UNIVERSITY OF
BIRMINGHAM

# CAPITAL STRUCTURE AND

# MICROFINANCE PERFORMANCE

## A CROSS-COUNTRY ANALYSIS AND CASE STUDY OF VIETNAM

By

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A thesis submitted to
The University of Birmingham
for the degree of
DOCTOR OF PHILOSOPHY

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January 2012

# DECLARATION

I, **Trong Vi Ngo**, hereby solemnly declare that I am the sole author of this thesis and that during the period of registered study, I have not been registered simultaneously for any other academic award of qualification, nor has any of the material contained in this thesis been submitted wholly or partially for any other award of any degree or diploma of the University or other institutions of higher learning except where due acknowledgement has been made in the text. I have personally carried out all the work to which this written declaration is a record. The programme of study of which this study is the major requirement has been delivered by the Department of Economics, Business School at the University of Birmingham in the United Kingdom.

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# ABSTRACT

Due to the limitations of the extant literature on the impact of microfinance funding on performance, with particular regard to a cross-country analysis and case study of Vietnam, this thesis has been written in an effort to fill this major gap by conducting an empirical investigation into the link between funding and the performance of microfinance institutions. It also employs the most common indicators for microfinance performance and introduces new evidence and possible explanations from an explicit perspective that might be relevant in the context of scale of operation, profit status, regulated status and legal status. First, the link between funding and microfinance performance varies with the heterogeneity of microfinance institution' characteristics. Second, profitable and regulated microfinance institutions which take on considerably more commercial funds are therefore shown to have higher sustainability, efficiency and outreach. Third, a large scale of operation helps microfinance institutions achieve higher efficiency, profitability, sustainability and outreach (breadth and depth). Fourth, there is no trade-off between the breadth of outreach and efficiency. Fifth, larger loan sizes are associated with higher loan costs. Sixth, the global financial crisis has had a minor impact on the performance of microfinance institutions since they have a low level of self-sufficiency, associated with a low degree of financial integration.

# DEDICATION

**To my parents:** I would like to express my deep gratitude to you for your unconditional support during my studies and my life. You have sacrificed your whole life and given me all the encouragement you could possibly have done. Thanks again for giving me the chance to prove and improve myself through all my life.

**To my sister:** There is no mountain too high as long as you are at my side, although we may disagree and I may sometimes hurt you. Your support and encouragement can never be replaced. I hope you are always happy in life in the paths you choose and that you fulfil your dreams.

**To my wife:** I am terribly sorry for not staying by your side when you gave birth to our twin angels. Through the years, we have learned a lot about each other and we have grown together. We have learned about forgiveness and we have learned about friendship. Most of all, we have learned about love. Thank you for your courage, strength and patience for raising our children and maintaining our home in my absence while I have been studying. I am a very lucky man; I simply could not manage without you. Life is not easy, but I am happy and extremely lucky to have you in my life.

**To my children**: I know I am not a good dad, since I could not come to say hello, hold you in my arms and be proud of you on the first day you came into this life. Even so, you always smiled, your big eyes open wide, full of love. You were such good and sweet babies. Now, as I watch you grow up and become yourselves, I look at you, your laughter, your happiness, your simplicity and I want to tell you that I am so proud of you and I dearly love you, my prince and princess.

# ACKNOWLEDGEMENTS

This thesis is the result of four years' work (from 2007 to 2011) of work at the Department of Economics, Business School, University of Birmingham (United Kingdom), during which time I was accompanied and supported by many people. It is now my great pleasure to take this opportunity to express my gratitude to all of them.

First and foremost, I am very thankful to my direct supervisor Professor Andrew Mullineux for his excellent supervision, advice and comments and for instilling in me the spirit of focusing ever higher. His constant and never-failing support, excellent guidance and inspiring attitude have made this thesis possible. He has spent many hours on advising and teaching me scientific ways of working, writing and reasoning. He was always available when I needed his advice. He has a deep understanding and encouraged me during the time I was studying for my PhD. I could not imagine having a better advisor for my program. I owe him much gratitude for having shown me this way of research. He could not even realize how much I have learned from him. Besides being an excellent supervisor, he was as close as a father and a good friend. I am really glad that I have come to know him in my life.

Special thanks also go to my other supervisor Professor David Dickinson for all his help and support. He has been actively interested in and kept an eye on the progress of my work. I am very grateful for his patience, motivation, enthusiasm and immense knowledge in banking and finance. I have been extremely lucky to have a supervisor, head of department and director of Birmingham Business School who gave me excellent lectures on the Economics of Financial Markets, lent me books and taken so much interest in my work and my family. I am proud to have been one of his students.

I am also grateful to the other professors and lecturers of the Department of Economics for giving me the chance to work and study with them, especially to Gabrielle Kelly for her special attention, understanding and encouragement. Finally, I also would like to thank Steve Gould who provided academic proofreading and editing for my thesis, as well as James Reade, who helped me with the correction of my thesis.

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| | |
|---|---|
| ADB | Asian Development Bank |
| BBC | The British Broadcasting Corporation |
| BWTP | Banking With The Poor |
| CGAP | Consultative Group to Assist the Poor |
| ECB | The European Central Bank |
| EDA | EDA Rural Systems Private Limited |
| GMM | The Generalized Method of Moments |
| IMF | International Monetary Fund |
| (I)NGOs | (International) Non-Government Organizations |
| MBB | The MicroBanking Bulletin |
| MDGs | Millennium Development Goals |
| MFIs | Microfinance Institutions |
| MIX | Microfinance Information Exchange |
| NBFI | Non-Bank Financial Institution |
| OECD | The Organization for Economic Co-operation and Development |
| OLS | Ordinary Least Squares |
| PCFs | People's Credit Funds |
| SBV | The State Bank of Vietnam |
| SWOT | Strengths, Weaknesses, Opportunities, and Threats |
| UNDP | United Nations Development Programme |
| UNCDF | United Nations Capital Development Fund |
| USAID | United States Agency for International Development |
| US.$ | USD/ United States Dollar |
| VBARD | Vietnam Bank of Agriculture and Rural Development |
| VBP | Vietnam Bank for the Poor |
| VBSP | Vietnam Bank for Social Policies |
| VND | Viet Nam Dong (Local or National Currency Unit) |
| WB | The Word Bank |

# CHAPTER 1

# INTRODUCTION

## 1.1. Introduction

With daily income below the minimum level for basic needs, the poor are households with very little income and no assets. They need access to basic financial services such as credit, savings, insurance and money transfers to manage their precarious lives, together with the provision of basic social services such as basic health care, primary education, water and sanitation. Lack of access to basic financial services tends to deprive them of the means to improve their incomes, secure their existence, and cope with emergencies. Poor households in developing countries face a number of risks and are difficult to reduce these risks ex ante and cope with shosks once they have not been materialised. Therefore, the provision of financial services to poor households by microfinance institutions (MFIs) in developing countries can help to transform their lives permanently and lift them out of poverty. It also provides them with opportunities to take active roles in the economy through income, bargaining power and the building up of social empowerment in their communities. With this approach, the poor have opportunities to become self-sufficient in the long run by using these funds to build small businesses for future cash flow.

Microfinance has proven to be an appropriate, effective and powerful tool for the poor and for poverty reduction in order to reach the Millennium goals. We provide a comprehensive review of the main challenges of microfinance and address several

important issues based on the existing literature. First, microfinance is clearly not a machine or a potion which can immediately turn the poor into the non-poor. The point is that microfinance is basically a long-term process which tends to support the poor financially so that they can combine their skills, knowledge, experience and financial capital to break away from poverty and change their lives. Second, donor funding tends to become insufficient to meet the continual demand for well-designed financial products by new and existing clients. Therefore, access to commercial funds is likely to encourage MFIs to move out of heavily subsidised operations and to enter into commercialisation in order to achieve efficiency and sustainability. Third, several studies have focused on investigating the impact of microfinance or the trade-off between social mission and financial sustainability, while neglecting the possibility for MFIs to remain viable in providing financial services to the poor in the long run. Fourth, the funding of microfinance plays important roles in the economic viability and sustainability of MFIs. Fifth, lending methodologies, savings, empowerment of women and the impact of microfinance are likely to depend heavily on the legal status, profit status and regulated status of MFIs.

Responding to profit incentives, MFIs have tried to increase revenues and decrease total expenses (including costs of capital). The positive returns of several MFIs all over the world have continued to attract new investment funds. Microfinance around the world continues to evolve, with consistent emphasis on efficiency and growth in outreach. It is relying increasingly on commercial financing to fund this potential growth, either through debt or equity financing. However, there has been very little research on the effects of financial structure in terms of funding on the performance of MFIs by a cross-country analysis and country case study.

The existing empirical studies have basically focused on the determinants of financial structure to explain how an MFI can finance business activities by using debts and equity to maximise the benefits for shareholders based on their advantages. A natural extension of this line of inquiry is to investigate the effects of financial structure on the performance of MFIs. However, previous studies have tended to be fairly limited, focusing only on the links between financial leverage, profitability (financial performance) and outreach (social performance), and thereby missing other important aspects of financial performance: sustainability, efficiency and portfolio quality. In addition, MFIs are far from homogeneous; their performance therefore responds in different ways to changes in return to firm-specific internal factors (such as scale of operation, legal status, profit status and regulated status) and macroeconomic factors (such as inflation, GNI per capita and global financial crises). Clearly, this argument increases the need to address the issue of the heterogeneity of MFIs by investigating the relationship between microfinance funding and the different aspects of performance. From this point of view, the results of the investigation will help the internal and external funders determine financing decisions or take corrective actions when needed based on the key performance indicators mentioned above.

In developing countries, microfinance programs are carried out by MFIs that have been sponsored by local governments, donors and international organisations because of poor participation by the private sector, particularly with regard to local commercial banks. The number of MFIs increased rapidly during the period from 1995 to 2012. Several MFIs improved their efficiency, became self-sufficient and played an increasingly important role as financial intermediaries in local economies for poverty reduction. Achieving higher efficiency and sustainability associated with operating at the most competitive size tends to offer MFIs more opportunities to have cheaper access

to outside financing and to diversify their financing sources. Therefore, understanding the differences in scale of operation and their relationships to microfinance performance is necessary in order to provide any additional information funders and MFIs may need regarding financing decisions.

## 1.2. Motivation

Due to the limitations of the extant literature on the effect of funding on the different aspects of microfinance performance, this study is believed to be a pioneer in filling the gap in the literature by investigating the relationship between funding and microfinance performance based on a cross-country analysis. First, the most common performance indicators for microfinance were employed to investigate the impact of financial leverage on microfinance performance with the heterogeneity of MFI characteristics. Second, this study introduced new evidence and possible explanations from an explicit perspective that might be relevant in the context of scale of operation, profit status, regulated status and legal status. Third, this study employed system GMM to avoid the possibility of reverse causation from dependent variables (performance indicators) to independent variables (financial leverage and scale of operation). Therefore, this study provides several new and interesting findings which contribute additional empirical evidence to the existing literature on the impact of financial structure in terms of funding on microfinance performance.

In addition, microfinance performance responds in different ways to changes in return to firm-specific factors and macroeconomic factors because of the heterogeneity of characteristics. This fact increases the need to carry out an empirical investigation of previous theoretical and empirical works that focus on a particular country in order to improve the contribution of firm characteristics to the impact of financial leverage on

microfinance performance. There are a number of reasons for choosing Vietnam to carry out the investigation. First, to the best of the researcher's knowledge, no study is available which investigates the relationship between financial leverage and microfinance performance in the Vietnamese context. Second, Vietnam is one of the fastest growing developing economies which is classified as a poor country. Therefore, microfinance is playing an increasingly important role in poverty reduction in the country (see Chapter 6 for more detailed information on microfinance in Vietnam). Third, international investment is important to most economies and can be particularly vital for developing countries, including Vietnam, which are seen as having significant potential for investment.

All the above issues have encouraged me to conduct this research, with the belief that this study proposes possible explanations from an explicit perspective that might be relevant in the context of firm-specific characteristics, with particular regard to profit and regulated status, as well as scale of operation, for the impact of funding in terms of financial leverage on microfinance performance.

