283	0.327
$y = \alpha_1 + \beta LogX$	FE	0.333	0.239	0.138
	RE	0.230	0.646	0.571
$Logy = \alpha_1 + \beta X$	FE	0.649	0.067	0.019
	RE	0.580	0.184	0.223
$y = \alpha + \beta_1 X + \beta_2 X^2$	FE	0.444	0.023	0.010
	RE	0.326	0.541	0.507

* In all the cases, p-value for Wald chi2 = 0.000 and p-value for F-test for overall model fit = 0.000

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[37] (See Data and Statistical Services website:
http://dss.princeton.edu/online_help/analysis/regression_intro.htm retrieved on December 6, 2006).

From the results reported in Tables 7.1 and 7.2, the logarithmic transformation i.e. Logy = $\alpha_1 + \beta LogX$ performs best and is also consistent with Cobb-Douglas production function specification arguments provided in Chapter Five and sub-section 7.2.1. This study has, thus, adopted the logarithmic transformation and specified and estimated log-linear sustainability and outreach models.

7.3.2 Estimation of the sustainability and outreach models

Two models commonly estimated using panel data are fixed effects (FE) and random effects (RE) (Greene, 2003:286). The decision to estimate FE or RE is usually based on: i) availability of data; ii) the practical difficulties encountered in the estimation; iii) the objective function; and iv) results of statistical tests. Snijders (2005) recommends estimating RE, if the objective is to draw conclusions or make inferences about the population from which the observed units have been drawn rather than about the specific observed units; otherwise FE should be estimated.

Greene (2003:301) argues that from a purely practical standpoint, the Least Squares Dummy Variable (FE) approach, which controls for firm- and/or time-specific effects in the model, is costly in terms of degrees of freedom lost. On the other hand, there is little justification for treating the firm- and/or time-specific effects as uncorrelated with the other explanatory variables, as is assumed in the RE model.

In this study, to determine whether to estimate an FE or an RE for either sustainability or outreach model, the specification test devised by Hausman (1978) was performed using the procedures provided in the STATA statistical software package to test for orthogonality of the RE and the explanatory variables. The test is based on the idea that, under the hypothesis of no correlation, both Ordinary Least Squares (OLS) in the Least Squares Dummy Variable (LSDV) model and Generalised Least Squares (GLS) are consistent, while OLS is inefficient, whereas under the alternative, OLS is consistent, but GLS is not (Greene, 2003:301). Therefore, under the null hypothesis, the two estimates should not differ systematically, and a test can be based on the difference. It is the outcome of this test which guides the decision as to whether to estimate an FE or an RE model.

The null hypothesis, Ho, is that there is no correlation between the firm- and/or time-specific effects and the explanatory variables. The alternative hypothesis, Ha, is that there is a correlation between the firm- and/or time-specific effects and the explanatory variables.

The results of the Hausman's specification tests are reported in Tables 7.3 and 7.4.

(i)   Operational Self-sufficiency Model

The results reported in Table 7.3 indicate that the calculated Chi-squared statistic is 19.36 with a p-value of 0.0803. Therefore, at a 5 per cent level of significance there is no sufficient evidence to reject the Ho that there is no correlation between the firm- and/or time-specific effects and the explanatory variables in the OSS model. Following Greene (2003:301), an RE model for operational self-sufficiency was estimated.

Table 7.3:   Hausman's Test Results for a Fixed- or Random-effects Model for the Operational Self-sufficiency Model

	Coefficients		
Variable	**b) ROSSFE**	**(B) ROSSRE**	**(b-B) Difference**
LDER	0.028	0.020	0.008
GOLP	-0.095	-0.070	-0.025
LGINDEX	0.062	0.013	0.049
LAVLZ	-0.088	-0.067	-0.021
LTRELRD	0.127	0.128	-0.001
LCLD	-0.231	-0.212	-0.019
LWL	0.016	-0.018	0.034
LAGE	0.009	0.076	-0.066
DDMg	-0.548	-0.234	-0.315
SACCO	-0.084	-0.015	-0.069
MDI	0.104	-0.073	0.178
NGO	0.380	0.008	0.372

Key: b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg
Test: Ho: difference in coefficients not systematic
Chi-squared (12) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 19.36, Prob>chi2 = 0.0803

(ii)   Outreach Model

The results reported in Table 7.4 indicate that the calculated Chi-squared statistic is 1520.91 with a p-value of 0.000. At 1 per cent level of significance there is no sufficient evidence to accept the Ho that there is no correlation between the firm- and/or time-specific effects and the explanatory variables in the OUTR model. Following Greene (2003:301), an FE model for outreach has been estimated.

Table 7.4:   Hausman's Test Results for a Fixed- or Random-effects Model for the Outreach Model

	Coefficients		
	(b)	**(B)**	**(b-B)**
Variable	**ROUTRFE**	**ROUTRRE**	**Difference**
LDER	0.0390	0.0607	-0.0216
GOLP	0.1778	0.2005	-0.0227
LGINDEX	0.1535	0.2319	-0.0784
LAVLZ	-0.1778	-0.1482	-0.0297
LTRELRD	-0.0814	-0.0565	-0.0249
LCLD	-0.1051	-0.0877	-0.0174
LWL	0.2427	0.1180	0.1247
LAGE	0.5195	0.4982	0.0213
DDMg	0.1322	-0.4276	0.5598
SACCO	0.4434	0.9918	-0.5484
MDI	1.5491	-0.5853	2.1344
NGO	1.6914	-0.2833	1.9748

Key: b = consistent under Ho and Ha; obtained from xtreg
           B = inconsistent under Ha, efficient under Ho; obtained from xtreg
           Test: Ho: difference in coefficients not systematic
           Chi2(12) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 1520.91, Prob>chi2 = 0.0000

7.4   The microfinance institutions selected, and the method of selection

The institutions from which data were collected and their distribution by legal status and administrative regions of Uganda are summarised in Table 7.5. Some of the MFIs located in the Central Region have branches in the other regions. The number of 53 MFIs was arrived at based on two major factors: the cost of data collection and the adequacy of the sample size. Appendix A1 presents the list of the selected MFIs.

Table 7.5: **The distribution of the sampled MFIs by legal status and administrative regions of Uganda**

Administrative Region of Uganda/ Legal status	Central	Eastern	Northern	Western	Total
Credit Institutions	1	0	0	0	**1**
MDIs	4	0	0	0	**4**
SACCOs	10	3	7	18	**38**
Non-MDI finance companies	2	0	0	1	**3**
NGOs	4	1	0	2	**7**
Total	**21**	**4**	**7**	**21**	**53**

The MFIs were selected as follows. In 2001/02 the Ministry of Finance, Planning and Economic Development of Uganda, with support from the Danish International Development Agency (DANIDA), carried out a baseline survey to establish the number of MFIs/microfinance programmes in Uganda (Micro-and Small Enterprise Policy Unit, 2002; Uganda Bureau of Statistics, 2004). The findings of the study indicated that there were 1,340 MFIs, which included:

1. One commercial bank;
2. One credit institution;
3. Companies limited by shares and guarantees;
4. Specialised NGOs providing microfinance;
5. Socially-oriented NGOs combining provision of microfinance and social services;
6. Savings and credit cooperatives (SACCOs);
7. Co-operative societies providing microfinance and marketing services;
8. Village banks and associations; and
9. Other community-based organisations (CBOs);

In 2006 MoFPED, with support from Department for International Development (DFID), conducted a census of financial institutions in Uganda. For a financial institution to be counted, it should have registered under any of the following Acts of Parliament of Uganda:

- Companies Act, 1964;
- Cooperatives Societies Statute, 1991;
- Non-Governmental Organisation Statute, 1989;

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- Moneylenders Act, 1952.

The findings indicated that there were 816 financial institutions in Uganda of various legal status (Ministry of Finance, Planning and Economic Development, 2006).

Based on the findings of the 2001/02 baseline survey and the census of financial institutions of 2006, a sampling frame was drawn up using the following criteria:

1. The commercial bank was dropped because the focus was on non-bank MFIs;
2. MFIs specialising in providing microfinance services and were counted in the census of 2006;
3. MFIs keeping basic records such as a cashbook, a general ledger and a clients' ledger; and
4. MFIs which by the end of December, 2005 had operated for six years and longer.

Using the above criteria, 166 MFIs were listed and this became the sampling frame.

Simple random sampling without replacement was used to select 53 MFIs. This means that if an MFI had been sampled, but found to be lacking consistent required data, that MFI would be dropped and excluded from the sampling frame before again randomly picking another MFI.

Data for assessing the effects of financial regulation of MFIs on their sustainability and outreach were collected from 31 Tier 4 MFIs (Appendix A2), 12 commercial banks operating in Uganda (Appendix A3), four BOU regulated MFIs, and the BOU itself.

7.5   Data, data capture and the method of analysis

7.5.1   Data and the variables constructed

Panel data were collected from 53 microfinance institutions (MFIs) for a period of six years (annual) from 2000-2005. The following considerations determined the data types collected:

  i)   The measures of dependent variables preferred and adopted;

  ii)   The measures of the explanatory variables; and

  iii)   The measures of the effects of financial regulation of MFIs on their sustainability and outreach.

Two types of data were collected: secondary and primary. Secondary data were collected from http://www.mixmarket.org, a website for MIX Market, Inc. and the Bank of Uganda Annual Reports. The primary data were collected from the MFIs sampled, using structured questionnaires designed and administered by the author of this dissertation, assisted by research assistants, who were first trained before deployment. A significant number of MFIs supplied printed data captured by their performance-monitoring tools (PMT) or audited accounts. For consistency, only data not found on the website of the MIX Market, Inc. were collected from the MFIs.

i)   The dependent variables

Data for constructing **OSS** were obtained from income statements. The number of clients was obtained from client registers and portfolio reports.

ii)   The explanatory variables and their measures

Data on **DER** were obtained from the balance sheets and **DER** is liabilities divided by equity.

Data on **GOLP** were obtained from the assets side of the balance sheets and it is the ratio of gross loan portfolio to total assets.

GINDEX was constructed based on 14 principles identified in Chapter Four under the section on governance to capture the effectiveness of governance (Table 4.1). Data to construct GINDEX were obtained using a questionnaire administered to the sampled MFIs. The MFIs were asked to indicate if any of the principles had been instituted and, if so, the year when it was done. A score (1) was given to each of the principles found to have been instituted, and the number of years the instituted principle had been in place was used as a weight. The sum of the weighted scores was obtained for each year to arrive at a GINDEX (Schreiner *et al.*, 2005).

Data on **LS** were obtained through interviews with the MFI management. LS is a dummy which takes value 1 for one of the three kinds of legal status (an MDI, an NGO or a SACCO) and 0, if the legal status is a private company (COMP).

Data on **SP** were obtained from the liabilities side of the balance sheets and interviews with the MFIs. SP takes the value 1 if the MFI provides savings product **(SP1)** and 0, if does not.

Data on **AvLz** were obtained from loan portfolio reports, the MIX Market Inc. website, and Bank of Uganda Reports. AvLz is the value of loans disbursed divided by the number of loans and the national per capita income.

Data on **RELRD** were obtained from income statements and Bank of Uganda reports. To construct RELRD, a total of annual loan and loan-related income was divided by the total value of the loans disbursed for the respective periods and the relevant annual rate of inflation subtracted.

Data to construct **CLD** were obtained from income statements and loan portfolio reports. CLD is total cost divided by total disbursement.

Data on **WL** were obtained from income statements, management reports, interviews with the MFIs, and the MIX Market Inc. website. **WL** is the total annual salaries/wage bill plus benefits divided by the number of employees and the national income per capita.

Data on **DDM** were obtained through interviews with the MFIs, who were asked about the method they considered as the main delivery mechanism. DDM is a dummy which takes the value 1 if the dominant delivery mechanism is group-based lending, and 0 otherwise.

Data on **AGE** were obtained through interviews with the MFIs. AGE is measured in years.

iii)   The effects of financial regulation of MFIs on their sustainability and outreach

Data collected to assess the effects of financial regulation of MFIs on their sustainability and outreach were of two categories. The first category was the data used in estimating the sustainability and outreach models, and these have already been described above. The second category was data obtained by administering questionnaires to institutions described under 7.5.1 above; the data were collected between April, 2003 and October, 2006.

7.5.2   Data capture and analysis

The data for estimating sustainability and outreach models were captured in MS Excel, saved under CSV (Comma delimited), and transferred to STATA statistical software package for analysis (Hamilton, 2004). Data for evaluating the effects of financial regulation of MFIs on their sustainability and outreach were captured in MS Excel computer software and MS Word processor. The analyses have been undertaken at the following levels.

i)   Univariate and bivariate analysis

This level of analysis focuses on the descriptive statistics of the standard variables in the sustainability and outreach models, i.e. non-dummy variables. Specific descriptive statistics extracted are the means, medians, quartiles, standard deviations, minimum and maximum values of the observations, and the numbers of observations. The association between OSS

and OUTR has been investigated based on the correlation coefficient. Correlation was also used to evaluate the relationships between the explanatory variables. The sign and magnitude of the correlation coefficient indicate the direction and the strength of the relationship between two or more variables. A correlation coefficient of 1 or −1 implies perfect or exact relationship between the two correlated variables. In the case of more than two variables, this is called perfect multi-collinearity or exact relationship among the variables (Gujarati, 1993:313).

ii)   Multivariate analysis

This level of analysis has mainly involved specification, estimation and hypotheses testing of FE and RE models of sustainability and outreach. The Hausman tests as stated above were carried out to determine whether to estimate an FE or RE.

iii)   Effects of financial regulation of MFIs on sustainability and outreach

The results of the interviews with MFIs have been tabulated in terms of the frequencies of the responses to the questions asked and comparative analysis conducted.