**1.3. Research Objectives**

The main purpose of this research is to provide in-depth analysis and to introduce possible explanations for the relationships between funding, scale of operation and microfinance performance to help funders to determine financing decisions or to take corrective actions based on the key performance indicators of MFIs. In order to achieve these objectives, this study conducted an empirical investigation into the impact of financial leverage and scale of operation on the performance of MFIs by using a cross-country analysis and case study of Vietnam.

## 1.4. Research Questions

The aim and objectives of our research are inspired by the belief that funders can determine financing decisions or take corrective actions based on the relationships between the key performance indicators of MFIs, and that MFIs can improve their performance based on financial leverage and scale of operation. Therefore, five research questions (RQ) were formulated to explore the issue.

(RQ1) How does financial structure in terms of financial leverage affect the different aspects of microfinance performance (including efficiency, sustainability and depth and breadth of outreach)?

(RQ2) Is there any trade-off between the financial and social performance of MFIs?

(RQ3) Is there any trade-off between the depth and breadth of outreach?

(RQ4) How does scale of operation affect microfinance performance (social and financial performance)?

(RQ5) How did the global financial crisis of 2007/2008 affect microfinance performance?

## 1.5. Methodology

The goals of this research are realised by employing both theoretical and empirical analysis. The theoretical analysis consists of a literature review. The literature review is desk-based research which uses various sources of secondary data. The empirical analysis consists of econometric analyses. The econometric analyses use secondary data from MIX Market and the Central Bank of Vietnam. The researcher used Microsoft Excel to create spreadsheets for data collection and build graphs for analysis, Microsoft Word to write up the results and Stata to analyse the data.

**1.6. Structure of the Thesis**

This thesis consists of seven chapters, including the Introduction.

**Chapter 2** provides comprehensive reviews and assessment of poverty reduction, microfinance and the main challenges of microfinance. The objective of this chapter is to provide an in-depth review of the main roles of microfinance in poverty reduction in order to shed new light on the importance of microfinance funding and previously unstudied topics: the link between funding and performance.

**Chapter 3** carries out investigation into funding and the link between funding and microfinance performance in order to establish gaps in the existing literature which need to be research. The most influential economic theories and empirical evidence which are presented here attempt to provide statements for the empirical analysis presented in the following chapters.

**Chapter 4** conducts an empirical investigation to examine the effects of financial leverage on the different aspects of microfinance performance with the heterogeneity of MFI characteristics. This chapter provides in-depth analysis and introduces possible explanations that might be relevant in the context of firm-specific characteristics to help funders to determine financing decisions based on key performance indicators. This chapter also sheds new light on the important role of scale of operation and the effect of the global financial crisis on microfinance performance.

**Chapter 5** carries out an empirical investigation into the relationships between scale of operations, financial leverage and performance, as well as the effect of the global financial crisis of 2007/2008 on microfinance performance. The findings of this study are expected to contribute to the existing knowledge by providing possible explanations for both funders and MFI managers who seek recommendations and

solutions for improving their performance so as to avoid the negative impact of the global financial crisis, as well as solutions for the trade-off between depth and breadth of outreach.

**Chapter 6** determines the impact of financial structure on microfinance performance in Vietnam in an effort to compare the results of this country against a cross-section of others. This study provides an overview of the relationship between financial structure and performance in Vietnam to help funders evaluate and determine financing decisions.

**Chapter 7** summarises the key findings, discusses their limitations, and suggests some ideas for further research. Figure 1.1 shows the structure of the thesis.

**Figure 1.1 Structure of the Thesis**

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│       Chapter 1         │
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│  │ Impact of financial       │  │ Impact of scale of        │ │
│  │ structure on microfinance │  │ operation on microfinance │ │
│  │ performance               │  │ performance               │ │
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│       Chapter 7         │
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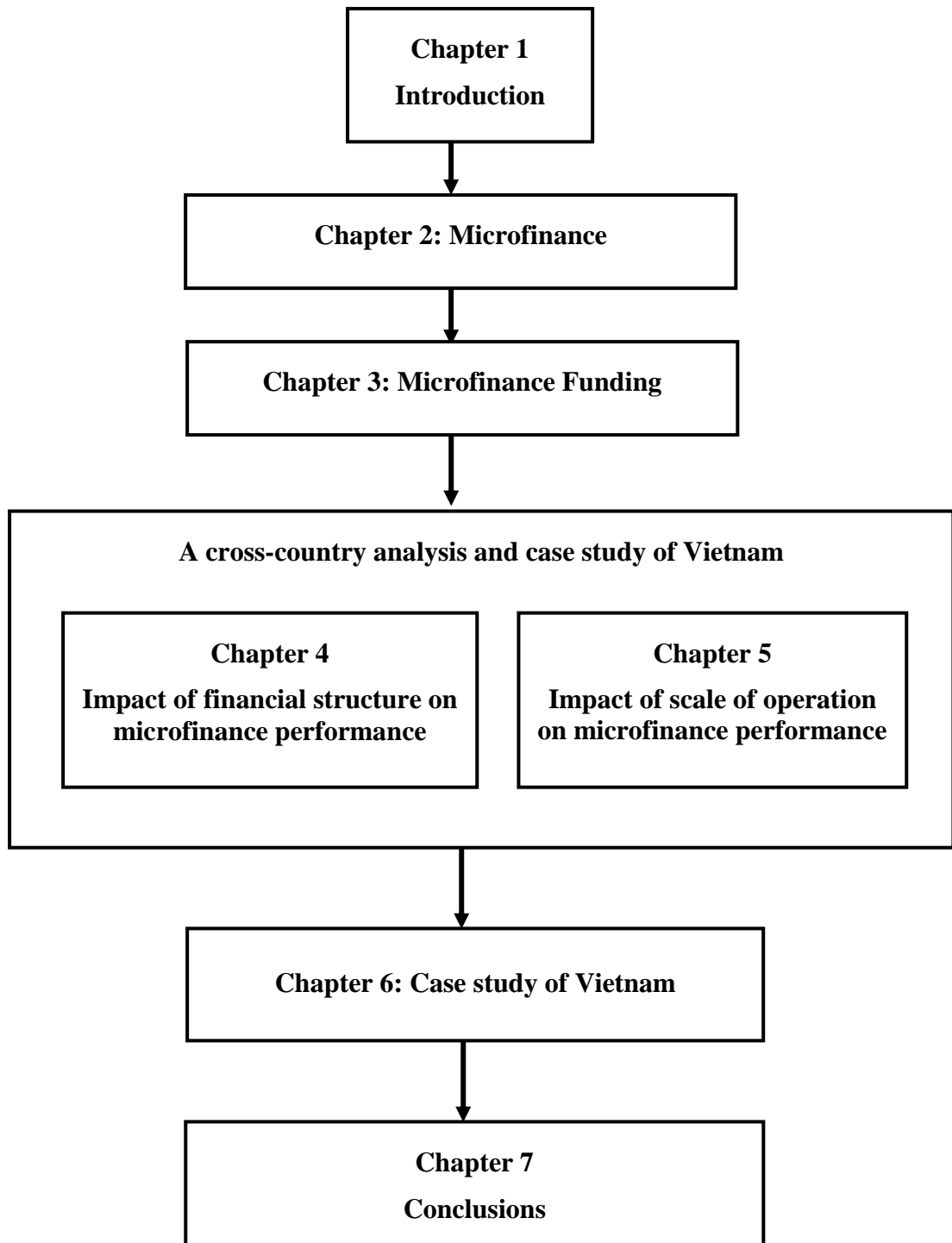
# CHAPTER 2

# MICROFINANCE

## 2.1. Introduction

According to Ravallion et al. (1991), Ravallion (2008 and 2009) and Aigbokhan (2008), the poor are frequently mentioned as households or families with no assets and daily income below the minimum level for basic needs. Lack of access to basic financial services tends to deprive them of the means to improve their incomes, secure their existence, and cope with emergencies. Therefore, they need financial services together with the provision of basic social services to play active roles in the economy through income, bargaining power and the building up of social empowerment in their communities.[1] Providing financial services can help the poor transform their lives permanently and lift them out of poverty by using these funds to build small businesses for future cash flow in order to become self-sufficient in the long run.

Over the years, many studies have been conducted and have come to different conclusions about the impact of microfinance on poverty reduction (i.e. these studies investigate whether or not microfinance really helps the poor escape poverty). Most studies provide evidence in support of the positive effects of microfinance on increasing the income[2] of the poor or in reducing their vulnerability[3]. There have been a few

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[1] See Yunus (1999 and 2003), Rutherford (2000) and ACCION (2011).

[2] See UNICEF (1997), Khandker (1998 and 2001), Wright (2000), Morduch and Haley (2002), Bansal (2011), Akinlabi et al. (2011) and Pande et al. (2012).

studies with largely conclusive and positive evidence on health, nutrition and education (Wright, 2000). These studies suggest that microfinance is clearly not a machine which can immediately turn the poor into the non-poor. The point is that microfinance is basically a long-term process which tends to support the poor financially so that they can combine their skills, knowledge, experience and financial capital to break away from poverty and change their lives for a better and brighter future. Thus on balance, the majority of research appears to indicate that microfinance does have positive and significant effects on the poor in certain situations. It is, however, extremely difficult to separate and measure the contributions of microfinance to poverty reduction in developing countries since poverty is a big social problem that permeates every dimension of culture and society. In addition, there are strong potential synergies between microfinance and the provision of other non-financial programs, since the benefits derived from these programs are interconnected (Morduch and Haley, 2002). From a social point of view, lending money to the poor can at least help them survive or give them a chance to improve their standard of living.[4]

Providing loans to the poor with no collateral and uncertain cash flows is usually considered as a risky business by traditional commercial banks[5]. Therefore, banking with the poor was mostly carried out by government and donors through non-profit programs, with poor participation from the private sector, especially from local commercial banks. However, microfinance institutions (MFIs) can maintain and expand

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[3] See Swain and Floro (2007), Wright (2000), Zaman (2000).

[4] See WB (1980), UNDP (1997), Yunus (1999 and 2003), BBC News (2005), Daley_Harris (2003, 2007), Roodman (2009) and IFAD (2010).

[5] See Baydas et al. (1997), Curran et al. (2005) and Westley (2006).

their activities only if they can cover all of their costs and generate net income in providing financial services to the poor (Gibbons and Meehan, 1999). It has been pointed out repeatedly that MFIs need to be economically viable and sustainable in the long run, since the sustainability of MFIs is not possible without sound financial performance. Therefore, commercial microfinance has been expanding over the last few years and is considered as the future of microfinance or a new trend in poverty reduction (Hermes, Lensink and Meesters, 2008). This suggests that MFIs are relying increasingly on commercial financing, either through debt or equity investments, to fund their potential growth (Hsu, 2007; Hermes et al., 2011). Clearly, an in-depth understanding of how MFIs choose their financial structure to improve performance has become more important in microfinance.[6]

This chapter aims to provide a comprehensive review of the main roles of microfinance in poverty reduction in order to shed new light on the importance of microfinance funding and previously unstudied topics: the link between funding and performance, including social as well as financial performance. The chapter is divided into three sections. The first two sections present the main issues concerning poverty reduction and microfinance, with the aim of showing the important roles of microfinance in reducing poverty. The third section investigates the main challenges of microfinance to identify gaps in the existing literature which need further investigation, as mentioned above, and presents the main aspects which microfinance funders need to consider in order to determine financial decisions. The funding of microfinance, the theoretical models and empirical evidence are presented in the following chapters, showing how funding and performance are interrelated.

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[6] See Thapa (2007), Bogan (2009) and Imai et al. (2011)

**2.2. Poverty Reduction**

**2.2.1. Poverty**

According to Piachaud (1987), the concept of poverty[7] is a moral question. There are many definitions of poverty due to the context of the situation and the points of view of the person or organisation making the definition. Therefore, there is no single correct or generally agreed definition of the word "poverty," although it is mentioned regularly and has become a commonly used term in discussing effective solutions to improve the living standard of citizens all over the world.