CHAPTER EIGHT: EMPIRICAL ANALYSIS AND DISCUSSIONS

8.1   Introduction

The focus of this study up to Chapter Seven has been on its background, covered in Chapter One, the economic context within which the study has been undertaken, covered in Chapter Two, and the literature review and the methodology covered in Chapters Three, Four, Five, Six and Seven. As presented in Chapter Seven, the study has also involved an estimation of sustainability and outreach models using data collected from 53 MFIs in Uganda as well as the evaluation and examination of the effects of financial regulation of MFIs on their sustainability and outreach using data collected from 31 Tier 4 MFIs, four Bank of Uganda-regulated MFIs, 12 commercial banks, and the Bank of Uganda itself. The present chapter is devoted to the analysis and discussions of the empirical findings arising from the estimated models and the responses of the MFIs, the commercial banks and Bank of Uganda to the interviews.

The chapter is organized as follows. Section 8.1 is the introduction. Section 8.2 presents and briefly examines the descriptive statistics. In section 8.3 correlation results are presented and discussed, while section 8.4 discusses variable selection process, and presents and discusses the results. The econometric results of the final sustainability and outreach models estimated are presented and discussed in section 8.5. The empirical results of the effects of financial regulation of MFIs in Uganda on their sustainability and outreach are presented and examined in section 8.6. Finally, section 8.7 presents a summary and the conclusion of the chapter. The overall summary and policy recommendations are presented in Chapter Nine.

8.3   Descriptive Statistics

Tables 8.1a and 8.1b present descriptive statistics of the dependent variables and the standard explanatory variables identified in the literature. As shown in Table 8.1a, five categories of statistics are reported for each of the variables: the mean, the standard deviation, the minimum and the maximum values of the observations, and the number of observations in the overall sample.

From the reported statistics, the mean of outreach, for example, is 6,730 clients, the standard deviation is 15,357 clients, and the minimum and maximum values of the observations are 57 clients and 98,003 clients respectively. Singling out the standard deviation and the minimum and maximum values of OUTR, GINDEX, RELRD and WL, it is evident that (using these measures) the MFIs selected in this study vary substantially. However, based on standard deviations, OSS, GOLP and CLD do not exhibit substantial variations, while DER, AVLZ and AGE exhibit moderate variations. This result was expected given the MFIs in the sample studied are from all parts of the country, and they are of different legal status and age, and are located in different parts of the country.

Comparing the mean and median of each of the variables (Tables 8.1a and 8.1b), it can be seen that with the exception of OSS and GOLP, whose medians are greater than their respective means, the medians of the rest of the variables are less than their respective means. The medians for OSS and GOLP are close to their respective means, while the medians and the respective means of the remaining variables are relatively far apart. Regarding the quartiles shown in Table 8.1b, apart from AGE, the observations of the rest of the variables are reasonably distributed in the first, second and third quartiles.

Table 8.1a   Descriptive statistics of the standard variables in the sustainability and outreach models

Variable	Observations	Mean	Std. Dev	Min	Max
OSS	318	1.21	0.52	0.15	4.25
OUTR	318	6,729.52	15,356.49	57.00	98,003.00
DER	318	2.94	3.58	0.02	21.00
GOLP	318	0.67	0.33	0.02	2.44
GINDEX	318	37.71	36.06	1.00	201.00
AVLZ	318	1.43	2.29	0.004	14.50
RELRD	318	21.77	30.34	-8.20	194.21
CLD	318	0.41	0.84	0.02	12.37
WL	318	7.11	7.08	0.10	44.29
AGE	318	7.59	5.76	1.00	30.00

Table 8.1b   **Descriptive Statistics of the standard variables in the sustainability and outreach models – Median and Quartiles**

Variable	Median	Quartile	No. of observations in the quartile	Quartile value
			Quartiles	
OSS		Quartile 1	81	0.958
	1.159	Quartile 2	160	1.159
		Quartile 3	240	1.415
OUTR		Quartile 1	80	377
	1,021	Quartile 2	159	1,021
		Quartile 3	238	3,808
DER		Quartile 1	80	2.382
	4.382	Quartile 2	159	4.382
		Quartile 3	239	9.825
GOLP		Quartile 1	80	0.518
	0.686	Quartile 2	159	0.686
		Quartile 3	239	0.819
GINDEX		Quartile 1	81	10
	27	Quartile 2	158	27
		Quartile 3	240	59
AVLZ		Quartile 1	80	0.365
	0.808	Quartile 2	159	0.808
		Quartile 3	238	1.327
RELRD		Quartile 1	80	6.114
	13.025	Quartile 2	159	13.025
		Quartile 3	239	24.408
CLD		Quartile 1	79	0.135
	0.229	Quartile 2	159	0.229
		Quartile 3	238	0.389
WL		Quartile 1	80	2.382
	4.382	Quartile 2	159	4.382
		Quartile 3	239	9.825
AGE		Quartile 1	64	3
	5	Quartile 2	143	5
		Quartile 3	231	8

8.3   Correlation

Table 8.2 presents the results of pairwise correlation coefficients of the dependent variables (OSS and OUTR) and the identified standard explanatory variables (non-dummies). In each case the level of significance of the correlation coefficient is shown just below it (the coefficient).

Besides being negatively correlated with OUTR, OSS is also negatively correlated with the debt-equity ratio (DER), the ratio of loan portfolio to total assets (GOLP), the average loan size divided by the national per capita income (AVLZ), the real effective lending rates (RELRD), the unit cost of loans disbursed (CLD) and the average salaries/wages and benefits bill divided by the national per capita income (WL) which is inconsistent with the finding by Christen *et al.* (1995), and positively correlated with the remaining variables. The correlation between OSS and WL is significant at 1% and that between OSS and CLD is significant at 5%. The rest of the variables are not significantly correlated with OSS. In particular, the correlation between OSS and OUTR is weak, suggesting weak trade-off between sustainability and outreach. This finding is contrary to that by Paxton and Fruman (1998), who find that there is a strong positive correlation between the depth of outreach and sustainability. Similarly, Seibel and Parhusip (1998:81) also find a positive relationship between sustainability and outreach (see Chapter Four).

OUTR is negatively correlated with GOLP, GINDEX and AVLZ, and positively correlated with DER, RELRD, CLD, WL and AGE. OUTR is correlated with GINDEX, WL and AGE at 1% level of significance and with RELRD at 5%. With the rest of the variables, OUTR is weakly correlated as judged by the level of significance of the pairwise correlation coefficients.

It is, however, premature at this stage to decide whether these variables found to be highly correlated with either OSS or OUTR are significant determinants. Further investigations are conducted in the later sections of this chapter.

Among the identified standard explanatory variables, the level of significance of the pairwise correlations varies. The explanatory variables correlated at 1%, 5% and 10% level of significance are: i) GOLP with DER and GINDEX ii) GINDEX with DER, GOLP, AVLZ, RELRD, WL and AGE, iii) AVLZ with DER, GINDEX, RELRD, CLD, WL, and AGE, iv) RELRD with GINDEX, AVLZ, CLD, WL and AGE, v) CLD with AVLZ, RELRD, WL and AGE and vi) WL with GINDEX, AVLZ, RELRD and AGE, and vii) AGE with GINDEX, AVLZ, RELRD and WL.

The level of significance of the correlation between OSS and each of its potential explanatory variables is important in determining which variables eventually become its determinants as further analysed in Section 8.4. Similarly the level of significance of the

correlation between OUTR and each of its potential determinants is important in identifying the determinants of OUTR.

In the case of the explanatory variables, the level of significance of the pairwise correlation coefficients is an indicator of the strength of the relationship between the variables. It can be seen that most of the explanatory variables are correlated, except that the pairwise correlations can be described as weak. A situation of perfect correlation or multi-collinearity among the explanatory variables poses problems in estimating the relationship using Ordinary Least Squares (OLS) estimation method, as discussed in Chapter Seven and section 8.4.

Table 8.2   **Pairwise Correlation Coefficients and their Significance Levels**

Variable	OSS	OUTR	DER	GOLP	GINDEX	AVLZ	RELRD	CLD	WL
OSS	1.000								
OUTR	-0.041 0.468	1.00							
DER	-0.077 0.171	0.014 0.804	1.000						
GOLP	-0.069 0.221	-0.002 0.973	-0.204 0.000*	1.000					
GINDEX	0.035 0.532	-0.179 0.001*	0.098 0.080***	-0.098 0.080***	1.000				
AVLZ	-0.054 0.340	-0.083 0.138	-0.121 0.031**	-0.024 0.670	0.347 0.000*	1.000			
RELRD	-0.003 0.957	0.136 0.015**	-0.086 0.127	0.039 0.491	-0.285 0.000*	0.187 0.000*	1.000		
CLD	-0.128 0.023**	0.035 0.530	-0.063 0.266	-0.075 0.181	0.028 0.622	-0.132 0.012*	0.288 0.000*	1.00	
WL	-0.144 0.010*	0.596 0.000*	-0.049 0.387	0.061 0.278	-0.102 0.070***	0.200 0.000*	0.146 0.009*	-0.02 0.68	1.000
AGE	0.007 0.904	0.199 0.000*	0.049 0.382	-0.046 0.412	0.383 0.000*	0.283 0.000*	0.118 0.036**	-0.03 0.50	0.182 0.001*

Key: OSS and OUTR are dependent variables, while the rest are explanatory variables.
        * means significant at 1% , **means significant at 5% and *** means significant at 10%.

8.4   Variable selection

(i)   **Operational self-sufficiency Model**

The starting point in the choice of the explanatory variables for the OSS model was to estimate an RE log-linear Generalised Least Squares (GLS) model, (GLS1) (Chang and Lee, 1977). The results show (Table 8.3) that six explanatory variables are statistically

significant at 1-10 per cent level of significance: LTRELRD (log of transformed RELRD), LCLD, LAVLZ and DDMg (at 1%), LAGE at 5% and LGOLP at 10% (in parentheses are p-values). With the exception of LAVLZ and DDMg, the coefficients of the other statistically significant variables have the expected signs. The dummy capturing the effects of an MFI providing savings product was dropped, because it was highly correlated with the rest of the explanatory variables.

To further investigate the relevant explanatory variables in the OSS model, especially those found to be statistically insignificant in GLS1 and/or have unexpected signs, a stepwise regression method was applied, taking into account the underlying theory of the determinants of OSS (Chapter Four). Of the three variables: WL, GINDEX and DER, WL has the highest p-value and was, therefore, excluded when performing GLS2 regression. This process was conducted until only statistically significant variables were left in the final regression.

The results of GLS1, GLS2, GLS3, GLS4 and GLS5 regressions are reported in Table 8.3. In GLS5 the same variables which are statistically significant in GLS1 are still significant, but with improved level of significance. For example, LGOLP which was significant at 10% in GLS1 is significant at 5% in GLS5, and LAGE which was significant at 5% is significant at 1%. With the exception of LAVLZ and DMMg, the coefficients of the other statistically significant variables at 10% have the expected signs. However, the unexpected signs of the coefficients of LAVLZ and DDMg can be explained by the existing theoretical arguments (see section 8.6).

Table 8.3   Results of iterative random-effects models for OSS estimated

	Dependent Variable = OSS				
Expl. Variable	**GLS1**	**GLS2**	**GLS3**	**GLS4**	**GLS5**
LDER	0.012	0.020	0.021	0.019	Dropped
	(0.375)	(0.380)	(0.352)	(0.371)	
GOLP	-0.070	-0.073	-0.074	-.0750	-0.077
	(0.078)	**(0.067)**	**(0.065)**	**(0.056)**	**(0.047)**
LGINDEX	0.013	0.012	Dropped	Dropped	Dropped
	(0.614)	(0.621)			
LAVLZ	-0.067	-0.070	-0.067	-0.069	-0.069
	(0.008)	**(0.005)**	**(0.006)**	**(0.004)**	**(0.003)**
LTRELRD	0.128	0.126	0.122	0.122	0.124
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
LCLD	-0.212	-0.213	-0.212	-0.215	-0.216
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
LWL	-0.018	Dropped	Dropped	Dropped	Dropped
	(0.633)				
LAGE	0.076	0.071	.081	0.081	0.083
	(0.027)	**(0.035)**	**(0.003)**	**(0.003)**	**(0.002)**
DDMg	-0.234	-0.239	-0.241	-0.246	-0.248
	(0.010)	**(0.010)**	**(0.009)**	**(0.003)**	**(0.003)**
SACCO	-0.015	-0.002	0.016	Dropped	Dropped
	(0.912)	(0.988)	(0.905)		
MDI	-0.073	-0.080	-.047	Dropped	Dropped
	(0.700)	(0.674)	(0.795)		
NGO	0.009	0.003	.0108	Dropped	Dropped
	(0.959)	(0.986)	(0.944)		
CONST	-0.874	-0.883	-0.887	-0.877	-0.888
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
No. of observations	318	318	318	318	318
Number of groups	53	53	53	53	53
R-sq: Within	0.213	0.215	0.211	0.211	0.206
Between	0.142	0.130	0.143	0.142	0.148
Overall	0.168	0.162	0.168	0.167	0.170
Wald chi2(.)	74.89	75.22	75.28	75.78	74.91
Prob > chi2	0.000	0.000	0.000	0.000	0.000

Note: p-values are in brackets

The log-linear RE GLS regression results indicate that the determinants of OSS in Uganda's microfinance industry are GOLP, AVLZ, RELRD, CLD, AGE, and DDMg. Therefore, the OSS model for Uganda's microfinance industry for the period 2000-2005 can be specified as (in parentheses are p-values):

LOSS =-0.888-0.077LGOLP-0.069LAVLZ+0.124LTRELRD-0.216LCLD+0.083LAGE-0.248DDMg

        (0.00) (0.047)   (0.003)   (0.000)   (0.000)   (0.002)   (0.003)

(ii)   Outreach Model

As is the case in the OSS model, the starting point in the choice of the explanatory variables for the OUTR model was to estimate an FE log-linear model (FE1). The results show (Table 8.4) that seven explanatory variables are statistically significant at 1-10 per cent level of significance: LGOLP, LGINDEX, LAVLZ, LAGE, and SACCO (at 1%) and LCLD and LWL at 10% (in parentheses are p-values). The coefficients of all statistically significant variables at 10% have the expected signs.