According to the World Development Report of 1980, it was also defined as a condition of life so characterised by malnutrition, illiteracy and disease as to be beneath any reasonable definition of human decency, based on the state of poverty (to lack food, to be uneducated and to lack access to basic health care) (WB, 1980). This definition does not focus on the lack of income as a main characteristic, although income is an important factor in obtaining such basic necessities. The broader definition, often called human poverty in contrast to income poverty, with different sets of indicators used to describe it, was given by UNDP in 1997. This definition mentioned issues such as the ability to access health services, education, clean water, life expectancy, infant mortality rates and literacy levels. According to the European Union, poverty is also defined as individuals or groups whose resources are limited and below the minimum acceptable level (CPSW, 2011). This has become one of the most common definitions, since poverty not only concerns personal income but also the effective exclusion of people from ordinary living patterns, customs and activities.

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[7] The term "poverty" is originally from Latin ("pauper") via Anglo-Norman ("povert")

Clearly, the definition of poverty that is widely accepted is in terms of a situation in which people live with very little income and no asset, are hungry and lack shelter. It is described as the state of being sick without access to treatment from a doctor; not knowing how to read due to not going to school; not having a job; living one day at a time with fears for the future and lack of freedom and representation. In more detail, a person is only considered as poor if their daily income is below the minimum level for basic needs (Aigbokhan, 2008). This minimum level is called the "poverty line" and varies from time and place; each country uses lines which are appropriate to its level of development, societal norms and values. "US$1.0 per day" was the absolute line widely used by the World Bank from 1990 (Ravallion et al., 1991), and was updated to "US$ 1.25 per day" and "US$ 2.0 per day" by Ravallion (2008 and 2009).

Poverty is commonly divided into two broad categories: absolute poverty (extreme poverty) and relative poverty. Absolute poverty is when basic subsistence needs for survival are not being met (such as food, clean water, health, clothing, education, information and shelter). Relative poverty, on the other hand, typically refers to when income is insufficient to reach the average standard of living (OECD, 2001; Jensen, 2009).

In banking and finance, people are basically divided into three groups based on their income (cash flow) and collateral: bankable, near bankable and non-bankable (International Year of Microcredit 2005). Since the poor are people living below the poverty line, they are typically near bankable and non-bankable (Aigbokhan, 2008; Hammill et al., 2008). Microfinance tends to focus on these near bankable and non-bankable people, while rural finance tends to focus on bankable people in rural areas.

- **Bankable** people are those accepted for money lending processing by banks since the term "bankable"[8] simply means being acceptable to or qualifying for a bank loan. They are wealthy or ideally not poor people since they have sufficient collateral from their current income, future cash flows, and high probability of successful acceptance by banks for financing.

- **Non-bankable** people are those who have very little income, no track record and no collateral to be offered for loans from banks. "Non-bankable" is used together with the term "absolute poor" in traditional poverty demographics. They are the main subjects of traditional microfinance (non-profit). According to the World Bank, the absolute poor are the group of people living below the poverty line (on less than US$ 1.25 per day) and the moderately poor are the group of people living on more than US$ 1.25 per day but less than US$ 2.0. These non-bankable people are not creditworthy[9] (they have very little income), are not able to save (they have no money left to save once they spend most of their income on daily food and other basic expenses) or are not able to invest money in setting up small businesses (Zeller and Sharma, 2000; Rutherford, 2000).

- **Near bankable** people are those who have a higher income than non-bankable ones and may have collateral, but who are not granted requested loans as local

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[8] This concept is used regularly from the International Year of Microcredit 2005.

[9] There are several arguments against the statement that the poor are not creditworthy. The poor have been historically considered as not creditworthy and non-bankable by local commercial banks based on their low incomes, uncertain cash flows and lack of collateral for their borrowings. According to the microfinance approach, the poor are creditworthy and bankable with MFIs if they are included and integrated or marginalised into a group (for group lending).

commercial banks tend to have insufficient funds to lend to those who are not bankable. This term is also used to describe the relatively or moderately poor people who are the main subjects of commercial microfinance[10] (Hammill et al., 2008). It is the percentage of the total population with income less than the average income but higher than the poverty line (US$ 2.0 per day). To make near bankable and non-bankable people bankable, the poor are included and integrated or marginalised into a group (i.e. banks tend to use group lending to lend to near bankable and non-bankable people). This is also a part of the process of empowering the poor and helping them access finance in order to build up assets, engage in a wider range of income-generating activities, reduce their vulnerability to economic shocks and prepare for lifecycle events.

Adapting Cohen (2003), Hammill et al. (2008) divide people into two groups based on the poverty line: poor and non-poor people. According to this study, the economically active poor, or those who are hovering just above the poverty line, are ideal candidates to be offered loans by MFIs to help them continue to stay above the line (see more in-depth discussion in the following section in this chapter). This suggests that not all the poor have the same ability to take on loans and there is no template for success.[11]

The poor have very little income and spend a larger proportion of it on food than rich people. Any increase in the cost of living tends to make everyone poorer unless our income increases in proportion; especially this is especially true for poor households

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[10] Commercial microfinance basically means doing microfinance with the application of market-based principles and the expansion of profit-driven operations (Charitonenko and Rahman, 2002). This will be discussed in detail in the following part of this chapter.

[11] Some people require direct basic assistance and are typically not suitable for microfinance, such as the sick, mentally ill or destitute.

since they must spend more income on food[12] and have fewer savings. Therefore, poverty is the term used to describe the condition of not having daily basic needs. Poverty had been accepted as inevitable as economies produced little before the industrial revolution while the population grew too fast, which made wealth scarce.[13]

### 2.2.2. Poverty Reduction

According to reports by the World Bank, there are large regional differences in the global picture of poverty reduction.[14] In East Asia, poverty was reduced from 80% of the population in 1981 to 18% in 2005 (about 340 million people), largely owing to dramatic progress in poverty reduction in China (Urbanomics, 2008). During the period 1981 to 2005, the number of poor was reduced by around 600 million in China. Apart from China, poverty was reduced from 40% to 29% over the same period, although the total number has remained unchanged at around 1.2 billion. In South Asia, it also fell from 60% to 40% between 1981 and 2005, but this was not enough to reduce the total number of poor, which stood at about 600 million in 2005. In Sub-Saharan Africa, the poverty rate has been around 50% with no markable decline from 1981, and the number of poor doubled from 200 to 380 million during the period 1981 to 2005. Poverty declined from 58% in 1996 to 50% in 2005 (WB, 2008; IFAD, 2010).

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[12] Basic needs are the needs to satisfy essential requirements, such as food, health care, clean water, clothing and shelter, for a minimum standard of living, generally measured by real income per person and poverty rate (Aigbokhan, 2008; Chen and Ravallion, 2009; Ravallion, 2009; FAO, 2010).

[13] See McDougall (2010) and Bloom and Rosenberg (2011).

[14] Poverty reduction (or poverty alleviation) is a long-term process to reduce the level of poverty in a community, or among a group of people or a country (Haughton and Khandker, 2009; UNDP, 2011). It improves the living standards of households, and lifts them out of poverty or transfers them from being non-bankable into bankable people.

According to the FAO (2010), there were 925 million hungry people in 2010 (13.6% of the world population of 6.8 billion). Asia and the Pacific had 578 million people (62.5% of the number of hungry people in the world). Based on 2005 statistics, the World Bank estimated that as of 2008 the poverty rate was 25% of the total population who were living below the poverty line of US$ 1.25 a day in 2005, while the figure was 50% in the early 1980s (about 1.9 billion poor people)[15] (Chen and Ravallion, 2008; UN, 2009). Recently, it is expected to be around 15% by 2015 (under the 23% target of the United Nations). Poverty in East Asia was reduced from 80% to 20% over this period. By contrast, it was still around 50% in Sub-Saharan Africa (UN, 2011) (See Panels, Appendix 2.1).

There is commonly a wide range of poverty reduction strategies based on either increasing the supply of basic needs (i.e. making more of the basic human needs available for the poor), or increasing the personal income needed to purchase those needs. Some basic needs, such as improving access to education and health care, may also help increase income. On the other hand, Forum for the Future (2007) established the Five Capitals model[16] and mentioned that financial capital plays an important role in allowing other capitals to be owned and traded; it has no real value itself, but is representative of all other capitals. It refers to a fund or an amount of money called savings or the principal of loans, provided by lenders (investors) to borrowers (businesses or individuals) to purchase equipment or fixed assets to carry out business. The lenders are private, public or institutional entities, which make funds or money

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[15] According to the Rural Poverty Report 2011, around 35% of the total rural populations of developing countries are classified as extremely poor (IFAD, 2010).

[16] The five capitals are natural capital, human capital, social capital, manufactured capital, and financial capital (Forum for the Future, 2007).

available to others to borrow. The lenders provide loans (an amount of money called the principal) to the borrowers and get back the principal and the interest[17] at a later time. In an economy, there are many people who have money available to lend and also people who need to borrow amounts of money. In any economy, there are many households, which are net savers (in financial surplus), and also always borrowers whose incomes are insufficient for their current spending plans and need to borrow money from others (Bain, 2003; Bain and Howells, 2007).

Normally, people need a loan when they do not have enough money to spend. The poor often spend most of their low income on daily food to fulfil the basic needs as previously mentioned; therefore, they are sometimes threatened by hunger and do not have sufficient savings to deal with emergencies or any unforeseen cash requirements (Yunus, 1999 and 2003; Rutherford, 2000). Therefore, lending them money can basically improve their lives since they can buy food for basic needs in the short run or conduct small profit businesses in the long run.[18] However, with little income and no collateral, the poor cannot access the basic financial services (loans) from traditional commercial banks and other formal financial providers. Even if they do have minor assets, the amounts are too small to be used as collateral with the banks. Therefore, they borrow money from moneylenders who always provide loans with very high interest rates if their relatives have no money to lend them (Ngo and Nguyen, 2007; Rosenberg et al., 2009; BBC News, 2011).

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[17] Interest is calculated by using a simple or compound formula (interest is earned on prior interest in addition to the principal) as follows: Simple Interest = Principal x Interest Rate x Time or Compound Interest = Principal x [$(1 + \text{Interest})^{\text{Time}} -1$]

[18] See WB (1980), UNDP (1997), Morduch and Haley (2002), Yunus (1999 and 2003), Daley-Harris (2003 and 2007) and Vetrivel and Kumarmangalam (2010).

The poor spend the money they borrow to buy rice and daily food, or to buy machines and land for long-term production. They can also establish a small profit business for stable returns and repay debts after a period of time or a business cycle (Yunus, 1999 and 2003; Rutherford, 2000). This means the poor take out a loan and repay it through a series of savings from their income. This process is called "saving down" (Rutherford, 2000). According to this approach, the loan is considered as half of the whole process since the poor use the money borrowed for daily living and investments; after that they need to save and accumulate income and assets for repayment. On the other hand, they must accumulate money by putting aside many small saving amounts until they build up to a larger sum as needed. This strategy is called "saving up" (Rutherford, 2000) (see Appendix 2.2). Clearly, MFIs must offer savings and loans to the poor since saving and repaying are both similar activities, in that the poor use loans for investment instead of expenditure.

Therefore, providing savings and small loans (microcredit) to the poor at subsidised or reasonable interest rates[19] means giving them chances to become self-sufficient (ACCION, 2011). However, it is not a charm or a machine that can automatically turn the poor into the non-poor. The point is that it is basically a long-term process which tends to support the poor financially so that they can combine their skills, knowledge, experience and financial capital to break out of poverty and change

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[19] To break even, the interest rate of bank loans is generally set to cover the cost of funds, loan losses and administrative costs (Christen et al., 2003). The interest rate is charged in microfinance to cover running costs, but it can help the poor become financially independent and competitive under normal market conditions. The reasonable interest rate is the rate at which MFIs can cover their costs and the poor can earn a profit (VisionFund, 2011).

their lives for a better and brighter future (for more detailed discussion of this issue, see the following sections of this chapter).

### 2.2.3. Microfinance

Microfinance was mentioned regularly as a new term in the field of development in the late 1970s[20], but it became more popular after 2006 after the United Nations had declared 2005 as the International Year of Microcredit. It attracted the attention of governments, organisations and researchers.[21]

Microfinance is simply a term referring to micro- or small-scale financial services (including small loans and other financial facilities) provided to the poor, who are excluded from commercial financial institutions because they have low income and no collateral.[22] The poor have basic needs like everyone else (such as basic health care, primary education, water and sanitation) and need financial services (loans, savings, insurance and money transfers) to manage their precarious lives, together with the provision of basic social services. Access to finance provides them with opportunities to take active roles in the economy through income, bargaining power and building up of social empowerment in their communities. They have opportunities to become self-

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[20] Prior to the late 1970s, the provision of financial services by governments and donors was in the form of subsidised rural credit programs.

[21] See Wenner (1995), Meyer and Nagarajan (1992), Mullineux et al. (1998), Rhyne (1998), Hollis and Sweetman (1998), Morduch (1999a and 1999b), Ledgerwood (1999), Robinson (2001), Christen and Drake (2001 and 2002), Beck et al. (2004), De Aghion, and Morduch (2005), Seibel (2005), Dichter (2007), Hermes and Lensink (2007), IFAD (2010) and Pande et al. (2012).

[22] For more detailed discussion of these issues, see Otero (1999), Robinson (2001), Var der Sterren (2008) and Pande et al. (2012).

sufficient in the long run by using these funds to build small profit businesses to obtain future cash flows (Pande et al., 2012).

Microfinance is also mentioned as the right financial products and services specially designed to meet the financial needs of the poor, as well as their income-generating activities. It is also linked to non-financial services such as education, health and nutrition. Clearly, microfinance is a long-term process which encourages the poor to save and accumulate their small incomes to reduce the impact of economic vulnerability.[23] It can also help to combat the temporary poverty generated by crisis situations. Therefore, microfinance is considered an efficient tool for poverty reduction in rural areas, where most of the world's poorest people live. It should ideally be amongst the top priorities of economic development in most developing countries for poverty reduction[24]. Microfinance continues to evolve, and the goal of industry leaders is to develop a fully inclusive financial service. This is the background for establishing the best microfinance providers who can provide relevant and useful services to the poor based on their advantages and disadvantages.

### 2.2.4. Microfinance vs. Microcredit

In the literature, the terms microfinance and microcredit are usually used interchangeably. However, they refer to the provision of different and distinct levels of financial services provided to the poor for poverty reduction.

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[23] See Rutherford (2000), Morduch and Haley (2002), Khandker (2003), CGAP (2003), Epstein and Crane (2005), SEEP (2005), Ledgerwood and White (2006), Kiiru (2007), Chowdhury (2009), ADB (2009) and IFAD (2010).

[24] See Khandker (2003) and Morduch and Haley (2002).

**Microcredit** simply refers to all types of small loans (or small amounts of money) provided directly to an individual or indirectly through groups by commercial banks or other financial institutions, with or without collateral[25]. Microcredit avoided the pitfalls and solved the problems of development lending by fostering better repayment, charging interest rates, and focusing on the poor.

**Microfinance,** as mentioned above, refers to the financial service package (including a broader range of services, such as credit, savings, insurance, and other financial services) targeted at the poor.[26] This means that microfinance includes microcredit and other financial products and services (such as savings, insurance and money transfer).

Over the past few years, microfinance and microcredit are used interchangeably to refer to small loans while microcredit is simply a component of microfinance (ACCION, 2011). However, microfinance empowers the poor in a new way by providing them with access to formal and secured financial services. It is widely accepted that the poor need a wide range of financial services to meet their different needs, not just microcredit.

Clearly, the difference between microfinance and microcredit suggests that MFIs need to regulate themselves in order to offer full financial services (particularly savings) to the poor.[27] Transformation[28] generally results in an improved governance and

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[25] See Rutherford (2000), Rosenberg (2010) and KIVA (2011)

[26] See CGAP (2003), Ledgerwood and White (2006) and ADB (2009)

[27] See Segrado (2005), Ledgerwood and White (2006) and Pande et al. (2012)

ownership structure and is the only way an MFI can commercialise or "manage on a business basis" (Christen and Drake, 2002, p.4). By doing this, MFIs can expand their outreach by increasing the number of clients served, improving customer satisfaction and loan repayment and stabilising the sources of funds to create a viable business.

## 2.3. Microfinance Providers and the Developmental Stages

### 2.3.1. Microfinance Providers Category

According to recent poverty reports, the demand for microfinance[29] was from 925 million hungry people in 2010 (13.6% of the world population of 6.8 billion) and around 35% of the total rural population were classified as extremely poor (IFAD, 2010; FAO, 2010). However, the poor population is estimated to vary greatly in developing countries. According to USAID, the number of potential clients in 1995 was around 200 million (Christen et al., 1995). By December 31, 2007, the statistics on global outreach of MFIs show that 133,030,913 clients had access to microfinance services. Among them, 92,922,574 were the poorest (see Appendix 2.3).

Robinson (2001, p.215) calculates as follows: "Assuming five people to a household among the 4.5 billion people living in the poor countries in 1999 (WB, 2001), there are 900 million households. If, estimating conservatively, we assume that moneylenders supply credit to 30% of these households at least once a year, it means there are 270 million households borrowing from moneylenders in a year. Undoubtedly,

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[28] In most countries, regulatory policies prohibit unregulated financial institutions from taking deposits from the public and thus it is necessary to become licensed and change into a deposit-taking institution.

[29] The demand refers to the poor population or the number of poor people who need microfinance under any circumstances.

however, many households borrow multiple times within a year." Although this is a very rough estimation, assuming big differences in different countries, the number seems to be most meaningful for the further development of microfinance.

In contrast to the estimate of the Microcredit Summit Campaign, microfinance demand does not include every single household living on less than US$ 1 per day, but it counts everyone who has no regular access to traditional financial institutions. Obviously not all people who draw on moneylenders have financial needs that could be matched through MFIs. On the other hand, interest rates charged by moneylenders tend to be considerably higher than those of MFIs. The former normally charges monthly rate of between ten and several hundred percent per month. The latter generally charge between 1.5% and 5%, which enables them to attract additional clients (Gibbons and Meehan, 1999).

In spite of the impressive growth of microfinance around the world, the population needs for microfinance are far from being met. By the end of 2007, the number of clients reached had increased from 67 million in 2003 to around 133 million (Daley_Harris, 2007). The number of the poorest clients increased because of an expanded definition of the term "poorest" in developing countries (Daley_Harris, 2003). Since the contribution of microfinance was expected to decrease dramatically, the growth rate cannot be used to predict the future of microfinance. This factor likely to slow down growth is in some Asian countries where almost 90% of the poorest clients live today. Even if one takes into consideration the relative size of Asia's population and the fact that many customers in Latin America are relatively better off and are therefore not included in this number, the coverage of this part of the world far exceeds the others.

Based on their financial characteristics, microfinance providers are traditionally divided into three categories: formal, semi-formal and informal providers. These are also popular categories used by ADB and in many studies in microfinance (Meyer and Nagarajan, 1992 and 2000; ADB, 2011) (see Panel A, Appendix 2.4).

**Formal providers** are the formal financial institutions such as commercial banks or credit cooperatives and regulated MFIs. In this system, the government plays an important role in providing financial services (almost solely on credit) to the poor via public-owned banks with nonprofit programs. They have been criticised for not being able to reach the targeted poor communities because of limited funds from the public sector and the lack of participation from the private sector.

**Semi-formal providers** are organisations who have various structures of decentralised financing which offer microfinance. This system is relatively small and covers around 5% to 10% of the overall rural credit market. It includes Government Ministries and Programs, Mass Organisations, Specialized Microfinance Funds (including unregulated MFIs) and International Organisations (International NGOs and Inter-governmental organisations).

**Informal providers** are informal lenders, including family, friends and moneylenders. Rotating Savings and Credit Associations (ROSCAs)[30] are also considered as informal providers. This system used to be the main funding source for the poor. Money borrowed from relatives or friends is usually at zero or low interest

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[30] Loan sharks are people who offer illegal unsecured loans at very high interest rates to individuals and often use blackmail or threats of violence from the underworld to secure the repayments.

rates, while moneylenders (loan sharks[31]) charge five or ten times more than the market interest rate from formal financial institutions. The poor are always short of money before their harvests. Moneylenders lend money to them without any written contracts as short-term loans and collect repayments daily or weekly, as agreed with the borrowers. With no collateral in the simple procedures, moneylenders rely on the local underworld to collect debts if they are not paid on time.[32] Over the past few years, the expansion of local commercial banks and credit cooperatives, as well as MFIs, has restructured the rural credit markets, and the poor have more opportunities to access the different sources of funds.

The poor have no assets to pledge as collateral to obtain loans from local commercial banks[33]. Microfinance providers target the poor (non-bankable or near bankable people) directly and indirectly. This is considered as the main factor to determine exactly whether they are microfinance providers or other financial providers (commercial banks). In the literature, the formal financial provider system in rural areas (rural financial providers) is used to describe microfinance providers[34]. There are some

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[31] ROSCAs are groups formed by individuals who agree to save and borrow together during a fixed period based on regular meetings. Each member contributes the same amount of money at each meeting, and one member is chosen to take the whole sum only once in a fixed period (Besley et al., 1994; Rutherford, 2000). ROSCAs are not accepted officially by any laws or written rules though they have existed for many generations.

[32] See Chin (2003), Ngo and Nguyen (2007), VBSP (2009) and SBV (2009 and 2011).

[33] See MFC/EMN/CDFA (2007), Norland (2010), Menkhoff et al. (2010) and Lammermann (2011).

[34] See Dao (1998), Putzey (2002), BWTP (2004), Quach (2005), Nghiem et al. (2006) and APEC TATF (2011).

differences between microfinance and rural finance (Seibel, 2005; IMF and WB, 2005). Rural finance refers to financial activities in rural areas; therefore, microfinance is part of rural finance[35].

Helms (2006) extended the traditional categories by classifying microfinance providers into four general categories: formal financial institutions, NGOs, member-owned organisations, and informal financial service providers. In this paper, the semi-formal providers are divided into NGOs and member-owned organisations to emphasize the important roles of NGOs in microfinance.

Based on funding sources, microfinance providers are divided into two systems: internal (local) providers and external (international) ones (Ledgerwood and White, 2006; Isern et al., 2008) (see Panel B, Appendix 2.4). These categories are the background for defining the best providers and the co-operation between internal and external ones. Internal providers with limited funds for microfinance are still the main forces but external providers play important roles in improving poverty reduction by providing international funds to local organisations.

According to Segrado (2005), microfinance providers can be divided into three groups based on customer classification (see Figure 2.1). The growth of the customer from beneficiary to client shows the growth in the way MFIs serve the needs of the poor. This finding is totally consistent with Ledgerwood and White (2006).

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[35] Rural finance includes traditional banking and microfinance in rural areas. Microfinance refers to the provision of financial services specially designed for the poor in both rural and urban areas. Microfinance can be considered as a part of rural finance only in the rural areas.