To further investigate the relevant explanatory variables in the OUTR model, a stepwise regression approach taking into account the underlying theory of the determinants of OUTR was adopted. This procedure was followed until the final model considered to be explaining outreach of MFIs in Uganda (FE5 in Table 8.4) was arrived at.

The results of FE1, FE2, FE3, FE4 and FE5 regressions are reported in Table 8.4. In FE5, in addition to the same variables which are statistically significant in FE1 at 10%, DDMg and MDI which substantially contribute to the variations in OUTR were identified. With the exception of DDMg and MDI, the coefficients of the other variables have the expected signs.

The log-linear FE regression results indicate that the determinants of OUTR in Uganda's microfinance industry are GOLP, GINDEX, AVLZ, CLD, WL, AGE, DDMg, SACCO and MDI. Therefore, the OUTR model for Uganda's microfinance industry for the period 2000-2005 can be specified as (in parentheses are p-values):

LOUTR = 3.79+0.19LGOLP+0.25LGINDEX-0.15LAVLZ-0.10LCLD+0.11LWL+0.50LAGE)-
**   (0.00) (0.01)   (0.00)   (0.00)   (0.03)   (0.08)   (0.00)**
**   0.41DDMg + 0.95SACCO - 0.33MDI**
**   (0.16)   (0.00)   (0.20)**

Table 8.4   Results of iterative fixed-effects models for OUTR estimated

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Dependent Variable = OUTR

Expl. Variable	FE1	FE2	FE3	FE4	FE5
LDER	.0607	0.060	0.052	0.044	Dropped
	(0.112)	(0.121)	(0.164)	(0.239)	
GOLP	0.201	0.199	0.191	0.184	0.188
	(0.003)	**(0.003)**	**(0.005)**	**(0.006)**	**(0.005)**
LGINDEX	0.232	0.230	0.244	0.208	0.251
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
LAVLZ	-0.148	-0.149	-0.145	-0.144	-0.150
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
LTRELRD	-0.056	-0.059	Dropped	Dropped	Dropped
	(0.298)	(0.276)			
LCLD	-0.088	0-.090	-0.101	-0.110	-0.100
	(0.066)	**(0.059)**	**(0.030)**	**(0.018)**	**(0.031)**
LWL	0.118	0.120	0.108	0.120	0.114
	(0.071)	**(0.067)**	**(0.093)**	**(0.061)**	**(0.077)**
LAGE	0.498	0.500	0.500	0.526	0.500
	(0.000)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.000)**
DDMg	-0.428	-0.428	-0.406	-0.404	-0.410
	(0.134)	(0.143)	(0.163)	(0.166)	**(0.160)**
SACCO	0.992	0.994	0.973	1.014	0.952
	(0.000)	**(0.000)**	**(0.001)**	**(0.000)**	**(0.001)**
MDI	-0.585	-0.336	-0.372	Dropped	-0.319
	(0.283)	(0.183)	(0.136)		(0.197)
NGO	0.283	Dropped	Dropped	Dropped	Dropped
	(0.586)				
CONST	4.060	3.993	3.784	3.705	3.793
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
No. of observations	318	318	318	318	318
No. of groups	53	53	53	53	53
R-sq: Within	0.641	0.640	0.639	0.636	0.636
Between	0.336	0.279	0.284	0.255	0.275
Overall	0.094	0.060	0.061	0.047	0.055
F test (.)	37.62	41.13	45.09	49.61	49.70
Prob > chi2	0.000	0.000	0.000	0.000	0.000
F test that all u_i=0 F(.)	36.77	40.32	41.76	46.43	41.63
Prob > F = 0.0000	0000	000	000	000	000

Note: p-values are brackets

8.5 The econometric results and discussion

8.5.1   The econometric results

As can be seen in Table 8.3, OSS of the studied MFIs in Uganda is driven significantly by the ratio of gross loan portfolio to total assets (GOLP), the average loan size relative to the national per capita income (AVLZ), the real effective lending rates (RELRD), the unit cost of loans disbursed (CLD), the age (AGE) of the MFI, and the type of the dominant delivery mechanism (DDMg). Based on the level of statistical significance, LAVLZ, LTRELRD, LCLD and DDMg are highly important, while LGOLP and LAGE are moderately important. Based on the contribution to the proportional change in the variations in OSS, DDMg is the most important determinant of OSS, followed by LCLD. This implies that for MFIs to improve their OSS, they must put the emphasis on the identified determinants starting with DDMg, followed by CLD, both of which negatively affect OSS.

DER, GINDEX, WL, SACCO, MDI and NGO were all found to be both statistically insignificant and unimportant in terms of their contribution to the variations in OSS. As a result these variables are not reflected in the OSS equation.

Table 8.4 shows that OUTR of the studied microfinance institutions in Uganda is significantly driven by the ratio of gross loan portfolio to total assets (GOLP), the level of effectiveness of governance (GINDEX), the average loan size relative to the national per capita income (AVLZ), the unit cost of loans disbursed (CLD), the average salary/wage paid to staff relative to the national per capita income (WL), the age (AGE) of the MFI, and the MFI being a SACCO. All these are statistically significant at 1%, 5% and 10%. Because of the level of their contribution to the proportional change in the variations of OUTR, the dominant delivery mechanism (DDMg) and MDI are also viewed as important determinants of OUTR. Based on the contribution to the proportional change in the variations in OUTR, SACCO is the most important determinant of OUTR, followed by the age of the MFI and then the institution being an MDI. The findings suggest that for OUTR to be improved, an MFI being a SACCOs is a major determinant.

DER and NGO were found to be both statistically insignificant and unimportant in terms of their contribution to the variations in outreach. As a result these variables are not reflected in the outreach equation.

8.5.3 Discussion of the econometric results

8.5.2.1 Gross outstanding loan portfolio as a proportion of total assets (GOLP).

It is hypothesised in this study that GOLP is negatively related to sustainability for the reasons discussed in Chapter Four, one of which is that the more the amount of loans collected (which means less amount of outstanding loans) the more is the revenue generated for the MFI. It is positively related to outreach because the less the uncollected loans (less outstanding loans) the less the number of clients. Furthermore, as argued in Chapter Four, sub-section 4.2.1.4, a significant amount of literature on microfinance has placed a lot of emphasis on the sources of funds (measured in this study by DER) and less on its uses (GOLP) as a major determinant of sustainability and outreach.

The econometric results in this study show that the uses of funds is (both statistically and in its contribution to the changes in OSS and OUTR) a more important determinant of sustainability and outreach than sources of funds. It is negatively related with OSS, but positively related with OUTR. The negative relationship between GOLP and OSS means that MFIs must recover the disbursed loans, as the greater the loan portfolio or high non-performing loan portfolio the lower the level of sustainability. The positive relationship with outreach means that the more money is with the clients, the more people are reached (assuming loans is the only product offered by the MFI as argued in subsection 4.2.1.4), and hence the greater the outreach. These findings call for balancing between the strategies for achieving sustainability objective and those for achieving outreach objective.

8.5.2.2 Governance

The theoretical and empirical analysis of the relationship between governance and sustainability and governance and outreach is presented in Chapter Four, sub-section 4.2.2.

It is hypothesised that effective governance measured in this study by GINDEX is positively associated with both sustainability and outreach.

In this study the results show that the level of the effectiveness of governance is a key determinant of outreach, and this could be attributed to the growth in the size of the studied MFIs which has necessitated instituting key checks and balances in the institutions to ensure systematic growth. On the other hand, governance is not a key determinant of OSS, although its level of effectiveness positively affects it. This result is intriguing, but could be explained by, first, the less emphasis the majority of the MFIs studied could be putting on sustainability as compared to outreach. Second, by the fact that OSS is not the most appropriate measure of sustainability as it does not account for all the subsidies to the MFIs, which could be making it (OSS) less sensitive to governance issues.

8.5.2.3 Average loan size

A lot of debate on the relationship between the loan size and outreach, on the one hand, and loan size and sustainability, on the other hand, has raged on for a long time (see chapter four sub-section 4.2.4). In this study it is hypothesised that average loan as a proportion of the national income per capita is positively associated with sustainability and negatively associated with outreach.

Empirical evidence from this study shows that average loan size as a proportion of the national income per capita is negatively related to both sustainability and outreach and also statistically significant in both models. These findings are interesting and consistent with arguments that have been advanced by several authors, who posit that there is no conflict between serving poor clients and being sustainable (see Chapter Four). That is, the smaller the loan size the more clients an MFI can serve, and that disbursing small loans is not inconsistent with sustainability, especially in efficient MFIs.

8.5.2.4 Real effective lending interest rates

Chapters Four (sub-section 4.2.5.2) and Five illustrate and provide a survey of literature on the implications of lending rates for sustainability and outreach of MFIs. As argued in the

chapters, holding other factors constant, the price of a product sold positively affects the profitability or sustainability of the business engaged in the sale of that product, but negatively affects the demand for the product or the quantity supplied/sold.

Empirical findings from this study show that the real effective lending rate positively affects sustainability, which is consistent with the maintained hypothesis and is statistically significant. It is however, not a significant determinant of outreach, partly because the demand for credit in Uganda, with a large number of the population served by the informal sector as discussed in Chapter Two, is either inelastic or highly inelastic. In addition, a number of authors have argued that access to finance is not often constrained by interest rates, but by other factors such as availability of financial services (Robinson, 2001a).

8.5.2.5 Unit cost of loans disbursed

The basic business equation relating sustainability and costs is π = TR-TC, where π is a proxy measure for sustainability, TR is total operating revenue generated by the firm, and TC is total costs incurred in generating TR (see Chapters Three, Four and Five). From this equation, *ceteris paribus*, TC is negatively related with sustainability as higher TC is related to lower π. Empirical findings of this study are, thus, consistent with the maintained hypothesis in this study that the unit cost of loans disbursed is negatively related with sustainability and outreach. The findings also indicate that the unit cost of loans disbursed is negatively related with outreach, which is also consistent with the maintained hypothesis. In both models the unit cost of loans disbursed is statistically significant at 5 per cent level. These findings call for efficient operations by MFIs to minimise costs.

8.6.2.6 Delivery mechanisms

The two delivery mechanisms investigated in this study are group- and individual-based systems (see Chapter Four, sub-section 4.2.8). It is hypothesised that if the dominant delivery mechanism is group-based, both sustainability and outreach are positively influenced compared to a case where the individual lending mechanism is dominant. The empirical results indicate that, as a dominant methodology, the group-based delivery mechanism is negatively related to both sustainability and outreach compared to the

individual-based method. However, the group-based delivery method is statistically significant in the sustainability model, but not in the outreach model. On the other hand, the contribution of the group-based delivery mechanism to the proportional variation in OUTR is substantial compared to the individual-based method, and hence it is recognised as an important explanatory variable in the outreach model.

These are important empirical findings in that both in the theoretical and empirical literature there is a lot of debate on group-based versus individual lending methods, with some camps arguing in favour of one or the other (see Chapter Four). For example, using regression analysis on a sample of over 83 MFIs, Hulme and Mosley (1996) find that, contrary to theoretical arguments in favour of group-based lending, the organisation of borrowers in groups is neither necessary nor sufficient for success. The findings of this study show that in the case of the MFIs studied for the period 2000-2005, the group-based delivery mechanism is negatively related to both sustainability and outreach compared to the individual-based method, which suggests that for the MFIs to be sustainable and reach more clients they should adopt individual-based delivery mechanism.

8.5.2.7 Age of the institution providing the financial services

Another factor found to be a statistically significant explanatory variable in both sustainability and outreach models, and also consistent with the maintained hypothesis in this study that age is positively related to sustainability and outreach. This is further consistent with the SEEP Network and Calmeadow (1995) arguments that the maturity of an institution is one of the key factors that influence the level of activities and hence operational costs. The age of an organisation positively affects its sustainability and outreach through accumulated experience gained from learning by doing, the development of operating systems, experience and training of staff, and economies of scale (see Chapter Four, sub-section 4.2.9 and Pindyck and Rubinfeld, 1998:230).

8.5.2.8 Salaries/Wages

In a study of 11 MFIs (see Chapter Five, section 5.7), Christen *et al.* (1995) find that the average wage paid to MFI staff in relation to the national per capita income positively and

significantly affects financial viability. The results of this study indicate that the average wage paid to MFI staff in relation to the national per capita income positively and significantly affects outreach but not sustainability. The positive association between average wage paid to MFI staff in relation to the national per capita income and outreach is consistent with the hypothesis of this study. However, as the findings indicate, higher pay to staff may not necessarily be translated into the sustainability of the MFI, and here lies the contradiction between paying higher wages to boost outreach, which may lead to a lower level of sustainability of the MFI. Hence, the MFIs need to find an optimal balance between expanding outreach and attaining sustainability to minimise the conflicts between the two.

8.5.2.9 Institutional types

The question of the institutional types and their effects on sustainability has also been a subject of widespread debate. In this study institutional types investigated are MFIs that are private companies (COMP), non-governmental organisations (NGOs), savings and co-operatives (SACCOs) and microfinance deposit-taking institutions (MDIs). The hypothesis is that being a SACCO or an MDI is positively related with OSS compared to being a private company (COMP), while being an NGO is negatively related with OSS compared to being a COMP. With respect to outreach, the hypothesis is that being a SACCO, an MDI or an NGO is positively related with OUTR compared to being a COMP.

Using COMP as the reference point, the results indicate that institutional types are not statistically significant in the OSS model and their contributions to the variations in OSS are negligible. In the OUTR model (sub-section 8.5.1) compared to COMP, SACCOs are both statistically significant and their contribution to the variations in OUTR is very important. MDIs, meanwhile, are not statistically significant in the OUTR as well, but their contribution (32%) to the variations in OUTR is relatively important. The NGOs are neither statistically significant nor make a substantial contribution to the variations in OUTR. This study did not establish the reasons for these findings. Further research in this area is recommended.

8.6 Empirical results of the survey on the effects of financial regulation of the microfinance institutions in Uganda on their sustainability and outreach

This section reports the empirical findings of the effects of financial regulation of MFIs in Uganda on their sustainability and outreach.

8.6.1 The number of Tier 4 MFIs[38] interviewed, whether accepting savings or not and, if accepting savings, why

Table 8.5 presents the number of Tier 4 MFIs interviewed by legal status, the number accepting savings and the average number of shareholders, where applicable. The MFIs/programmes interviewed include four private limited companies (12.9% of all the MFIs interviewed), 15 non-governmental organisations (NGOs) also registered as companies limited by guarantee (48.4% of all the MFIs interviewed), 11 SACCOs (35% of all the MFIs interviewed), and 1 public limited company (3.2% of all the MFIs interviewed) (see Appendix A2). The findings indicate that 75% of the private limited companies accept savings and have, on average, 721 shareholders; 86.7% of the NGOs accept savings; all the SACCOs accept savings and, on average, have 1,198 shareholders; and finally, the limited public company also accepts savings.

Asked why they take savings, the responses of the MFIs by legal status are reported in Table 8.6. Most of the MFIs interviewed take savings for lending (51.6%), which is their main activity, and loan guarantee (51.6%), which is one of the main securities for loans given out. A few MFIs take savings, which they place as a guarantee when borrowing from other financial institutions. It was beyond the scope of this study to establish why a few MFIs pledge savings as security to secure funds from other financial institutions, but this could be because of a weak linkage between the microfinance industry and the more established formal financial institutions (see Chapter Two and sub-section 8.6.7).

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[38] See section 1.1 and sub-section 6.4.1 for the definition of Tier 4 MFIs.

Table 8.5   Number of Tier 4 MFIs interviewed by legal status, whether accepting savings, and average number of shareholders

Legal status	Number of MFIs interviewed, whether accepting savings or not and the number of shareholders		
	Number of MFIs interviewed (n = 31)	Number accepting savings (n = 31)	Average number of shareholders
Private Limited Company	4 (12.9%)	3 (9.7%)	721 (3 institutions responded)[39]
Company Limited by Guarantee/NGO	15 (48.4%)	13 (41.9%)	All the institutions do not have shareholders
Credit Union/ Co-operative Society	11 (35.5%)	11 (35.5%)	11981 (9 institutions responded)
Public company	1 (3.2%)	1 (3.2%)	20 (1 institutions)
Does not take savings	Not Applicable	2 (6.5%)	Not Applicable
Non-response	Not Applicable	1 (3.2)	Not Applicable
Total number of MFIs interviewed	31 (100%)	31 (100%)	13 MFIs responded

Table 8.6   Number of Tier 4 MFIs interviewed by legal status and reasons for accept savings

Value to the institution of accepting savings	Private Company (n = 4)	Company /NGO (n = 15)	Credit Union/ Co-operative Society (n = 11)	Public Company (n = 1)	Total (n = 31)
Loan guarantee	2 (50%)	11 (73.3%)	2 (18.2%)	1 (100%)	16 (51.6%)
Security for borrowing from another financial institution	0	3 (20%)	1 (9.1%)	0	4 (12.9%)
Lending	3 (75%)	2 (13.3%)	11 (100%)	0	16 (51.6%)
Create savings culture	0	2 (13.3%)	0	0	2 (6.5%)
Accumulate wealth	0	2 (13.3%)	0	0	2 (6.5%)
Not applicable	0	2 (13.3%)	0	0	2 (6.5%)
Non-response	1 (25%)	0	0	0	1 (3.2%)

8.6.2   Effects of financial regulation of MFIs on their industry structure and products offered

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[39] In Uganda the maximum number of shareholders legally allowed to form a private company is 50.

The findings reported in Tables 8.5 and 8.6 are related to financial regulation in two ways. First, the MDI Act, 2003 and Financial Institutions Act, 2004 permit only financial institutions licensed under them to take public deposits for intermediation. With the exception of SACCOs, which are legally allowed to take deposits from their members, the rest of the institutions covered in the survey were illegally taking savings for intermediation or other purposes as reported.

Therefore, the immediate effects financial regulation has had on the MFIs interviewed are: i) some of the institutions which were hitherto mobilising public deposits or savings for intermediation have had to change their legal status, stop taking deposits or savings for intermediation or close down. Of the 31 MFIs surveyed, three have merged and formed a company for providing credit-only services, one divested the microfinance arm from the parent NGO, three have become SACCOs, four have become MDIs, and two have closed down; and ii) MFIs have had to restructure the services offered.

The effects on sustainability and outreach of these changes are analysed in the subsequent parts of this section.

8.6.3   Effects of the MDI Act, 2003 on the legal status of Tier 4 MFIs

To capture the effects of the MDI Act, 2003 on the sustainability and outreach of MFIs from the perspective of changes in the legal status, Tier 4 MFIs were interviewed to establish what would happen to their legal status if it did come into force. A follow-up study that covered three MDIs was also conducted to establish the actual effects on the sustainability and outreach of the enactment of the MDI Act, 2003.

Table 8.7 presents the results as to whether the MFIs interviewed would register as MDIs immediately, later or not at all. The results indicate that 13 (41.9%) of the interviewed MFIs would register immediately under the Act because they saw the requirements as an incentive, and could meet all of them. However, as of June 30, 2007, only 4 previously Tier 4 MFIs had been registered as MDIs, a number far lower than 13, but reasonable. 17 (54.8%) of the MFIs said they would register later under the MDI Act, 2003, because they

could not meet most of the requirements under it, although the requirements were an incentive to register, and one (3.2%) of the MFIs interviewed would not register under the MDI Act, 2003, because it could never meet the requirements.

Of the MFIs that would register later under the MDI Act, 2003, 8 (44.4%) would retain their current legal status, 4 (22.2%) would register as credit-only institutions, while 3 (16.7%) would become member-based institutions. Two MFIs did not state the kind of legal status they would assume (see Table 8.8). These findings further show that financial regulation would lead to the restructuring of the microfinance industry in Uganda (see sub-section 8.6.2) and the products provided, which could affect sustainability and outreach of the institutions concerned, especially in the short run.

Table 8.7   Whether or not the MFIs interviewed would register under the MDI Act, 2003

Whether or not the MFI would Register under the MDI Act, 2003	Number of years the MFI would to take to register	Number of MFIs that responded (n = 31)
Register	Immediately	13 (41.9%)
	1	1 (3.2%)
	2	3 (9.7%)
	3	2 (6.5%)
	4	1 (3.2%)
	5 or after	8 (25.8%)
	15 and above	2 (6.5%)
Not register at all	Not applicable	1 (3.2%)
Number of MFIs that responded (n)		**31**

Table 8.8   The legal status the Tier 4 MFIs interviewed would assume if they did not register immediately after the enactment of the MDI, 2003

Legal status	Number of MFIs that responded (n = 18)
To retain current legal status	8 (44.4%)
Register as credit-only institutions	4 (22.2%)
Register as member-based institutions	3 (16.7%)
No response	3 (16.7%)
Number of MFIs interviewed and responded (n)	**18**

8.6.4 Effects of the key provisions under the MDI Act, 2003 on the decision of the Tier 4 MFIs to register as MDIs

The empirical findings on how some of the provisions under the MDI Act, 2003 would affect the decision of the MFIs interviewed to register as MDIs are reported in Table 8.9. Out of the 27 MFIs that responded, the majority indicated that nearly all the provisions in the MDI Act, 2003 would affect their decision to become MDIs. Only a few MFIs, however, said that the provisions would definitely be obstacles or major obstacles. The provisions considered crucial are the minimum capital requirement and capital adequacy, ownership, governance and management, asset quality, record keeping, reporting and penalties.

Table 8.9   Effects of the key provisions under the MDI Act, 2003 on the decision of the Tier 4 MFIs to register as MDIs

Key provisions under the MDI Act, 2003	Number of respondents in each category		
	May be an obstacle (n = 27)	Will definitely be an obstacle (n = 27)	Will be a major obstacle (n = 27)
Minimum capital requirement and capital adequacy	13 (48.2%)	2 (7.4%)	3 (11.1%)
Ownership	15 (55.6%)	4 (14.8%)	2 (7.4%)
Licensing requirements	13 (48.2%)	0	1 (3.7%)
Governance and management	15 (55.6%)	1 (3.7%)	1 (3.7%)
Service range	17 (63.0%)	0	0
Asset quality	15 (55.6%)	2 (7.4%)	0
Deposit protection fund	13 (48.2%)	0	0
Liquid assets	13 (48.2%)	0	0
Record keeping, reporting and penalties	13 (48.2%)	3 (11.1%)	1 (3.7%)
Publications	17 (63.0%)	0	0
Other requirements	3 (11.1%)	1 (3.7%)	1 (3.7%)

8.6.5 Effects of financial regulation of MFIs on their selected sustainability and outreach indicators

Table 8.10 presents the results of the views of the MFIs interviewed on the effects of financial regulation on their selected sustainability and outreach indicators. The Table also integrates the results of a follow-up survey on four BOU-regulated MFIs, three of which registered recently: Finca Uganda Limited, Uganda Microfinance Limited and Uganda Finance Trust Limited. As the results show, financial regulation of MFIs in Uganda was

being viewed with a lot of optimism. The majority of the MFIs interviewed were of the view that financial regulation would lead to:

- a reduction in the borrowing rates as the MFIs would access funds from diversified sources;
- increased number of clients due to increased branch network and geographical coverage;
- increased profitability resulting from serving more clients and generating more revenue, although the cost of operations was envisaged to increase as well;
- increased savings volume because more clients were saving with the MFIs;
- more financial services would be provided and be available to low-income earners because of increased opportunities to innovate;
- more economic activities would be financed; and
- improved operational policies because of the requirements under the MDI Act and/or the desire to become regulated under the Act.

To test some of the claims made by the Tier 4 MFIs interviewed, four BOU-regulated MFIs were interviewed. One of the four regulated MFIs was licensed in 2000 and the rest were licensed in 2004 and 2005. The results of the interview are reported in Table 8.10. All the four regulated MFIs interviewed reported that their borrowing rates had declined, but lending rates remained unchanged. Other findings show that the cost of operations, profitability, savings mobilisation, economic activities financed, sources of funding, branch network/agencies, more services and innovations, public confidence and trust in the MFI, and operational policies have gone up or improved. This is consistent with the predictions from the first survey reported earlier and the theoretical arguments presented in Chapter Six.

Table 8.10   Effects of financial regulation of MFIs on their selected sustainability and outreach indictors

Selected indicators of sustainability and outreach	First (n=31) and follow-up (n=4) surveys	Number of MFIs that responded in the respective categories (n = 31)		
		Decrease/ Deteriorate	No effect	Increase/ Improve
Interest and other costs of finance[40]	First survey	15 (48.4%)	2 (6.5%)	13 (41.9%)
	Follow-up survey	4 (100%)	0	0
Lending rates	First survey	13 (41.9%)	5 (16.1%)	13 (41.9%)
	Follow-up survey	0	4 (100%)[41]	0
Number of clients reached	First survey	5 (16.1%)	2 (6.5%)	24 (77.4%)
	Follow-up survey	0	3 (75%)	1 (75%)
Geographical coverage	First survey	5 (16.1%)	4 (12.9%)	22 (71.0%)
	Follow-up survey	0	3 (75%)	1 (25%)
Cost of operations	First survey	8 (25.8%)	4 (12.9%)	19 (61.3%)
	Follow-up survey	0	0	4 (100%)
Profitability	First survey	7 (22.5%)	2 (6.5%)	23 (74.2%)
	Follow-up survey	1 (25%)	0	3 (75%)
Provision of savings	First survey	5 (16.1%)	5 (16.1%)	21 (67.7%)
	Follow-up survey	0	0	4 (100%)
Economic activities financed	First survey	4 (12.9%)	5 (16.1%)	21 (67.7%)
	Follow-up survey	0	0	4 (100%)
Sources of funding	First survey	2 (6.5%)	6 (19.4%)	24 (77.4%)
	Follow-up survey	0	0	4 (100%)
Branch network/agencies	First survey	3 (9.7%)	2 (6.5%)	26 (83.9%)
	Follow-up survey	1 (25%)	0	3 (75%)
Operational policies	First survey	1 (3.2%)	3 (9.7%)	26 (83.9%)
	Follow-up survey	0	0	4 (100%)
More services and innovations	First survey	6 (19.4%)	5 (16.1%)	20 (64.5%)
	Follow-up survey	0	0	4 (100%)
Public confidence and trust in the MFI	First survey	6 (19.4%)	14 (45.2%)	11 (35.5%)
	Follow-up survey	0	0	4 (100%)

Related to the above findings are the results of additional questions on the benefits and costs of financial regulation of MFIs reported in Table 8.11.

One additional benefit of financial regulation is access to commercial loans while the costs are: i) increased reporting cost (32.3% of the MFIs interviewed think so), ii) more time spent preparing reports for the regulators and complying with the regulatory requirements (32.3% of the MFIs interviewed think so), and iii) increased requirement for qualified staff and associated costs (67.7% of the MFIs interviewed think so). The results of the follow up survey are consistent, particularly with the last finding, as all the four MFIs interviewed during the follow-up survey reported that their demand and associated costs of employing professional staff have increased. In addition, their demand and associated costs for

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[40] One respondent said did not know the effect.
[41] One of the MFIs has changed from declining lending rate to flat.

qualified and professional board members also increased. As argued and illustrated in Chapter Six, increases in costs have negative effects on sustainability and outreach.