**Figure 2.1 Microfinance Providers**

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                    ┌─────────────────────────┐
                    │  Microfinance Providers │
                    └─────────────────────────┘
           ┌──────────────────┼──────────────────┐
           ▼                  ▼                   ▼
┌────────────────────┐ ┌──────────────────┐ ┌─────────────────────────────┐
│ ▪ Government        │ │ ▪ MFIs           │ │ ▪ Commercial banks          │
│ ▪ Mass organisations│ │ ▪ Special funds  │ │ ▪ Large international banks  │
│ ▪ NGOs / INGOs / IOs│ │ ▪ Informal funds │ │ ▪ Other financial institutions│
│                    │ │   (Informal lenders)│ │                           │
└────────────────────┘ └──────────────────┘ └─────────────────────────────┘
           ▲                  ▲                   ▲
           ▼                  ▼                   ▼
┌────────────────────┐ ┌──────────────────┐ ┌─────────────────────────────┐
│   Beneficiaries    │→│    Customers     │→│          Clients            │
└────────────────────┘ └──────────────────┘ └─────────────────────────────┘
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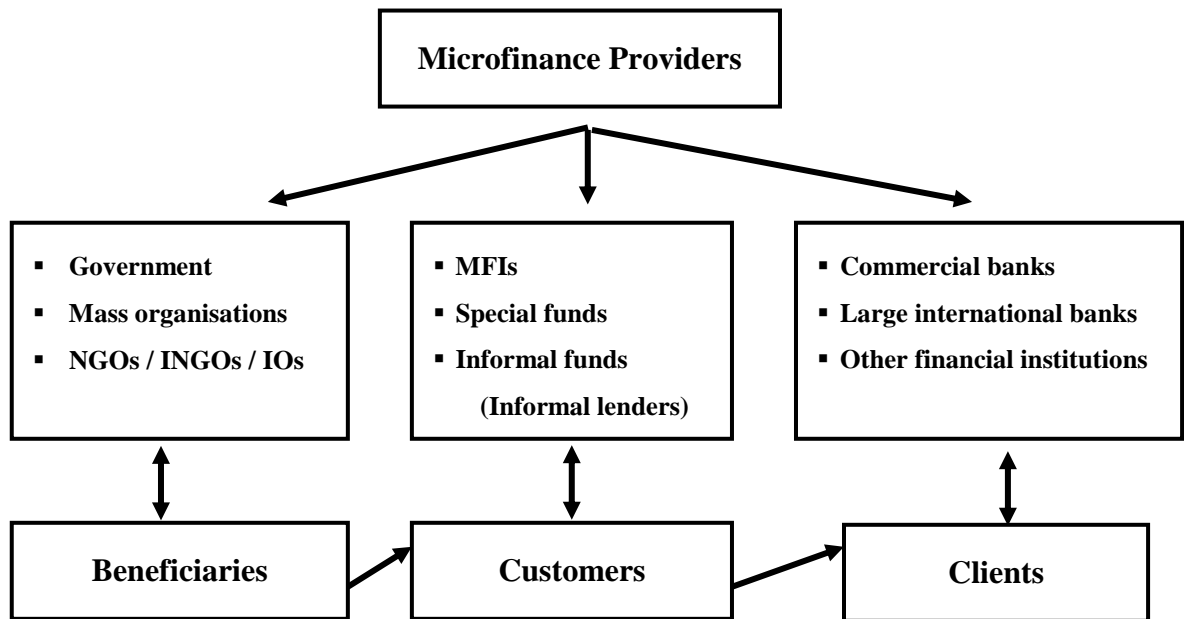
Sources: Segrado (2005), Ledgerwood and White (2006) and Isern et al. (2008)

**"Beneficiary"** means that the poor are provided with microfinance together with food aid, water and sanitation, amongst other benefits. These programs provide the poor with awareness of their rights and some skills concerned with credit and saving.

**"Customer"** means that the poor are well aware of what they need (also in financial terms) but have no access to a normal financial system that could meet their necessities. They are served by MFIs, who are specialised in providing minor financial services and specific technical assistance to the poor.

By the term **"clients,"** the poor seem to have higher awareness, and different needs. They could be small entrepreneurs who might be interested in leasing machinery or taking out insurance for their businesses. They are considered as clients and are easily approached by commercial banks or other financial institutions.

Over the past few years, the speed of the poverty reduction progress has become slow and microfinance has met some obstacles (Baydas et al., 1997). Among them, the limitation of local funds and poor participation of the private sector are the primary barriers. In fact, microfinance has been almost recognised by government as regulators and active participants via state-owned banks under nonprofit programs (Hossain and Knight, 2008). International organisations give some support based on training programs or nonprofit programs. Government and donors have exhausted the limited subsidised funds to cover the expanding demand of the microfinance industry, while they were unsuccessful in persuading the private sector to take part over the long term (MCI, 2004a and 2004b). Therefore, the applications of private sector (commercial microfinance) and the transformation of nondeposit taking MFIs into deposit taking MFIs are considered as innovative solutions to bring microfinance into the commercial realm with market-based principles or the expansion of the profit program (Charitonenko and Rahman, 2002). It is also considered as a new approach for financial providers to secure stable growth in the global financial market (Banker, 2005).

### 2.3.2. Microfinance Institutions (MFIs)

MFIs are broadly defined as different types of business organisations that provide microfinance services, ranging from small non-profit organisations to large profit ones, such as microfinance banks, credit unions, credit cooperatives, rural banks and NGOs. This definition includes a wide range of organisations based on their legal structure, mission and lending methodology. Among them, microfinance banks, rural banks and credit unions have the operational structures to conduct profitable business (MIX Market, 2011).

The number of MFIs has increased rapidly over the last few decades (see the detailed analysis in Chapter 5). The background for the development of MFIs was the subsidized programs of governments and donors. They provided subsidised loans to farmers to raise productivity and incomes in rural areas from the 1950s. Microcredit was also provided to women in small businesses from the 1980s to enable the poor to accumulate income and assets for production. The period from 1950 to 1980 saw the emergence of the participation of NGOs in microfinance (KIVA, 2011). From the late 1990s, a number of NGOs started to transform themselves into formal financial institutions in order to access and on-lend client savings, thus enhancing their outreach (ARCP, 2011).

MFIs show evidence that the poor can be treated as bankable people by applying a modern approach to traditional banking, such as group lending. They have provided some useful lessons to formal institutions concerning small transaction banking. Many of the newer players, such as commercial banks, have large existing branch networks, vast distribution outlets such as automatic teller machines (ATMs), and the ability to make significant investments in technology that could bring the right financial services closer to the poor.

### 2.3.3. The Developmental Stages of MFIs

Microfinance has grown over time with more and different types of investors involved, with new types of products and services being developed, and with new technologies to support it (Littlefield et al., 2003; Latifee, 2006;). There is a growing realisation in the international arena that the profit programs and participation of the private sector will give more opportunities to fulfil the social objectives of expanding access to a range of demand on a sustainable basis. Commercial microfinance,

therefore, is considered as the next stage of microfinance (Charitonenko and Campion 2003; Ugur, 2006). Together with traditional microfinance, it will be the optimal solution, since the poor need money to buy daily food to survive in the short term, and to make some investments to become self-sufficient in the long term (ACCION, 2011).

**Figure 2.2 The Developmental Stages of MFIs**
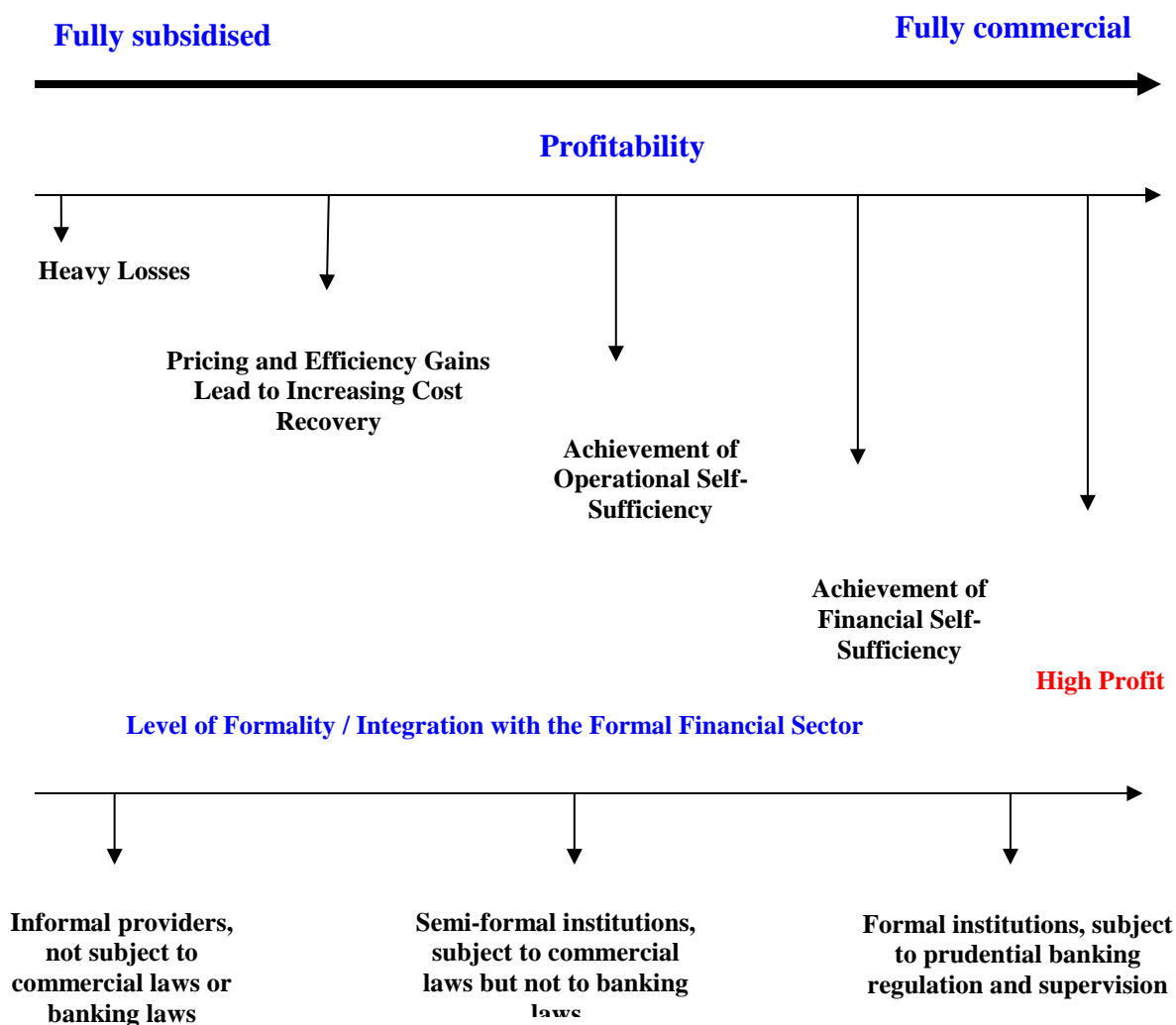


Source: Charitonenko and Campion (2003)

The future of microfinance will be based on the efficient performance of MFIs, increasing participation of the private sector, and the development of financial markets. Future sources of funds will be mainly domestic savings in addition to the support of

international organisations, and the role of financial intermediaries is to provide critically important deposits, recycling these savings into productive loans.

## 2.4. The Main Challenges of Microfinance

Microfinance has proven to be an appropriate, effective and powerful tool for the poor and poverty reduction in order to reach the Millennium goals.[36] In fact, it has been extensively examined over the past 15 years, and the resulting studies show that MFIs need to move out of heavily subsidized operations and into to commercialization to achieve efficiency and sustainability.[37] Since donor funding is becoming insufficient to meet the continual demand for well-designed financial products from new and existing clients, access to commercial funds tends to help MFIs improve their performance (Ledgerwood and White, 2006). This clearly suggests that MFIs may obtain sustainability to achieve a targeted outreach. However, there are some sceptics who argue that there is a trade-off between financial sustainability and social mission. Therefore, this section will provide a comprehensive review of some of the main challenges of microfinance in order to shed light on the importance for MFIs to achieve financial sustainability. It is suggested that funding microfinance plays an important role in MFIs being economically viable and sustainable and able to provide financial services to the poor in the long run.

### 2.4.1. Does Microfinance Have an Impact on Poverty Reduction?

This section aims to provide a comprehensive review of the impact of microfinance on poverty reduction in order to shed light on the importance of

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[36] See Morduch and Haley (2002), Dichter and Harper (2007), Dichter (2007), Hossain and Knight (2008), Aigbokhan (2008), Roodman (2009) and IFAD (2010)

[37] See Christen and Drake (2002) and Ledgerwood and White (2006).

commercial microfinance (commercial funds) in the developmental stages of MFIs, as presented in the previous section. This section is divided into two sub-sections. The first sub-section examines whether or not microfinance really helps the poor, while the second sub-section examines who benefits from microfinance (i.e. the poorest or the poor who live near the poverty line benefit from microfinance).