Table 8.11   Additional benefits and costs of financial regulation of Tier 4 MFIs from the perspective of MFIs

Benefits of regulating MFIs in Uganda under the prudential standards (the perspective of the MFIs interviewed)	Number of MFIs that responded (n = 31)
Access to commercial loans	11 (35.5%)
Access to donor funds	6 (19.4%)
Costs of regulating MFIs in Uganda under the prudential standards (the perspective of the MFIs interviewed)	**Number of MFIs that responded (n = 31)**
Increased cost due to reporting to the regulators	10 (32.3%)
More time spent preparing reports to the regulators and compliance	10 (32.3%)
Increased requirement for qualified staff and associated costs	21 (67.7%)
No idea	1 (3.2%)
No Effect	2 (6.5%)

8.6.6   Effects of financial regulation of MFIs on their sources of funding, time taken to mobilise additional capital, cost of external supervision and audit, and investment options

The results of the investigation into the experience of the MFIs interviewed with respect to sources of funding, time taken to mobilise additional capital, cost of external supervision and audit, and activities in which they invest most of their resources are presented in Tables 8.12, 8.13, 8.14, 8.15 and 8.16. The MFIs interviewed obtain funding from shares, retained earnings, grant, savings and loans. The importance of each of these types of funds depends on the institutional type and can be affected by financial regulation. Most of the MFIs (67.7%) reported that shares are their most important source of funding, followed by savings and, more specifically, members' savings. As argued in sub-section 8.6.2, MFIs which were not legally allowed to mobilise savings report that their sources of funding have been affected by financial regulation.

As far as institutions that depend significantly on savings are concerned, if they are not legally allowed to mobilise savings for intermediation, financial regulation affects the flow of funds to such institutions and therefore could affect their sustainability and outreach. In this study it has not been possible to capture empirically the extent to which sustainability

and outreach can be affected by sources of funding. Further research could be necessary in this area.

Asked about the time it would take them to raise additional capital, most of the MFIs did not respond. Of those that responded, the majority said it would take them one or more years to raise additional funds, which is consistent with an earlier finding that some of the MFIs would not transform immediately to MDIs, and would take one or more years to do so (see Table 8.7). In addition, regulated financial institutions are required to be owned by owners who can raise funds at short notice. Thus, a number of the Tier 4 MFIs may find it hard to become licensed under the existing banking laws of Uganda, which could constrain their outreach, as already argued in this dissertation.

Similarly, very few MFIs answered the question of expenditure on external supervision and audit. For external supervision, the MFIs that responded spent between US\$5 – US\$15,000. Expenditure on external audit ranged from about US\$255 to US\$15,000, with the majority spending between US\$255 – US\$510. Most of the MFIs invest their funds in loans, which is consistent with the structure of their assets (see Table 5.1, section 5.5).

Expenditure on external supervision and audit is a cost to the institution. If it is substantial in relation to the revenue generated, it negatively affects sustainability and outreach. While it is not conclusive to say, for example, that spending US\$15,000 negatively affects sustainability of an MFI, the amount is substantial and could lead to a lower sustainability being attained by the concerned MFI.

Concerning the balance sheets and income statements, Table 8.16 shows that a number of MFIs are improving on their reporting and record keeping, an indication that financial regulation could have positive effects on their record keeping and reporting practices. This could result in improved sustainability and outreach in the medium to long term.

Table 8.12   **Sources of funding for the MFIs by the degree of importance (n=31)**

Source of funding	Not important	Moderately important	Important	Very Important
Shares	7 (22.5%)	1 (3.2%)	2 (6.5%)	21 (67.7%)
Retained earnings/Reserves	1 (3.2%)	6 (19.4%	12 (38.7%)	12 (38.7%)
Grants	3 (9.7%)	13 (41.9%)	3 (9.7%)	12 (38.7%)
Member savings	8 (25.8%)	2 (6.5%)	6 (19.4%)	15 (48.4%)
Public savings	12 (38.7%)	11 (35.5%)	5 (16.1%)	3 (9.7%)
Loans	13 (41.9%)	3 (9.7%)	8 (25.8%)	7 (22.5%)

Table 8.13   **The period the MFI would take to mobilise additional capital (n=11)**

	Period this MFI would take to mobilise additional capital, if required			
	Less than 3 months	1-6 months	1 year or more	No idea
Number of MFIs	2	2	4	3
Proportion of number of MFIs (%)	18.2	18.2	36.4	27.3

Table 8.14   **Annual amount paid for external supervision (n=10)**

	Annual amount paid for external supervision			
	US$15,000	<US$5	<US$51-102	Not applicable
Number of MFIs	1	1	2	6
Proportion of number of MFIs (%)	10	10	20	60

Table 8.15   **Annual amount paid for external audit (n=16)**

	Annual amount paid for external audit				
Number of MFIs	US$15,000	<US$255	<US$255-510	<US$510-2546	US$2546-5100m
	1	2	7	3	3
Proportion of number of MFIs (%)	6.3	12.5	43.8	18.8	18.8

Table 8.16   **Where the MFIs invest their funds and the state of record keeping and financial statements (n = 31)**

Areas of focus	Responses and number of MFIs responding
Investment options for Tier 4 MFIs	• Mainly loans - 27 (87.1%) • Fixed deposits - 2 (6.5%)
Comment on the balance sheets and income statements prepared by the MFIs compared to those required by the Bank of Uganda	• Major difference - 5 (16.1%) • Minor difference –2 (6.5%) • MFIs transforming financial statements to comply with those required by the Bank of Uganda.-14 (45.2%) • MFIs using Performance Monitoring Tools (PMT) - 4 (12.9%)

8.6.7 Effects of financial regulation of MFIs on their linkage with commercial banks in Uganda

Questionnaires were sent to 18 commercial and development banks, to which 12 commercial banks responded (see Appendix A3 for the list of the banks that responded). Of these, 2 were reportedly providing microfinance. Therefore, the analysis is restricted to those which were not providing microfinance, because the overall purpose of administering the questionnaires to them was to establish whether or not, after enactment of a law for microfinance, they would consider doing microfinance business directly or through MFIs.

Table 8.17 presents the number of commercial banks that would consider offering microfinance following the enactment of the MDI Act, 2003. The table shows that 20% of the banks would give some consideration to offering microfinance services directly, 30% would give consideration to lending through licensed MFIs, of which one bank would give serious consideration, and 60% would give consideration to lending to MFIs. 40% of the latter would do so seriously.

The two banks that would consider diversifying to microfinance directly would do so by opening new branches and using existing ones (Table 8.18). One bank would do this through mobile banking. Therefore, based on the responses obtained, enacting the law on microfinance would have a mild effect on commercial banks considering providing microfinance directly, and consequently the effects on outreach could also be mild.

Table 8.17   Number of commercial banks that would consider offering microfinance

Possible decisions	Percentage of banks giving some consideration (n=10)	Percentage of banks giving serious consideration(n=10)
Providing microfinance services directly	20%	0
Lending through licensed microfinance institutions (MFIs)	20%	10%
Lending to MFIs	20%	40%

Table 8.18　　Channels which banks that consider directly diversifying into microfinance would use for service delivery

Approaches	Percentage of banks considering to provide microfinance directly that would use the stated approaches (n=2)
Open new branches	100
Mobile services	50
Existing branches	100

While the willingness of the banks to consider lending through or to the MFIs is a positive development, the extent to which this is possible depends on the location of the MFIs, their deposit base, the level of assets, and profitability. Table 8.19 presents the results of the criteria the banks considering lending through licensed MFIs would use to select the MFIs, while Table 8.20 presents the results of the criteria the banks considering lending to be licensed MFIs would use to select the MFIs. With regard to the former, the results indicate that the banks would consider level of deposits, value of assets and profitability. None of the banks would consider the number of clients as a basis for lending through the MFIs. With regard to the latter, the results indicate that they would consider proximity and nature and volume of business, level of deposits, level of assets, professional management, competence of staff, loan recovery rates, and profitability. Based on these findings, financial regulation has a direct positive impact on sustainability compared to outreach. Regarding the methods of screening clients, the empirical results indicate that the licensed MFIs would screen the final borrowers when the banks choose to lend through them. In this arrangement, the MFIs would choose the criteria for selecting the clients.

Table 8.19　　Criteria banks considering to lend through licensed MFIs would use to select the MFIs

Criteria for selecting MFIs to lend to	Percent of banks considering lending through MFIs that would use the stated criteria
Location	67%. Banks to choose urban-located MFIs only because of proximity and nature and volume of business (n= 3).
Level of deposits	3 (100%)
Level of assets	3 (100%)
Level of profitability	1 (33%)

Table 8.20   Criteria banks considering lending to licensed MFIs would use to select the MFIs

Criteria for selecting MFIs to lend to	Percentage of banks considering lending to microfinance institutions that would use stated criteria (n= 6)
Location	50% of the banks that responded would choose urban-located MFIs for the following reasons: • proximity and nature and volume of business (33.3% of the respondents gave this reason) • Level of deposits (16.7% of the respondents gave this reason) • Professional management, competence of staff and loan recovery rates (16.7% of the respondents gave this reason)
Level of deposits	67.7% of the banks that responded would choose the size of MFI measured by the level of deposits
Level of assets	67.7% of the banks that responded would choose the size of MFI measured by the level of assets
Level of profitability, low/zero subsidy dependence, ability to borrow at commercial rates	50% of the banks that responded would choose an MFI that has demonstrated sustainability, zero subsidy dependence and ability to borrow at commercial rates
Number of clients	33.3% of the banks that responded would choose an MFI based on the number of clients.

8.6.8   Effects of financial regulation of MFIs on their sustainability and outreach from the Bank of Uganda perspective and experience

The effects of financial regulation of the microfinance industry in Uganda on their sustainability and outreach were also investigated by seeking views from the Bank of Uganda. Five areas were focused on:

- Benefits of financial regulation of MFIs to the Bank of Uganda, the microfinance industry, the clients and the economy as a whole;

- Costs of financial regulation of MFIs to the Bank of Uganda, the microfinance industry, clients and the economy as a whole;

- the average cost of licensing an MDI;

- the major cost items in the process of licensing and supervising an MDI; and

- the average annual cost (expenditure) of supervising an MDI by BOU.

Tables 8.21 and 8.22 present the responses to the questions of benefits and costs of financial regulation of MFIs to the Bank of Uganda, the microfinance industry, the clients

and the economy as a whole. As the responses show, from the BOU perspective financial regulation of MFIs has significant benefits for the BOU, the microfinance industry, the clients and the economy as a whole. However, the Bank of Uganda was not sure whether financial regulation of MFIs would lead to reduced lending rates. Regarding compliance costs, the Bank of Uganda thinks these could sometimes be major.

It is difficult to project average cost of licensing an MDI, but it involves undertaking many inspection visits that cost money and, therefore, licensing any extra institution is a cost. As to whether the cost far outweighs the benefits, this is difficult to establish. According to BOU, an average time taken to grant an MDI or any other financial institution a licence is 12 months. During this time a lot of activities are undertaken and these activities require substantial resources (Ledgerwood and White, 2006).

The major cost items in the process of licensing and supervising a financial institution include: inspection, e.g. vehicle maintenance, allowances for inspectors and drivers, emergency verifications, analysis of returns and communication. For example, the MDI Act, 2003 requires the BOU to publish every year the number of MDIs licensed and operating. In 2005 the BOU budgeted for US$3,000 to meet the cost of MDI-related publications. This was half the budget for commercial banks, which are 15 in number (see discussions in sub-section 6.3.3.1 in Chapter Six).

The costs reported above exclude salary, other allowances, etc. that are directly or indirectly incurred in maintaining and developing staff involved in supervision. For example, on average, it takes up to 30 days for an on-site supervision of an MDI to be completed. With average size of an on-site supervision team of an MDI reported to be 3, the amount required to maintain field staff while on on-site supervision can be substantial. Additional cost of financial regulation is related to training. Besides resources provided by donors, BOU budgeted US$15,000 for 2005 for the MDI Division for training staff. Divided by four MDIs, this is US$3,750 per MDI.

Table 8.21   Benefits of financial regulation of MFIs from the Bank of Uganda perspective

	Rank	*Direct benefits to BOU*		*Direct benefits to MF industry*		*Direct benefits to the whole economy*	
Improvement of opportunities for the regulated MF institutions to access many credit lines	Significant	Yes		Yes		Yes	
Expansion of savings facilities to the poor mainly in rural areas	Significant	Yes		Yes		Yes	
Creation of a regulatory and supervisory environment for the development of sustainable financial institutions	Very Significant	Yes		Yes		Yes	
Cultivation of public confidence and trust in the regulated MF institutions	Very Significant	Yes		Yes		Yes	
Increased supply of credit, especially to the poor in rural areas	Significant	Yes		Yes		Yes	
Promotion of the business and operations of the MF institutions	Very Significant	Yes		Yes		Yes	
Enhancement of money transfer especially in rural areas	Significant	Yes		Yes		Yes	
Reduction of the cost of funds	Significant	Yes		Yes		Yes	
Reduction in the lending rates to the target clients	Not sure	Not sure		Not sure		Not sure	
Protection of especially small deposits	Very Significant	Yes		Yes		Yes	
Expansion of monetary policy management channels	Very Significant	Yes		Yes		Yes	

Table 8.22   Costs of financial regulation of MFIs from the Bank of Uganda perspective

	Rank	Direct of costs to BOU	Direct of costs to MF industry	Direct of costs to the whole economy
Limited opportunities to access donor funds by the MFIs	Not cost (NC)	No	No	No
Limited number of formal financial institutions	NC	No	No	No
Limited savings facilities to the poor, mainly in rural areas	NC	No	No	No
Loss of public confidence and trust in the financial system for institutional failure	NC	No	No	No
Limited opportunities for money transfer in rural areas	NC	No	No	No
Prevalence of use of cash in effecting payments will continue	NC	No	No	No
More compensation for deposits for any institutional failure	NC	No	No	No
Stifling innovative approaches to the microfinance industry	NC	No	No	No
Compliance cost by the regulated MFIs	Can be major	No	Yes	Yes
Increased cost of funds	NC	No	No	No
High cost of supervision	Can be major	Yes	Yes	Yes
Increased expenditure on recruiting supervisors, training and retaining them by the BOU	Major	Yes	No	No
Limited monetary policy management channels	NC	No	No	No
Reduced supply of credit, more so to the poor in rural areas	NC	No	No	No

8.7 Summary and conclusion

In this chapter the empirical results of the estimated models, namely sustainability and outreach, as well as the survey results of the effects of financial regulation of MFIs on their sustainability and outreach, have been presented and discussed.