### 2.4.1.1 Does Microfinance Really Help the Poor?

Over the past few years, many studies have been conducted and have come to different conclusions concerning the impact of microfinance on poverty reduction (i.e. these studies investigate whether or not microfinance really helps the poor). Most studies provide evidence supporting the positive effects on increasing the income[38] of the poor or reducing their vulnerability[39]. There are a few studies with largely conclusive and positive evidence on health, nutritional and education (Wright, 2000).

It is widely accepted that poverty is a social problem and a deeply embedded wound that permeates every dimension of culture and society. Poverty reduction, therefore, is ideally a long-term process integrating numerous financial and non-financial programs for generations of poor households (Aigbokhan, 2008). Lack of money and low personal income are basic measures and also symptoms of poverty (Bartle, 2008). For that reason, lending small amounts of money to the poor (especially the poorest) theoretically has a positive impact on poverty reduction since it possibly helps them overcome hunger to survive and also gives them a chance to conduct small

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[38] See UNICEF (1997), Khandker (2001 and 1998), Wright (2000), Morduch and Haley, (2002), Bansal (2011), Akinlabi (2011) and Pande et al. (2012).

[39] See Wright (2000), Zaman (2000), McCulloch and Baulch (2000) and Swain and Floro (2007).

businesses for future cash flows to improve their standards of living.[40] Clearly, from a social point of view, lending money to the poor (microfinance) really helps them and has a positive impact on poverty reduction.

There have been numerous empirical studies conducted to examine the effects of microfinance in different countries by using the double difference approach or panel data with the fixed effect model. The results show that the personal incomes of borrowers are different with or without microfinance programs in different areas. Gertler et al. (2003) test for a relation between access to finance and consumption shortfalls associated with ill health. Their results show that microfinance is likely to reduce vulnerability and access to finance tends to help the poor smooth their consumption in the face of a decline in health. Clearly, a significant positive impact is found in personal income and consumption or a reduction in the vulnerability of the poor. Roodman (2009) therefore states that it is strange that researchers are still asking whether or not microfinance can reduce poverty.

Using surveys and empirical work conducted in the 1990s by the Bangladesh Institute of Development Studies (BIDS) and the World Bank, Pitt and Khandker (1998) and Khandker (2001) assume that borrowing ($S_{ijt}$) is affected by characteristics ($X_{ijt}$) (Equation 1.1) and consumption is dependent on current and past characteristics (included borrowings) (Equation 1.2).

$$S_{ijt} = \mathbf{X_{ijt}}\lambda + \eta_{ij}^S + \mu_j^S + \varepsilon_{ijt}^S \qquad (1.1)$$

$$C_{ijt} = \mathbf{X_{ijt}}\propto + \mathbf{X_{ij(t-1)}}\beta + \mathbf{S_{ijt}}\delta + \mathbf{S_{ij(t-1)}}\gamma + \eta_{ij}^C + \mu_j^C + \varepsilon_{ijt}^C \qquad (1.2)$$

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[40] See WB (1980), UNDP (1997), Yunus (1999 and 2003) BBC News (2005), Daley_Harris (2007 and 2003), Roodman (2009) and IFAD (2010).

where X is a vector of characteristics (such as age and education) and $\lambda$ is a vector of the unknown parameters to be estimated. $\eta$ and μ are unmeasured determinants of credit demand that are time-invariant and fixed within a group or village. $\epsilon$ is a nonsystematic error. S refers to the credit demand. $\delta$ and $\gamma$ measure the effects of current and past credit and C refers to the consumption of the borrowers. According to equation 1.2, the return to consumption is the sum of returns from past and current credit. If current credit ($S_{ijt}$) is zero (this means the poor stop borrowing after period 1), past credit ($S_{ij\,(t-1)}$) may continue to benefit the borrower ($\gamma > 0$).

Despite the success and popularity of microfinance as mentioned above, there is no clear evidence that microfinance has a positive impact on poverty reduction (De Aghion and Morduch, 2005 and 2010). Odell (2010) and Orso (2011) have examined the impacts of microfinance. Their results show that the rigorous quantitative evidence of microfinance impact is still scarce and inconclusive. Overall, it is widely acknowledged that no well known study robustly shows any strong impacts of microfinance (De Aghion and Morduch, 2005). According to Dichter (2007), the impact of microfinance seems unrealistic based on the recent experience of developed countries, where microfinance might leave some poor people worse off, as in case of credit cards and mortgages.

Straus (2010) found that there was an insignificant and negative effect of microfinance on consumption, and no effect on new business creation, education or women's empowerment. Karlan and Zinman (2010) and Banerjee et al. (2009) also found no impact from a number of large-scale MFIs. Roodman and Morduch (2009) took a different tack, revisiting the works of Pitt and Khandker (Khandker, 1998; Pitt and Khandker, 1998), and reported that there was very little solid evidence which

showed the real role of microfinance in poverty reduction in measurable ways (Bateman, 2011).

Thus on balance, the majority of research appears to indicate that microfinance does have positive and significant effects on the poor in certain situations. In spite of the fact that some studies were conducted by using different approaches and point to different conclusions, they are all ready to accept that it is extremely difficult to separate and measure the contributions of microfinance to poverty reduction, since poverty is a significant social problem that permeates every dimension of culture and society. In addition, there are strong potential synergies between microfinance and the provision of other non-financial programs since the benefits derived from these programs are interconnected (Morduch and Haley, 2002). In conclusion, these results tend to suggest that microfinance cannot immediately turn the poor into non-poor. The point is that microfinance is a long-term process which tends to support the poor financially so that they can combine their skills, knowledge, experience and financial capital to break away from poverty and change their lives for a better and brighter future.

### 2.4.1.2. Who Benefits from Microfinance?

There have been some discussions about the poorest[41] or just the poor near the poverty line who really benefit from microfinance. Since donor funding is becoming insufficient to meet the continual demand for well designed financial products from new and existing clients, MFIs tend to access commercial funds to improve their performance and also achieve a targeted outreach (Ledgerwood and White, 2006). Therefore, there has been some discussion about the incentives to serve the poorest of

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[41] The poorest refers to the extremely poor or absolute poor people who have no land, limited access to basic social services and daily income of under US$ 1.0.

the poor. Several MFIs tend to serve the poor who are near or just above the poverty line, instead of the poorest. It is sometimes argued that microfinance has contributed positively to the well-being of the poor in general, but it has failed to reach the poorest in particular.

Simanowitz (2002) states that the poor are not bankable and cannot access finance services from the formal financial institutions (such as commercial banks) as they have no collateral, as previously mentioned. The experiences of Grameen Bank, BRAC and SEWS show that microfinance delivered in financially sustainable ways can assist the poor achieve better outcomes by encouraging them to save what they can, borrow only what they can afford to repay and have responsibility for planning and repaying MFIs. The financial strategies for the poor, therefore, make a little difference at all for extremely poor people.[42]

According to Morduch and Haley (2002), microfinance can be effective for the poor, including the poorest. However, well designed financial services are unlikely to have a positive effect on the poorest, unless they specifically seek to reach them (Wright, 2000). The poorest will be missed or they will tend to exclude themselves since they do not see the programs as being for them (Navajas et al., 2000).

Hashemi (1997) concludes that nearly half of the rural poor in Bangladesh are the poorest. Microfinance programs in Bangladesh[43] have succeeded in reaching only half of this population. Based on a case of BRAC's Rural Development Programme, 40% of those eligible did not participate in any development activities, microfinance or

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[42] See Khandker (1998), Simanowitz (2002) and Morduch and Haley (2002).

[43] This refers to the Grameen Bank, BRAC, and all of the other non-government and government agency programs (see details in Hashemi, 1997).

otherwise (Matin, 2002; Husain, 1998). Concerning non-financial development services, almost 75% of the poorest did not participate (Rahman and Razzaque, 2000). The poorest tend to exclude themselves from microfinance activities since they do not have the capacity to be accountable for regular, sustained repayments or husbands do not permit their wives to join.[44]

Rhyne and Drake (2002) argue that a business model always allows for a significant number of defaults, is unreasonable even if the revenue can cover the losses. They conclude that MFIs must provide the right financial services to the right customers to avoid defaults. The pressures[45] may lead MFIs to make too many poor-quality loans by not providing credit to the right borrowers (i.e. over-lending) (Silva, 2012). Over-lending and multiple borrowing may make the poor struggle to pay back their loans, as in the microfinance crisis in Andhra Pradesh in 2010. Therefore, MFIs tend to have trouble in refinancing themselves or raising funds for lending activities (Mader, 2010). It appears that investors are beginning to wonder about the quality of their loans to MFIs. Funding microfinance and the relationship between funding and over-lending will be discussed in detail in the following section of this chapter.

Although microfinance is clearly aimed at helping the poor access financial services and taking part in local economic activities to improve their lives, it has become increasingly apparent that it rarely serves the poorest unless these programs are intentionally designed to reach them since microfinance is unsuitable for all poor

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[44] See Rutherford (1995), Hashemi (1997), Husain (1998), Choudhury (2000), Fernando and Meyer (2001), Morduch and Haley (2002) and Adjei and Arun (2009)

[45] The pressures come from the social mission to provide microfinance to the poor, especially to the poorest or come from microfinance investors to obtain more returns.

people.[46] Microfinance can work for the poorest, but there is no template for success. Clearly, microfinance is not suitable for all categories of the poor, and not all the poor have the same ability to take loans.[47] This finding is totally consistent with the findings of many studies.[48] Microfinance is generally most appropriate where ongoing economic activity and sufficient household cash flow already exist (CGAP, 2005). Therefore, rather than exclusively reaching the poorest, MFIs tend to reach the economically active poor or the non-poor who are hovering just above the poverty line based on their participation in economic activities. Not providing loans to the right borrowers clearly leads MFIs to make too many of poor quality loans and also makes the poor become over-indebtedness more easily. This suggests that MFIs may not intentionally target the poorest based upon the funders' requirements.

### 2.4.2. Financial Sustainability in Microfinance

Ultimately, microfinance gives the poor opportunities to overcome poverty and become self-sufficient by running small businesses. Commercial microfinance typically does not reach the poorest people (outreach), who are intentionally reached by the government and donors with non-profit programs. Whether the focus is primarily on the poorest or not, microfinance tends to depend heavily on the community where people live together, interact with others, and build their relationships like fishing nets (Worakul, 2006). Therefore, the combination in microfinance between commercial and non-profit programs is ideally for the development of the community instead of

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[46] See Hammill et al. (2008) and Adjei and Arun (2009).

[47] There are some people who need direct basic assistances and are typically not suitable for microfinance, such as the sick, mentally ill and destitute.

[48] See Morduch and Haley (2002), Hammill et al. (2008) and Adjei and Arun (2009).

focusing on a specific group of the poor, such as the poorest or the moderately poor.[49] Clearly, microfinance has two main functions: a social mission and financial sustainability (Zeller and Myer, 2002; Copestake et al., 2005a and 2005b) (see Figure 2.3). In spite of the fact that MFIs can improve their financial performance (i.e. achieve sustainability) to achieve a targeted outreach, there are some sceptics who argue that there is a trade-off between financial sustainability and social mission.

**The social mission**[50] refers to the developmental objective of governmental and non- governmental players in microfinance (Hossain and Knight, 2008). This mission may be achieved by the number of target borrowers from subsidised or non-profit programs that focus on using microcredit primarily provided to the poor, particularly to the poorest at subsidized interest rates. However, there are some arguments as to whether subsidising interest rate is justified (Gonzalez-Vega and Graham, 1995; Morduch, 2000; Fernando, 2006). This concept is always mentioned in the early developmental stages of microfinance. The literature on the social role is descriptive and normative. Peer-reviewed papers focus on the theoretical and empirical research on the impact of microfinance[51]. It is often feared that there are insufficient public funds for the subsidized microfinance programs, and MFIs cannot remain viable.

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[49] The moderately poor refer to poor people who are near the poverty line and have a daily income of between US$1.25 and US$ 2.0 (Cohen, 2003; Hammill et al., 2008).

[50] The social mission is sometimes called the poverty approach or the capital to outreach in microfinance (Schreiner, 1996 and 2000).

[51] See Hulme and Mosley (1996), Pitt and Khandker (1998), Coleman (1999), Morduch (1999b), Bhalotra et al. (2001), Zeller and Myer (2002), Morduch and Haley (2002), Khandker (2003) and Copestake et al. (2005a and 2005b).

**Figure 2.3 Sustainable Microfinance**
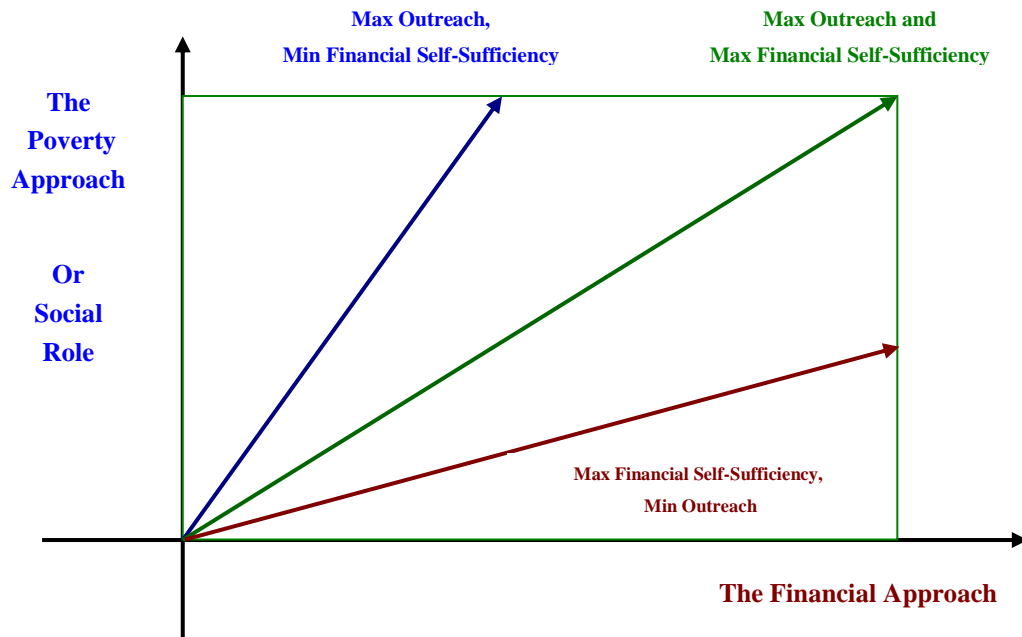


Sources: Schreiner (1996), Robinson (2001), Zeller and Myer (2002), Charitonenko and Rahman (2002), Copestake et al. (2005b), Copestake (2010) and Gonzalez (2010a).

**Financial sustainability,**[52] on the other hand, emphasizes the importance of economic viability (Arsyad, 2005; Srinivasan and Sriram, 2006). It refers to the ability to cover all administrative costs, loan losses, and financing costs from the operating incomes. It has been pointed out repeatedly that MFIs need to be economically viable and sustainable in the long run since the sustainability of MFIs is not possible without sound financial performance. In addition, some studies have found that there is a strong link between financial sustainability and the achievement of the social objectives of

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[52] The financial role is called financial sustainability or self-sufficiency. Financial sustainability is a status when service and infrastructure levels and standards are delivered according to a long-term plan without the need to increase rates or reduces services. In microfinance, sustainability refers to the state of MFIs being economically viable (Christen and Drake, 2001; Robinson, 2001; Zeller and Myer, 2002).

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MFIs (Ledgerwood and White, 2006). The poor tend to borrow from financially viable MFIs (Zeller and Meyer, 2002), which seems to suggest a win-win situation in which MFIs and the poor can earn profits. For those reasons, MFIs ideally focus on viability by reaching the economically active poor with small potential profit businesses instead of focusing on the number of borrowers (Hammill et al., 2008). Clearly, the social role seems to lead MFIs to over-lend in certain situations (i.e. reach the massive outreach) by not providing microfinance to the right people.

There are a large number of MFIs which still depend on government nonprofit programs or donor subsidies (NGOs) since microfinance is a costly business with high transaction and information costs. Nevertheless, the importance of sustainability led to an important debate between financial sustainability and social mission in the 1990s. Both approaches agree that the poor should be served, but in different ways. Sustainability is ideally the premise for the future of microfinance.

The advocates of the social approach would argue that the poorest cannot afford higher interest rates; therefore, financial sustainability in microfinance goes against the aim of serving large groups. The empirical evidence neither shows that the poor cannot afford higher interest rates, nor that there is a negative correlation between the financial sustainability of the institution and the poverty level of the clients (Hermes and Lensink, 2007). However, the financial approach is focused more on near-bankable people than on non-bankable people. Clearly, the balance between these approaches is also recognized by Charitonenko and Rahman (2002) who argue there are still existing profit and non-profit programs in microfinance.

This issue is a new paradigm in financial performance and the efficiency of MFIs (Hulme and Mosley, 1996). By using the Subsidy Dependence Index (SDI),

Yaron (1992a and 1992b) indicates how much higher the interest rate needs to be for borrowers to cover all operating costs. In addition, almost all MFIs are still subsidy dependent (Hulme and Mosley, 1996; MIX Market 2009 and 2011). Morduch (1999a) provides a similar calculation for the Grameen Bank, and shows that, in order to become subsidy independent, it would have needed to increase lending rates by some 75% between 1985 and 1996.

According to the SDI, a rise in lending interest rates brings higher profits. This, however, need not to be the case since higher rates could lead to lower profits in the case of adverse selection and moral hazard effects (Cull et al., 2007). A more accurate assessment would need to compare the costs and benefits of subsidies. Unfortunately, only a few studies are concerned with this issue (Townsend and Yaron, 2001); Khandker, 2003). These studies suggest that the social benefits exceed the costs.

Most studies focus on financial sustainability and the effects of sustainability on outreach, or more specifically on the number of borrowers (breadth) and the socioeconomic level (depth) (Goldberg, 2005). Weiss and Montgomery (2004) summarize the evidence in Asia and Latin America, while Lafourcade et al. (2005) focuses on Africa. They provide mixed evidence regarding depth of outreach. The existing studies do not systematically explain differences, nor do they explicitly explore whether there is a trade-off between the depths of outreach versus the struggle for financial sustainability (Hermes and Lensink, 2007).

Cull et al. (2007) provides a new dimension of literature on the financial performance of MFIs based on an extensive comparison of 124 MFIs from 49 countries. This study gives some empirical evidence for a trade-off between the depth of outreach and profitability by examining whether more profitability is associated with a lower

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depth of outreach, and whether there is a move from serving absolutely poor people to wealthier ones in order to achieve higher financial sustainability (mission drift). This study also examines whether an increase in lending interest rates affects the loan portfolio due to adverse selection and moral hazard. According to Fernando (2006) and Rosenberg (1996), there is overwhelming empirical evidence which shows that the poor have enough returns from their businesses to pay an interest rate at the market rates. These results are ideally a background for the development of commercial microfinance by increasing the participation of the private sector.

In summary, the literature shows that neither financial sustainability nor outreach (social mission) is better or more important for MFIs. Rather, it is necessary to have the right mixture because they are typically similar to each other. Ultimately, this combination assures that an MFI can make profits which are reinvested into the business, so it may operate longer. The crucial intention of microfinance is not to have a return on equity but to help the poor to alleviate poverty by making them bankable. Nevertheless an MFI has to take many aspects[53] into account and decide, even before setting up a business, which goals should be achieved. This suggests that good governance is the first step to a sustainable enterprise that can only become sustainable with profitable elements.

### 2.4.3. Lending Methodologies

Microfinance is basically provided to the poor through group or individual lending (Hermes and Lensink, 2007; Lehner, 2009; Gine and Karlan, 2010). Most MFIs are traditionally based on group lending to make the poor become bankable after being

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[53] These aspects tend to differ from place to place, and from country to country, since it depends on the country and local circumstances, but also on the availability of MFIs.

non-bankable or near bankable by reducing the information asymmetry in credit activities (Cull et al., 2007; Kono and Takahashi 2009). On the other hand, some MFIs prefer to make individual lending since they have more history information and it is easy to manage the lending operations with the poor as individuals. This seems to suggest that MFIs tend to make group lending instead of individual lending at the early stage of development. [54] However, using the right lending methodology results in better performance, although each case depends on the specific circumstances of each country and firm, as noted.

### 2.4.3.1. Group Lending

The poor with weak balance sheets (no cash, no collateral and no guaranteed income) are unlikely to have access to sources of finance (Tirole, 2005). A number of recent and apparently successful MFIs have tried to strengthen the balance sheet of small borrowers by lending to groups rather than to individuals. A comprehensive overview of institutions, incentive considerations, and empirical data in microfinance can be found in De Aghion and Morduch (2005).

The poor organise themselves in small groups, and each participant accepts joint responsibility for the loan (called joint liability) (De Aghion and Morduch, 2000; Chowdury, 2005; Hermes, 2006; Hermes and Lensink, 2007). Some empirical studies show that self-selected groups perform better than groups selected by MFIs as problems of under-investment may be ameliorated and repayment rates are also improved (Natarajan, 2004). Village banking[55] is considered as one kind of group lending. There

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[54] See the developmental stages of MFIs in the previous part of this chapter.

[55] Village banking refers to the lending methodology in which clients - typically women in a specific village - form groups of approximately 10-30 individuals.

is cross-pledging among several projects, which means the projects are not those of a single borrower, but rather of different ones.

**Table 2.1 Lending Methodologies of MFIs (%)**

| Methodology | 2005 | 2006 | 2007 | 2008 | 2009 |
|---|---|---|---|---|---|
| **Individual** | 34.98 | 35.80 | 38.08 | 41.38 | 37.45 |
| **Individual/Solidarity**[56] | 45.96 | 44.59 | 44.44 | 40.06 | 43.83 |
| **Solidarity**[57] | 8.74 | 9.23 | 7.98 | 9.87 | 9.98 |
| **Village Banking** | 10.31 | 10.0 | 9.49 | 8.69 | 8.74 |

Source: MIX Market

▪ **Group lending by using social capital as collateral:** Tirole (2005) focuses on physical capital (assets and income). Capital can be given a broader meaning, some of which is relevant for our present concern. Relations among people matter substantially, even in economic situations such as lending relationships. One view of group lending is that social capital can supply an insufficient amount of physical capital and thereby facilitate financing. "Social capital" is a complex notion (Coleman, 1999).

▪ **Group lending by peer monitoring:** The competing rationale for group lending is peer monitoring. Peer monitoring can occur at two stages: ex ante (before the

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[56] Individual/Solidarity is the combination of individual and solidarity lending.

[57] Solidarity, sometimes called solidarity lending or solidarity groups, is the lending practice where small groups of the poor borrow collectively and group members encourage one another to repay. Solidarity groups are very small, typically including five individuals.

investment decision) and ex post (after the investment decision). In either case, group lending is one way of eliciting the information that borrowers have about each other. Ex ante, entrepreneurs may have information about each other that is not available to lenders (Ghatak and Kali, 2001). An entrepreneur's willingness to team up with another entrepreneur under a joint liability lending arrangement is good news about the ability or willingness of the latter to be successful. In other words, group lending reduces the adverse selection problem (Natarajan, 2004).

Ahlin and Townsend (2007) and Karlan (2007) provide new insights into why and how group lending works in enhancing repayment rates. Groups of borrowers are established to ensure the repayment of loans because group members have joint liability. Non-repayment means all members must cover this loss or will be denied future access to loans. For this reason, group lending creates incentives for screening and monitoring between members of the loan repayment (Hermes and Lensink, 2007). Moreover, members always live close to each other and have social ties (considered as social capital). Therefore, they are better informed about each other's activities.[58]

Until now, there has still been a little empirical evidence of the reduction of information asymmetries. This is, at least partly, due to the difficulty of obtaining reliable data on the working of these programs and the behaviour of their participants. Most of the current studies focus on the impact of group lending on the repayment rates by using different types of proxies for screening, monitoring and enforcement (Hermes and Lensink, 2007; Gine and Karlan, 2010).