The results indicate that OSS is driven by GOLP, AVLZ, RELRD, CLD, AGE and DDMg, statistically significant at 1%, 5% and 10%. Based on statistical significance, AVLZ, RELRD, and CLD are highly important determinants. Based on the contribution to the proportional change in the variations in OSS, DDMg is the most important determinant of OSS. This implies that for MFIs to improve their OSS, they must emphasise the identified determinants starting with DDMg.

OUTR is driven by GOLP, GINDEX, AVLZ, CLD, WL, AGE and SACCO, statistically significant at 1%, 5% and 10%. Based on the contribution to the proportional change in OUTR, SACCO is the most important determinant of OUTR. The findings suggest that for OUTR to be improved, an MFI being a SACCOs is an important factor.

The immediate effects of financial regulation of MFIs are that some MFIs have changed their legal status, restructured the entire range of services offered, or closed down. These changes appear to have had negative effects on outreach, but would improve sustainability.

The majority of the MFIs that responded indicated that nearly all the provisions under the MDI Act, 2003 would affect their decision to become MDIs. The provisions considered crucial are the minimum capital requirement and capital adequacy, ownership, record keeping, reporting and penalties.

Regarding the effects of financial regulation on selected indicators of their sustainability and outreach, the four BOU-regulated MFIs surveyed in a follow-up study reported that their borrowing rates had declined, but lending rates remained unchanged. The cost of operations, profitability, savings mobilisation, economic activities financed, sources of funding, branch network/agencies, more services and innovations, public confidence and trust in the MFI, and operational policies had also improved. These results suggest that financial regulation has had positive effects on the sustainability and outreach of MFIs.

The findings indicate that only a few commercial banks are willing to work with the regulated MFIs, which implies that financial regulation of MFIs may not improve the linkage between BOU regulated MFIs and commercial banks.

From the BOU perspective, financial regulation of MFIs has significant benefits for the BOU, the MFIs, the microfinance industry, the clients and the economy as a whole. However, the BOU was not sure whether financial regulation of MFIs would lead to lower lending rates. Regarding compliance costs, the BOU thinks these could sometimes be a major factor. Besides, BOU cites licensing and supervision costs as the major cost item.

CHAPTER NINE: SUMMARY OF FINDINGS AND POLICY RECOMMENDATIONS

9.2 Introduction

This study was motivated by the desire to investigate and establish the determinants of sustainability and outreach, and the effects of financial regulation on MFIs' sustainability and outreach. Microfinance has become a major policy tool for promoting access to financial services, poverty alleviation and financial systems development. As a result, a clear understanding of the determinants of sustainability and outreach, and the effects of financial regulation on MFIs' sustainability and outreach is important for institution building and public policy formulation and implementation in order to promote access to financial services for the majority of low-income earners on a sustainable basis and in a safe and secure environment. Thus, this study is timely.

After identification of the research problem, the next step in the study was a survey of literature in four main areas: i) the definitions and measures of sustainability and outreach; ii) the determinants of sustainability and outreach; iii) a well grounded theoretical basis for estimating sustainability and outreach models; and iv) the effects of financial regulation of MFIs on their sustainability and outreach. To put the study into context, Uganda's economic and policy environment, with an emphasis on the recent developments in the economic front, were presented and discussed.

Following Brinkerhoff and Goldsmith (1992) and Mog (2004), sustainability is a question of self-reliance in the medium to long term without subsidies, and the measure of sustainability preferred in the study is operational self-sufficiency.

The less restrictive definition of outreach adopted in this study is the extent to which formal financial services are accessible to the low-income earners and the preferred measure of outreach is the scale (number of clients served in a defined period).

To provide a background to the analysis of the effects of regulation of MFIs on their sustainability and outreach, regulation is defined as a set of enforceable rules that restrict or

direct the actions of market participants and, as a result, alter the outcomes of those actions. These rules are binding on the entities and individuals involved. Financial regulation is defined as a body of principles, rules, standards and compliance procedures that apply and govern commercial behaviour in the financial system.

Two regression models were estimated using data collected on 53 MFIs in Uganda: sustainability and outreach. Following the results of Hausman's tests, a random-effects model was estimated for sustainability and a fixed-effects model was estimated for outreach.

The potential and actual effects of financial regulation of MFIs on their sustainability and outreach were assessed in two ways. First, a dummy variable to capture the effects of deposit taking was included both in the sustainability and outreach models. The sign of this dummy variable and its statistical level of significance were examined. Second, survey data were collected from four distinct groups of respondents: 31 Tier 4 MFIs, four Bank of Uganda-regulated MFIs, 12 commercial banks, and the Bank of Uganda, and analysed to determine the effects of financial regulation of MFIs on their sustainability and outreach. Licensing requirements and CAMEL were used as a basis for evaluation of the effects.

This chapter is intended to summarise the major findings of the study and derive policy implications to provide an informed contribution into the process of public and institutional development policy formulation in Uganda and other developing countries.

9.3   Summary of Findings

9.2.1   Uses of funds

The econometric results in this study show that uses of funds are (both statistically and in terms of the level of contribution to the changes in OSS and OUTR) a more important determinant of sustainability and outreach than sources of funds. The use of funds negatively affects OSS, but positively affects OUTR.

9.2.2   Governance

The econometric results show that the level of effective governance is a key determinant in outreach but not in OSS, although the level of effectiveness of governance positively affects both sustainability and outreach.

9.2.3   Average loan size

Empirical evidence from this study shows that average loan size is negatively related to both sustainability and outreach and also statistically significant in both models. That is, the smaller the loan size the more clients an MFI can serve, and disbursing small loans is not inconsistent with sustainability.

9.2.4   Real effective lending interest rates

Consistent with the widely held view and empirical findings from other studies, real effective lending rate is a statistically significant determinant of sustainability. It is, however, not a significant determinant of outreach.

9.2.5   Unit cost of loans disbursed

Unit cost of loans disbursed negatively affects sustainability and outreach, and is statistically significant. This is consistent with the findings of the recent study by the World Bank (2007:32) which found high cost of doing business as one of the major constraints to economic growth in Uganda.

9.2.6   Delivery mechanisms

Compared to individual-based lending methodology, the group-based delivery method is negatively and statistically significant in the sustainability model.

9.2.7   Salaries/Wages

The results of this study indicate that average salaries/wages paid to MFI staff in relation to the national per capita income positively and significantly affects outreach, but negatively related to sustainability and not statistically significant.

9.2.8   Institutional types

The results of this study indicate that compared to private companies, no institutional type is statistically significant in the OSS model and their contributions to the variations in OSS are also negligible. In the OUTR model, compared to COMP, SACCOs are both statistically significant and their contribution to the variations in OUTR is very important. MDIs, meanwhile, are also not statistically significant in the OUTR, but their contribution (32%) to the variations in OUTR compared to COMP is important. Being a SACCO positively affects outreach, while being an MDI negatively affects outreach.

9.2.9   Financial regulation of MFIs' and the effects on sustainability and outreach

One major finding of this study is that the enactment of the MDI Act, 2003 has led to the restructuring of the microfinance industry. Some of the MFIs have changed their legal status and restructured their products and operations, while others have closed down.

While the findings are not conclusive with regard to the overall effects of financial regulation of the MFIs on their sustainability and outreach, in the short run outreach has been adversely affected by the restructuring and closing down of some of the MFIs. In the long run financial regulation of MFIs could have a positive effect on sustainability and outreach through promoting effective governance, the safety and stability of the financial sector, and institutional sustainability. For the regulator, financial regulation of the MFIs has definitively increased the costs of licensing and supervision. As to whether the costs are greater than the benefits is difficult to tell using the available information.

9.4 Policy recommendations

9.3.1 Uses of funds

The negative effects of GOLP on OSS imply that MFIs should ensure that, in the first place, their non-performing loan portfolio is kept to a minimum, and second, they should endeavour to recover all the disbursed loans, as the greater the unrecovered loan portfolio the lower the level of sustainability. The establishment of a credit reference bureau as is provided for under the Financial Institutions Act, 2004 and the MDI Act, 2003 is recommended for Tier 4 MFIs. This will be important in screening potential defaulters. To improve outreach in terms of access to loans, MFIs should put more resources into lending and emphasize allocative efficiency with regard to the outreach objective.

9.3.2 Governance

The MFIs need to strengthen their level of governance in order to expand outreach. Since sustainability is usually an outcome of a strong governance structure, as the MFIs strengthen the governance structure to achieve the outreach objective, sustainability will be achieved simultaneously. Where the MFIs lack internal capacity to improve their governance, the government will need to design an enabling environment, such as appropriate policies and laws, to promote effective governance in MFIs. In addition, improving the governance of MFIs will require the government to support them (the MFIs) in training their staff and putting in place effective governance structures as currently proposed by the GOU in the Rural Development Strategy and Rural Financial Services Strategy for Savings and Credit Cooperatives (SACCOs) (MOFPED, 2007).

9.3.3 Average loan size

As the statistical results indicate, the smaller the loan size the more clients an MFI can serve, and disbursing small loans is not inconsistent with sustainability. MFIs are therefore encouraged to increase their outreach by providing relatively small loans. However, this will require the MFIs to have in place effective governance systems to promote efficiency.

9.3.4   Real effective lending interest rates

The MFIs should focus on the real effective lending rates for improved sustainability. This recommendation calls on the GOU not only to maintain market-based interest rates policies, but also to continue with the current strategy of keeping inflation rate low through prudent fiscal and monetary policy management. The proposed intervention in the microfinance industry through the supply of loans at below market lending interest rates (at 9% for agriculture-related lending and at 13% for trade and commercial-related lending), if not carefully managed, may undermine the current flourishing microfinance industry (MOFPED, 2007:17) and therefore, the GOU's plan to build a sustainable financial system for poverty reduction. On the other hand, with the current perception by the GOU that the lending rates, especially in the microfinance industry, are high, the MFIs need to be innovative and efficient in their operations to ensure that their pricing is competitive. The GOU also needs to promote consumer education to empower potential clients to identify efficient and sustainable MFIs, and negotiate for better interest rates.

9.3.5   Unit cost of loans disbursed

The policy implication in this respect is two-fold. From the MFIs side, there is a need for prudent management, efficiency and innovation to maximize revenue inflows and minimize costs, but within a competitive framework. From the government side, it is imperative that appropriate policies, legal regimes and infrastructure be put in place to reduce the cost of doing business for the MFIs. The high priority placed by the GOU in energy and infrastructural development as well as information, communication and technology is an important policy strategy that will benefit all the sectors of the Ugandan economy, including the microfinance industry (MOFPED, 2007).

9.3.6   Delivery mechanisms

To improve both sustainability and outreach, the MFIs should adopt the individual-based delivery mechanism. The contribution of the group-based delivery mechanism to the proportional variation in OUTR is substantial, but negative compared to the individual-

based mechanism, which also affirms that MFIs should adopt individual-based delivery mechanism.

9.3.7 Salaries/Wages

The policy recommendation in this case is that for the MFIs to improve outreach, paying competitive salaries/wages is crucial as the MFIs need to attract high calibre staff who can improve their productivity. Increased outreach comes with economies of scale, which should improve sustainability. However, the MFIs will need to be careful in balancing payment of competitive salaries/wages for boosting outreach, and achieving sustainability because the findings of this study indicate that the two objectives could conflict.

9.3.8 Institutional types

Based on the findings of this study, to improve outreach, more SACCOs should be established compared to private companies. However, it is important to emphasize that promotion of outreach *per se* is not consistent with building a sustainable financial system. Thus, as SACCOs are being promoted, the question of their sustainability needs to be given very serious attention. The GOU will need to promote SACCOs in such a way that the emphasis is not on providing loan funds and suppressing lending rates, but on mobilising local resources and intermediating them on a full-cost recovery basis. External support should target capacity enhancement to mobilise local resources for intermediation. Where local resources are inadequate, external resources can be mobilized, but based on sound business principles.

9.3.9 Designing a regulatory framework for microfinance institutions

The key policy recommendation in this respect is that in order to minimise the cost of regulation both in the short and long run, it is important to conduct a cost-benefit analysis before instituting a regulatory system by undertaking a regulatory impact assessment similar to that proposed under the UK Government's Pensions Bill, 2004 (Taylor, 2004). Where the cost of financial regulation exceeds its benefits, it is appropriate not to institute regulation.

9.4   Other Research Areas

Drawing from some of the limitations of this study and the assumptions made, such as a given demand for financial services in Uganda (Chapter Two), the following are recommended areas for further research.

1.   A similar study using FSS or SDI instead of OSS as the dependent variable in the sustainability model and the depth of outreach as the dependent variable in the outreach model.

2.   A similar study with a much larger sample of MFIs and a longer time period to see if the findings are different from those of the current study.

3.   A study that explicitly factors in the demand factors as determinants of sustainability and outreach.

4.   A study conducted after five or more years following the enactment of the MDI Act, 2003 would provide a clearer picture of the effects of financial regulation of MFIs on their sustainability and outreach.

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APPENDIX A1:   **LIST OF MICROFINANCE INSTITUTIONS STUDIED FOR SUSTAINABILITY AND OUTREACH MODELS**

1.	COMMERCIAL MICROFINANCE LIMITED	27	NADDANGIRA AGALI AWAMU SACCO LTD
2.	FAULU UGANDA LIMITED	28	BUDADIRI SACCO
3.	UGANDA MICROFINANCE LIMITED	29	KAMUKUZI VILLAGE BANK TRUST
4.	FINCA UGANDA LIMITED	30	AGALI AWAMU KASALA SACCO
5.	UGANDA FINANCE TRUST LIMITED	31	LUWERO TEACHERS SACCO
6.	MICRO-ENTERPRISE DEVELOPMENT NETWORK (MED-NET)	32	WEKEMBE KASANA SACCO
		33	KYOTAMANYA SACCO
7.	MICROCREDIT DEVELOPMENT TRUST (MCDT)	24	KIJURA SACCO
		35	PRIDE MICROFINANCE LIMITED
8.	FEED THE CHILDREN	36	KALCADA SACCO LTD
9.	VICTORIA BASIN SAVINGS AND MICRO FINANCE CO-OP TRUST LTD	37	INCOFIN UGANDA LIMITED
		38	MUTARA SACCO
10	ORIBCING WOMENS SACCO	39	SUPPORT ORGANIZATION FOR MICRO-ENTREPRISES DEVELOPMENT
11	ALUTKOT SACCO		
12	RUKOMA FINANCIAL SERVICE COOPERATIVE SACCO	40	TESO RURAL DEVELOPMENT TRUST
		41	RURAL CREDIT FINANCE COMPANY LTD
13	MUHAME FINANCIAL SERVICES CO-OPERATIVES LTD	42	UGANDA AGENCY FOR DEVELOPMENT LTD
14	MUSHANGA PEOPLES SACCO	43	EMESCO DEVELOPMENT FOUNDATION LTD
15	BUSHENYI PEOPLES SACCO		
16	KITAGATA DEVELOPMENT FINANCIAL SERVICES	44	AGARU SACCO
17	SHUUKU COOPERATIVE SACCO LTD	45	PACKWACH NAM COOPERATIVE SAVINGS AND CREDIT SOCIETY LTD
18	KYAMUHUNGA PEOPLES SACCO		
19	BUSIA RURAL MF COOP LTD	46	RUBAARE MODERN SACCO LTD
20	GULU SACCO	47	ANKORE FARMERS AND TRADERS SACCO LTD
21	ISSIA COOPERATIVE SACCO		
22	BUKINDA COOPERATIVE VILLAGE FINANCIAL SERVICES LTD	48	BULIMA SACCO
		49	BUDDUKIRO MICRO FINANCE INSTITUTION
23	LYAMUJUNGU COOPERATIVE FINANCIAL SERVICES	50	MASAKA MICRO FINANCE AND DEVELOPMENT CO-OPERATIVE TRUST LTD
24	WANAHEWA SACCO		
25	METEOROLOGICAL DEPARTMENT EMPLOYEES COOPERATIVE SACCO LTD	51	KONYE KENI SACCO
		52	KITGUM COOP SACCO
26	WINDSOR EMPLOYEES COOPERATIVE SACCO LTD	53	ELGON COOPERATIVE SOCIETY LTD

APPENDIX A2: LIST OF MICROFINANCE INSTITUTIONS/PROGRAMMES STUDIED FOR THE EFFECTS OF FINANCIAL REGULATION ON THEIR SUSTAINABILITY AND OUTREACH

1	Uganda Women's Effort to Save Orphans (MICROFINANCE WING WAS SEPARATED FROM) MICRO FINANCE SERVICE LIMITED)	17	FEED THE CHILDREN
2	BULULU MULTIPURPOSE SACCO	18	VICTORIA BASIN SAVINGS AND MICRO FINANCE CO-OP TRUST LTD
3	IBAKA FINANCIAL SERVICES LTD (CLOSED)	19	RURAL CREDIT FINANCE COMPANY LTD
4	FOUNDATION FOR CREDIT AND COMMUNITY ASSISTANCE (CLOSED)	20	MUHAME FINANCIAL SERVICES CO-OPERATIVES LTD
5	RUBANDA SAVINGS AND DEVELOPMENT SCHEME LTD	21	SHUUKU COOPERATIVE SACCO LTD
6	ELGON COOPERATIVE SOCIETY LTD	22	KYAMUHUNGA PEOPLES SACCO
7	PACT (CLOSED)	23	BUSIA RURAL MF COOP LTD
8	KASESE MICROFINANCE PROGRAMME (MERGED)	24	ISSIA COOPERATIVE SACCO
9	BUNYORO CATHOLIC FUND (MERGED)	25	BUKINDA COOPERATIVE VILLAGE FINANCIAL SERVICES LTD
10	FORT PORTAL MICROFINANCE PROGRAMME (MERGED)	26	LYAMUJUNGU COOPERATIVE FINANCIAL SERVICES
11	FAULU UGANDA LIMITED	27	NADDANGIRA AGALI AWAMU SACCO LTD
12.	UGANDA MICROFINANCE LIMITED	28	KAMUKUZI VILLAGE BANK TRUST
13	FINCA UGANDA LIMITED	29	PRIDE MICROFINANCE LIMITED
14	UGANDA FINANCE TRUST LIMITED	30	SUPPORT ORGANIZATION FOR MICRO-ENTERPRISES DEVELOPMENT
15	MICRO-ENTERPRISE DEVELOPMENT NETWORK (MED-NET)	31	TESO RURAL DEVELOPMENT TRUST
16	MICROCREDIT DEVELOPMENT TRUST (MCDT)		

APPENDIX A3: COMMERCIAL BANKS THAT RETURNED THE QUESTIONNAIRES

1.	CENTENARY RURAL DEVELOPMENT BANK (U) LTD	7.	CAIRO BANK INTERNATIONAL
2.	ORIENT BANK (U) LTD	8.	TROPICAL AFRICA BANK (U) LTD
3.	NILE BANK (U) LTD	9.	STANDARD CHARTERED BANK (U) LTD
4.	ALLIED BANK INTERNATIONAL	10.	STANBIC BANK (U) LTD
5.	BANK OF BARODA (U) LTD	11.	DFCU BANK (U) LIMITED
6.	BARCLAYS BANK (U) LTD	12.	CRANE BANK (U) LTD

APPENDIX B1: MICROFINANCE INDUSTRY IN UGANDA: Sustainability, Outreach and Regulation
(*Checklist for Collection of mainly Statistical Data*)

Purpose of the Survey: *This is strictly an academic study by Luke Okumu (Fax no. 256-41-258218/Tel. 077-517318), a student at the University of Stellenbosch, South Africa. The data being solicited shall be used strictly for academic purpose and will be treated with utmost confidentiality. Your kind and very valuable response shall be highly appreciated.* ***Thank you.***

Code for the Microfinance Institution (MFI) [   ][   ]   Date of Data Collection

Balance Sheet Data

Balance Sheet Items	Period					
	Dec '05	Dec '04	Dec '03	Dec '02	Dec '01	Dec '00
Assets						
Cash at hand						
Cash at bank on demand account						
Interest bearing deposits						
Loans outstanding (Gross)						
Amount put aside to cover Loan Loss						
Long-term investments (more than one year)						
Property and Equipment (Gross book value):						
(Accumulated Depreciation)						
Re-valuation (e.g. property)						
Other assets						
Liabilities:						
Short-term debt (commercial sources)						
Short-term debt (concessionary sources)						
Clients' savings						
Long-term debt (commercial sources)						
Long term debt (concessionary sources)						
Other liabilities						
Equity Capital, including donated equity						
Prior years accumulated surplus/loss/profit						
Current year net surplus/deficit/transfer/profit						

Income Statement Data

Revenue and Expenditure items	Period					
	Dec '05	Dec '04	Dec '03	Dec '02	Dec '01	Dec '00
Interest received on current and past due loans, including loan prepayments						
Loan related incomes received on current and past due loans						
Income received from investments						
Other operating income received						
Re-valuation income (from property)						
Interest paid on loans to the MFI						
Interest paid on deposits						
Amount put aside to cover Loan Loss						
Salaries and benefits						
Depreciation						
Legal and audit fees						
Other expenses						
Direct Grant						

Loan Portfolio Data

Items	Period					
	Dec '05	Dec '04	Dec '03	Dec '02	Dec '01	Dec '00
Value of loans disbursed during the year – **Group lending**						
Value of loans disbursed during the year – **Individual lending**						
Total value of loans disbursed during the year						
Number of loans disbursed during the year						

Outreach and other activities Data

Items	Period					
	Dec '05	Dec '04	Dec '03	Dec '02	Dec '01	Dec '00
Number of clients this period						
Number of borrowers this period						
Number of savers this period						
Number of outstanding borrowers this period						
Number of outstanding loans this period						
Average number of Loan Officers this period						
Average number of staff this period						
Dominant delivery mechanism employed this period						
Mission of the institution/organisation this period						
Please, answer **Yes** or **No** if the MFI provided the following during the period: Credit	Yes /No	Yes /No	Yes /No	Yes /No	Yes /No	Yes /No
Compulsory savings	Yes /No	Yes /No	Yes /No	Yes /No	Yes /No	Yes /No
Voluntary savings	Yes /No	Yes /No	Yes /No	Yes /No	Yes /No	Yes /No
Money Transfer	Yes /No	Yes /No	Yes /No	Yes /No	Yes /No	Yes /No
Other services (specify)						

EFFECTIVE GOVERNANCE CHARACTERISTICS OR PRACTICES

Characteristics of an effective governance system	In place (Tick). Not in place (put X)	Year when put in place
Existence of clear equity holders and their capacity to provide more capital		
Existence of instruments specifying the rights and responsibilities of equity holders		
Existence of clearly defined responsibilities of Board of Director		
Existence of a competent Board and leadership.		
Existence of an independent Board of Directors		
Existence of independent Board committees		
Existence of Term limit for Board of Directors		
Existence of Code of conduct for the Board of Directors		
Separation of responsibilities of the Board chairman and chief executive officer of the organization		
Existence of mechanisms for internal controls including organizational structure, systems, policies and procedures		
Existence of strategic plan indicating clearly the mission and objectives		
Existence of information disclosure requirement and systems		
Existence and implementation of a framework for: setting objectives, ensuring that the objectives are met, assessing performance and for rewarding/sanctioning performance		
External factors that include the existence of a sound legal and regulatory framework for equity holders		

Designation of Respondent   Name of Research Assistant

__Purpose of the Survey:__ This is strictly an academic study by Luke Okumu (Fax no. 256-41-258218/Tel. 077-517318), a student at the University of Stellenbosch, South Africa. The data being solicited shall be used strictly for academic purpose and will be treated with utmost confidentiality. Your kind and very valuable response shall be highly appreciated. **Thank you.**

1.   Code of Microfinance Institution (MFI)   Date of Data Collection

2.   Location of MFI's head office (City/Town)

3.   Year when the MFI started operating

4.   The MFI's legal status:
      01   NGO   b)   Private Company c)   Company Limited by Guarantee
      d)   Credit Union   e)   Savings and Credit Co-operative   f) Other (specify)

5.   If accepting voluntary savings, of what value is it to your institution?

      01)   Loan Guarantee 02)   For security while borrowing from another financial institution
      03)   Lending   04)   Other (specify)

6.   The current number of shareholders

7   Given the requirements to register and operate as an MDI[42], outlined in Q12 below, will this MFI *REGISTER* as an MDI or not?

      01   Will register immediately   02   Will register after about-----years
      03   Will not register

8.   If the MFI will REGISTER as an MDI, what will be the major contributory factors?

      01   The requirements under the MDI Act, 2003 are an incentive to register

      02   Can meet all the requirements under the MDI Act, 2003

      03   Other (specify)

9.   If the MFI will not REGISTER as an MDI, give reasons why?

      01   The requirements under the MDI Act, 2003 are an incentive to register

      02   Can meet all the requirements under the MDI Act, 2003

      03   Other (specify)

---

[42] MDI in full is Microfinance Deposit-taking Institution

10.   If the MFI will not register as an MDI, what legal status will it assume?

        01   Retain current legal status

        02   Become member-based institution

        03   Become credit only institution

        04   Stop providing microfinance services

        05   Other (specify)

11.   If the MDI law becomes effective, how will the aspects of your institution indicated in the table below be affected? Please, use 01 = Significantly decrease; 02 = Decrease; 03 = No effect; 04 Increase; 05 = Significantly increase. Please, indicate the direction of the expected effect in column two of the table.

Some institutional aspects	Direction of the expected effects	Reasons for the indicated effects
Interest rates and other costs of finance		
Number of clients reached		
Geographical coverage		
Cost of operations		
Profitability		
Provision of savings		
Economic activities financed		
Sources of funding		
Branches/agencies network		
Operational policies, e.g. lending, interest rates determination, etc		

12. Using scale, 01 = no idea; 02 = Not obstacle; 03 = Many be an obstacle; 04 = Definitely an obstacle; 05 = A major obstacle, indicate the extent to which the following requirements/conditions to register and operate as an MDI are obstacles to your decision to come an MDI.

Requirements/conditions under the MDI Bill, 2002	Decision to become an MDI	Remarks on the effects of the decision
Minimum capital requirement of UGX 500 million		
Ability to inject in additional core capital whenever needed (indicated by willingness to swear that they have the ability to inject in additional capital whenever required)		
The company must be limited by shares and have share capital		
Payment of application fee (MDIs are likely to pay application fee of UGX one million)		
Appointment of two executive directors, ordinarily resident in Uganda and have ability to influence the policies of the MDI		
Appointment of two executive directors, ordinarily resident in Uganda and have knowledge in the manner in which the MDI's long term-term strategy is pursued		
Shareholder must have a good track record of doing good business		
All shareholders/founders, board of directors, managers must have sworn declarations in respect of their responsibilities in the MDI		
A shareholder/founder and a board member must have sworn declarations in respect of assets and liabilities		
A board member must be above 18 years of age		
A board member must be of sound mind and not declared of unsound mind by any court of law in Uganda		
A board member must not have been charged bankrupt or convicted of any offence or have worked in a failed financial institution		
A board member must be a natural person (human being)		
A board member must not be an auditor in a formal employment		
The board of directors of an institution shall be responsible for the institution's good corporate governance and business performance		
The board of directors of an institution shall be responsible for the institution's affairs and business operations		
The board of directors of an institution shall be responsible for ensuring that the institution's business is conducted in a safe and sound manner		
The board of directors of an institution shall be responsible for ensuring and reporting to shareholders at the annual general meeting that the institution's internal controls and systems and management information systems: ▪ provide reasonable assurance as to the integrity and reliability of the financial statements; ▪ adequately verify, safeguard and maintain accountability of the assets; ▪ are based on established and written down policies and procedures and implemented by trained and skilled officers with an appropriate segregation of duties; and ▪ are continuously monitored, reviewed and updated to ensure that no material break-down occurs in the functioning of such controls, procedures and systems.		
A board member is responsible for ensuring that the business of the MFI is undertaken in compliance with all applicable laws and regulations in Uganda		
The public must give their views on the persons proposed to be shareholders		
The public must give their views on the persons proposed to be directors		
A penalty by a regulator/supervisor for providing wrong information, failure to provide the required information and/or failure to comply with the requirements stated in the MDI law. For instance, it is proposed that failure to report to BOU in time will lead to fine of UgShs40,000 for each of the		

five days and thereafter UgShs80,000 per extra day. Penalties for inaccurate reporting include, prohibition from declaring and/or paying dividends, suspension of the establishment of new branches and/or introduction of new financial products and suspension of lending operations, deposit taking and acquisition of fixed assets.		
Every institution shall, with the approval of the Central Bank, appoint a firm of accountants to be the external auditors of the institution and at least two or more members of the firm of accountants must be accountants in good standing of the Institute of Certified Public Accountants of the country, must be senior enough and independent of the MDI in all manners defined in the Act;		
Every institution shall, with the approval of the Central Bank, appoint an internal auditor		
Production of sufficiently detailed business and financial plans and earnings forecasts, namely, balance sheet, income statement and cash flow for at least three years on the basis of generally accepted principles.		
No person or a group of related persons shall hold more than 30% of shares of an institution from the time of coming into force of the Act unless such an institution was already existing in which case it can only be so for 5 years thereafter or with approval of the Central Bank		
Maintenance of a register of the current shareholders of all shares in the MFI and after every six months providing to the Central Bank with its most up-to-date returns		
Publication in a widely circulated newspaper in Uganda of the intentions to start an MDI		
Maintenance of a core capital of not less than 15% of the MDI's total risk-adjusted assets plus risk-adjusted off balance sheet items as may be determined by the Central Bank by statutory instrument.		
Maintenance of a total capital of not less than 20% of the MDI's total risk-adjusted assets plus risk-adjusted off balance sheet items as may be determined by the Central Bank by statutory instrument.		
Must hold 15% of total deposits liabilities in liquid assets		
The board is responsible for ensuring that a report made and submitted to the institution by its external auditor is forwarded to the Central Bank within four months after the end of its financial year		
Every institution shall promptly report to the Credit Reference Bureau established by the Central Bank all the information as prescribed in the Act;		
Every institution shall within four months after the end of its financial year (31 December) publish in a newspaper that widely circulates in Uganda a copy of its audited annual financial statements together with auditors report		
An institution shall preserve the corporate accounting and other financial records as defined in the Act for a period of at least ten years		
Submission to the Central Bank of an approved audited annual financial statements together with auditors' report and the management letter within three months from the end of the financial year.		
Publication of audited annual financial statements together with auditors report in a newspaper that widely circulates in Uganda		
Contribution of at least 0.2% of the average weighted deposit liabilities of the MDI in its previous financial year		
The operations of every institution shall be directed by a board consisting of at least five directors and no person shall become a director without the approval of the Central Bank		
The MFI must appoint technically qualified and experienced officials to perform functions and duties prescribed by the regulations		
Board of directors are liable for unsecured lending i.e. lending without approved collateral or whose value is less than the loan value extended.		
No granting of credit facility exceeding 1% of the core capital to an individual or 5% to a group of individuals		

All loans must be "well secured" – must have sufficient collateral which can be timely disposed off at a value equal or greater than the principal, interest and cost of disposing off the collateral. In addition, the security must be either and/or property and legally documented, compulsory savings or loan insurance and free of prior liens. Note that the moment the loan falls in arrears, steps must be initiated to realize the outstanding loans from the collateral and interest in not accrued.		
Loan provisioning conditions: 1%=for general provisions (for current assets whether delinquent or not) 5%=for general provision (principal/interest is due & unpaid for 8-30 days) 25% = for sub-standard credit facility (principal/interest is due and unpaid for 31-60 days) 50% = for doubtful credit facility (principal/interest is due and unpaid for 61-90 days) 100% = for loan loss and should be written-off from books (principal/interest is due and unpaid for over 90 days)		
Provisioning conditions for restructured loans: 5%=for general provisions (for current assets whether delinquent or not) 5%=for general provision (principal/interest is due & unpaid for 8-30 days) 50% = for sub-standard credit facility (principal/interest is due and unpaid for 31-60 days) 75% = for doubtful credit facility (principal/interest is due and unpaid for 61-90 days) 100% = for loan loss and should be written-off from books (principal/interest is due and unpaid for over 90 days)		
Production of sufficiently detailed feasibility study addressing: • History of the organization; • Clear and well-articulated mission statement and overall goals • Ownership and Governance • Management • Products offered and delivery mechanisms • Staff recruitment, management and development plan • Market research and development • Business strategy and plans • Financial plans/forecasts in forma of balance sheet, income statement and cash flow demonstrating profitability • Sensitivity analysis of interest rates and repayment • Internal control systems, including MIS		
The MDI mush have an up-to-date cash flow statement		
At all times, in accordance with international accounting standards and in English language, keep financial ledgers and other financial and non-financial records that reflect the true and fair state of MDI's affairs and explains its transactions and financial position as well as allowing easy production of all required financial statements and BOU returns, namely, • Weekly returns on Liquidity; • Monthly Portfolio Quality Returns; • Monthly Statement of Assets and Liabilities; • Monthly Computation of Capital Adequacy; • Monthly Statement of Income and Expense; • Monthly Schedule of Provisions for Bad Debts; • Monthly Statement of Loans extended to Insiders; • Monthly Reports on Lending Limits; and • Reports on Ownership of Shares. All the monthly returns must be submitted within 10 days after the end of the month and should be in print. In addition, the MDI Act, 2003 requires licensed MFIs to:		

• Prepare and maintain adequate books of account vouchers, securities, records, computer systems and relevant other financial and non-financial records; • Have adequate physical infrastructure in the form of buildings, security, counters, a strong room with a safe and safety provisions such as fire extinguishers; • Pay an annual license fee of UGX one million, the amount paid by a credit institution • Failure to comply with the regulatory requirements attracts penalties or may result in a management take-over, which might lead to liquidation.		

13.   What is your estimated cost of writing a feasibility study? UGX -----------------------------

14   What is your projected cost of making reports to BOU?   UGX -----------------------

15   Using scale 0 = Not important, 1 = Moderately important, 2 = Important, 3 = Most important, list sources of funding for this MFI and rank them as requested

Sources of funding	Level of Importance
Shares	
Retained earnings	
Grant	
Members savings	
Public savings	
Other (Specify)	

Question		Response
16	How much time would this MFI take to raise additional capital if required?	Time in months/Years:
17	How much money did this MFI pay for external audit last financial year?	Amount:
18	How much money did this MFI pay for external supervision last financial year?	Amount:

19.   In what undertaking does this institution invest its resources e.g. share capital, savings, etc?

01   Mainly loans
02   Only in Loans
03   Fixed deposits
04   Other (specify)

20   From your point of view and experience, what would be the benefits of regulating MFIs in Uganda under the financial regulations e.g. MDI Act, 2003?

        01   No benefits
        02   Access to commercial loans
        03   Access to savings
        04   Access to donor funds
        05   Attracting public confidence and trust in the MFI
        06   To be sustainable
        07   Increase in the number of clients
        08   Access to additional capital
        09   Other (specify)

21   From your point of view and experience, what would be the costs of regulating MFIs in Uganda under the financial regulations e.g. MDI Act, 2003?

        01   More cost will be incurred reporting to the regulators

        02   More time will be spent preparing reports to the regulators and answering their questions

        03   More qualified staff, who cost more to recruit, remunerate, train and retain shall be required

        04   Other (Specify)

22   List major assets owned by this MFI

23   Comment on the financial statements prepared by this MFIs versus the BOU requirements.

Designation of Respondent

Name of Research Assistant

*This is strictly an academic study by Luke Okumu (Telephone: 0782-459510), a student at the University of Stellenbosch, South Africa. The data being solicited shall be used strictly for academic purpose and will be treated with utmost confidentiality. Your very valuable response shall be highly appreciated. **Thank you.***

Name of MDI   Date of Data Collection

From your experience as a regulated microfinance institution, indicate which of the following in the table below apply to this microfinance institution.

Possible benefits/Costs of regulation	Decreased	No change	Increased	Remarks
Access to credit lines				
Savings mobilization				
Branch network in rural areas				
Overall Profitability				
Overall Sustainability				
Public confidence and trust in the MFI				
Number of rural clients served				
Lending rates				
Operational costs				
Cost of funds				
Range of services provided by the MFI				
Innovation e.g. in product development and delivery methodology				
Other (Specify)				

From your experience, indicate the effect of financial regulation of your institution by Bank of Uganda on the requirements of the items specified in the first column of the table below.

Expenditure item	Decreased	No effect	Increased	Remarks
Computer Hardware				
Computer Software				
Professional staff				
Stationary and other office supplies				
Statutory publications				
Communications e.g. e-mail and telephone				
Staff training				
Educated and qualified board members				
Other (Specify)				

Name of Sender: Luke Okumu

Signature of Sender:

MICROFINANCE INDUSTRY IN UGANDA: Sustainability, Outreach and Regulation
(Questionnaire for Commercial and Development Banks

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Code Number of the Bank   Date of Data Collection

Q1.   Given that microfinance services are now going to be regulated in Uganda under the prudential laws (regulatory and supervisory guidelines issued by the financial sector authorities), would your bank/institution consider any of the following options (please, rank them on the scale 0 = No consideration, 1 = Some consideration, 2 = Serious consideration).

Possible Decisions	*Consideration level*	*Next question to answer*
No idea		If this the response to Q1, end here
Providing microfinance services directly		If this the response to Q1, go Q2
Lending through licensed microfinance institutions (MFIs)		If this the response to Q1, go to Q3, Q4 and Q5
Lending to licensed MFIs		If this the response to Q1, go Q6
Other (Specify)		If this the response to Q1, go Q7

Q2   Would the bank/institution use any of the following approaches?

   01   Open new branches

   02   Use existing branches

   03   Provide mobile services

   04   Other (Specify)

Q3   What would be the basis for choosing the MFI to lend through?

   01   Location (Indicate whether urban or rural would be preferred)

   02   Size of the MFI measured by

      a.   Level of deposits

      b.   Level of assets

      c.   Other (Specify)

   03   Level of profitability

   04   Target clients

   05   Number of clients served

   06   Poverty level of target clients

   07   Other (specify)

Q4   Who would be responsible for screening the borrowers?

   01   The Bank/Financial Institution   02   The MFI

Q5   Who would prescribe the criteria for screening the final borrowers?

          01   The Bank/Financial Institution   02   The MFI

Q6   What would be the basis to choose the MFI to lend to?

          01   Location (Indicate whether urban or rural would be preferred)

          02   Size of the MFI measured by

          a.   Level of deposits

          b.   Level of assets

          c.   Other (Specify)

          03   Level of profitability

          04   Target clients

          05   Number of clients served

          06   Poverty level of target clients

          07   Other (specify)

Q7   Explain how the decision in Q6 would be implemented

Designation of Respondent   **Name of Research Assistant**

APPENDIX B5: MICROFINANCE INDUSTRY IN UGANDA: Sustainability, Outreach and Regulation
(Questionnaire for Bank of Uganda)

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Q1   What, in Bank of Uganda's view, are the expected benefits of regulating the country's microfinance industry? Using scale 1 = Sometimes important, 2 = Important, 3 = Very Important, rank the benefits and indicate those that are direct benefits to the Bank of Uganda (BOU), the Microfinance (MF) Industry and the whole economy of Uganda

	Rank	*Direct benefits to BOU*		*Direct benefits to MF industry*		*Direct benefits to the whole economy*	
		Yes	**No**	**Yes**	**No**	**Yes**	**No**
Improvement of opportunities for the regulated MF institutions to access to many credit lines							
Expansion of savings facilities to the poor mainly in rural areas							
Creation of a regulatory and supervisory environment for the development of sustainable financial institutions							
Cultivation of public confidence and trust in the regulated MF institutions							
Increased supply of credit especially to the poor in rural areas							
Promotion of the business and operations of the MF institutions							
Enhancement of money transfer especially in rural areas							
Reduction of the cost of funds							
Reduction in the lending rates to the target clients							
Protection of especially small deposits							
Expansion of monetary policy management channels							

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Q2 What, in Bank of Uganda's view, are the expected costs of regulating the country's microfinance industry? Using scale 1 = Not major, 2 = Sometimes Major, 3 = Major or NC= Not a cost, rank the costs and indicate those that are direct benefits to the Bank of Uganda (BOU), the Microfinance (MF) Industry and the whole economy of Uganda

Possible costs	Rank	Direct of costs to BOU		Direct of costs to MF industry		Direct of costs to the whole economy	
		Yes	No	Yes	No	Yes	No
Limited opportunities to access donor funds by the MFIs							
Limited number of formal financial institutions							
Limited savings facilities to the poor mainly in rural areas							
Loss of public confidence and trust in the financial system for institutional failure							
Limited opportunities for money transfer in rural areas							
Prevalence use of cash in effecting payments will continue							
More compensation for deposits for any institutional failure							
Stifling innovative approaches to the microfinance industry							
Compliance cost by the regulated institutions							
Increased cost of funds							
High cost of supervision							
Increased expenditure on recruiting supervisors, training and retaining them by the Bank of Uganda							
Limited monetary policy management channels							
Reduced supply of credit especially to the poor in rural areas							

Q3. The Infrastructure for licensing and supervision of financial institutions in Uganda

The Infrastructure for licensing and supervision of Financial Institutions	Commercial banking	Credit institutions	MDIs
Number of technical staff			
Budget for training			
Average number of days taken For on-site supervision			
Cost of insurance while on on-site supervision (2005)			
Average size of supervision team for on-site supervision			
Average time taken to grant a licence			
Key tools required for on-site supervision			
Comments on especially the MIS required by a regular for effective licensing and supervision			

Designation of Respondent   ---   Name of Interviewer and Date of Interview