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[58] See Stiglitz (1990), Varian (1990), Banerjee et al. (1994), Wenner (1995), Besley and Coaste (1995), Sharma and Zeller (1997), Zeller (1998), Ghatak (1999 and 2000), De Aghion (1999), Wydick (2001), Chowdury (2005), Gangopadhyay et al. (2005) and Hermes et al. (2005 and 2006).

### 2.4.3.2. Individual Lending

Individual lending is a traditional and common lending methodology of financial institutions in which individuals are provided loans directly by the lenders based on their own personal credit worthiness such as their reputation among peers and society, and income sources (Lehner, 2009; De Aghion and Morduch, 2000).

In microfinance, individual lending is associated with larger loans per person than in group lending. MFIs provide loans to the poor based on collateral or individual guarantors who are friends or relatives well known to the borrowers. Guarantors have the responsibility of repaying the loan to the lender in case the borrower fails to do so (Flaming, 2007). According to the findings of Lapenu and Zeller (2001) and Lehner (2009), MFIs prefer to offer individual loans rather than group ones since refinancing costs become high and competition between MFIs is low when the loan size within the group is larger. However, the screening and monitoring by peers in group lending reduce the problems of moral hazard and adverse selection (Hermes and Lensink, 2007). Individual lending is predicted to gain in importance in the future if MFIs continue to gain better access to capital markets (Lehner, 2009).

### 2.4.4. Interest Rate

The interest rate of loans provided to the poor is one of most important issues in microfinance (especially in commercial microfinance). A few years ago, interest rates were established below cost recovery levels since MFIs and the international communities were focusing on the access to loans of poor households by the subsidized programs (Fernando, 2006). It was supposed that the poor were viewed as bad credit-risk people, who were unable to invest borrowed money in a way that would allow them to repay the loans and interest (Ghatak, 1983; Yunus, 1999; Robinson, 2001).

Clearly, they can always repay the borrowed money once they earn profits or have positive cash flows from their investments. Being in debt is basically not a good thing, since the poor have to pay back borrowed money and they cannot afford to lose it. If there are losses in investment, they will be in big trouble. Borrowing for investments is typically not a bad idea since people sometimes do not have sufficient funds to invest in good business ideas, as well as borrowing for emergency financing needs if they are useful to the poor and they can repay loans. However, there is always a probability of failure, even if the risk is low or high. If the poor do not have innovative minds or the knowledge to start their own business, using borrowed money for investment may be a bad idea. Investment always needs time to become established and gradually earn a profit. The poor, therefore, cannot expect to earn a profit immediately and must also repay their debt and interest on time. In addition, to earn profit, the rate of return from their businesses must be higher than the interest rate of the loans.

Providing small loans to the poor is typically a costly business due to high transaction and information costs[59] (Yunus, 2007; Hermes and Lensink, 2007; Gonzalez, 2010b). In order to remain viable, MFIs either need to be heavily subsidized

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[59] Loan sizes depend on what the poor are going to do with the money (the purposes of the loans). According to the Grameen's experiences, some people need only US$ 20, others US$ 100 or $500; $25 is a huge amount for a villager (Yunus, 1999, p.205). Providing loans is like giving the poor pride, and makes them pay back every penny. In the United States, microcredit refers to loans under $35,000, and more than 90% of loans are between US$1,000 and $10,000 (Opportunity Fund, 2011). In Vietnam, loan sizes are limited to US$1,000 for business purposes, US$450 for housing and US$650 for individuals (Ngo and Nguyen, 2007; VBSP, 2009).

or to charge for loans at market interest rates.[60] Microfinance programs with subsidised interest rates are traditionally operated or backed by local government and donors for poverty reduction. Subsidised interest rates generally benefit only a small number of the poor over a short period. These programs usually have lower repayment rates than commercial microfinance since the poor know that they will be provided with loans again as long as the government keeps funding these programs. Therefore, MFIs have no incentive to become sustainable, show institutional dependency and limited growth, and lack discipline to enforce the poor to make repayments. The poor tend to view these loans as one-off gifts that do not need to be repaid (CGAP, 2002). In fact, the poor are willing to pay high interest rates for better services and continued and reliable access to finance (Ledgerwood, 1999). Clearly, these subsidized rates may effectively undermine the competition that is essential for the development and efficiency of MFIs.

MFIs, on the other hand, must set interest rates that cover all administrative costs, plus the cost of capital (including inflation), loan losses, and a provision for increasing equity with the aim of providing viable, long-term financial services on a large scale (CGAP, 2002). Therefore, the break-even interest rate (r*) (equation 1.4) for MFIs to operate without subsidies is calculated by the volume of loans outstanding before adjustments (L), the fraction expected to be repaid (1-d), total investment income (I), total costs (including the cost of capital) (C), and the total value of implicit subsidies (S) based on the expected income and total costs (Equation 1.3)[61].

$$L \ (1+r^* \ ) \ (1\text{-}d) + I = L + C + S \qquad (1.3)$$

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[60] Viability refers to the ability to maintain operations, to develop or become established in the long run.

[61] See Yaron (1992b) and Morduch (1999b, p.244)

$$r^* = [\ C + S - I + dL]\ /\ [(L\ (1\text{-}d)] \qquad (1.4)$$

Rosenberg (1996) outlines the standard method of setting sustainable interest rates for MFIs. The annual effective interest rate (I) should be calculated by the transaction costs (TA), the annual loan loss (LL), the cost of funds[62] (CF), the capitalisation rate[63] (K), and the investment income (II). However, this model ignores the timing of cash flows and does not take taxes into account. It has to be regarded as fairly imprecise and hence should not be used for business plans. Nevertheless, it can be used as an approximation of the interest rate that an MFI would need to charge to provide its services as planned.

$$I = \frac{TA + LL + CF + K - II}{1 - LL} \qquad (1.5)$$

Although most MFIs charge interest rates below the annual effective rate according to Rosenberg (1996) - equation 1.5, many critics have vehemently argued against any rates exceeding those of traditional banks. Many practitioners believe in a strong negative correlation between the interest rate and the demand for loans (Morduch, 1999a and 1999b; Karlan and Zinman, 2006). Others have argued more generally that concentrating on profitability and thus charging high interest rates diverts MFIs from serving the poorest people (Bogan, 2009). Meanwhile, MFIs are unwilling to charge interest rates for funds they received cheaply through grants or subsidized loans and are worried about undermining their social goals by charging higher rates (Schreiner, 1996; Khandker, 1998).

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[62] Interest and administration costs are needed to obtain deposits and commercial loans as well as the imputed costs on equity due to inflation.

[63] The capitalisation rate represents the net real profit.

Natarajan (2004) focuses on the adverse selection problem in order to examine the interest rate for individual and joint liability lending.[64] This study concludes that the interest rate for group lending is lower than for individual lending due to the relationship between the level of interest rate and the value of collateral (level of guarantee). This finding is definitely consistent with the recent findings of Attanasio et al. (2011). Obviously, MFIs use social collateral to overcome the problems of adverse selection to improve repayment rates and pass on the burden and costs associated with monitoring loans to the poor. Joint responsibility can be considered as a form of ex-post pledgeable income that is used as collateral rather than traditional assets. As a result MFIs seem to expect that group members will select their potential members carefully to reduce their expected costs.

Recently, Gonzalez (2010b) analysed the microcredit interest rate premium[65] based on the review of the methodology proposed by Yunus (2007). This paper focuses on how MFIs can fulfil their social missions while charging the poor the market interest rate. The interest rates charged by MFIs are higher than those of non-MFIs (such as banks) since MFIs have higher operating costs in the delivery of small loans, including administrative and personnel expenses (Gonzalez, 2010b).

Despite the fact that numerous poor people are able to generate returns from their investments, obviously not all are able to use borrowed money in such a productive way and therefore, cannot afford loans at commercial rates. In order to also reach the poorest, many MFIs tend to mix their sources of funds, especially investment funds with

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[64] See page 7, Natarajan (2004).

[65] Interest rate premium is defined as the difference between the interest rate of loans and the cost of funds at the market rate paid by the MFI (Yunus, 2007).

low costs from donors, in order to make their interest rates lower (Campion et al., 2010). Clearly, an interest rate at the market rate is possible and microfinance can be a profitable industry with the increasing participation of the private sector (Morduch and Haley, 2002; Tulchin, 2004; Campion et al., 2010).

### 2.4.5. Empowering Women

One important factor many experts on poverty reduction discuss when defining poverty is empowerment. This generally refers to the expansion of the individual's ability to make strategic life choices (Ibrahim and Alkire, 2007). The poor are not empowered since there are few jobs, hence they tend to accept to do any job or start small businesses to survive. Therefore, this state of existence can be linked to poverty. When people are disempowered, they are often in poverty (Maes and Foose, 2006). Therefore, empowerment is the expansion of the assets and capabilities of poor people to participate in, negotiate with, influence, control and hold accountable institutions that affect their lives. Poor people need a range of assets and capabilities to increase their well-being and security, as well as their self-confidence. The empowerment of women, called gender empowerment, has become a significant topic of discussion with regards to development and economics.

"Empowering women" means giving them more rights and opportunities because of their important roles in families, villages or communities (Cheston and Kuhn, 2002). Better education helps most women gain better control in daily life and improve their living standards. Women take part in family planning and help to reduce the rapid growth of the population in poor countries. Therefore, this helps to increase economic development based on their contributions to the survival of the family. Therefore,

empowering women is one of the important objectives for microfinance (Swain and Wallentin, 2007).[66]

Microfinance has generally targeted poor women by providing chances to access financial services (Yunus, 1999; Cheston and Kuhn, 2002). Many studies have proved how access to financial services has improved the status of women within the family and the community. Women have become more assertive and confident. In regions where women's mobility is strictly regulated, women have become more visible and are better able to negotiate the public sphere. Women own assets and play a stronger role in making decisions. In some social programs, there are declining levels of violence against women. The basic theory is that microfinance empowers women by providing loans and giving chances to earn an independent income and contribute financially to their households and communities (Sujatha, 2011).

Lending to women in developing countries has some benefits since they play important roles in poor households. Women are responsible for managing the home, maintaining the property, raising the children, and they are also especially responsible for daily consumptions and maintaining the savings accounts[67] of the family, while men are typically the ones who work to earn money (Yunus, 1999; Ngo and Nguyen, 2007).

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[66] Most microfinance programs target women since they play an important role in the survival of the family and are more reliable thereby contributing to financial viability (De Aghion and Morduch, 2005, pp.179-195). The impact of microfinance is a long term process and may take a long time before it is significantly reflected in observable measures. Only a few studies have successfully investigated the impact in a rigorous manner (Pitt et al., 2006).

[67] In Bangladesh, as in many developing countries, husbands generally want to control the money and make the final decisions concerning the use of money for the investments of the household (Yunus, 1999).

Some practitioners argue that an intentional focus on women's empowerment as a central principle of microfinance may lead them to additional activities which could affect the efficiency of providing financial services to the poor in a sustainable way (Cheston and Kuhn, 2002). There are three main reasons for not intentionally focusing on women. First, microfinance is provided to the right member of the poor family since microfinance is not suitable for all people (Morduch and Haley, 2002; Adjei and Arun, 2009). Second, lending to women has meanings not only for women but also for families or households. If a woman wants to take out a loan, MFIs will always insist that she needs to discuss it with her husband. Women always spend the income they earn to benefit their families and to lead to better lives (Yunus, 1999). Third, MFIs tend to provide microfinance to members of families who take part in ongoing economic activities or have effective business plans, instead of intentionally focusing on gender.

### 2.4.6. Scale of Operation

In commercial microfinance, scale of operation refers to the scale of financial products and services provided to the poor by MFIs. Financial products and services are likely to be adapted to meet the demands of the poor which ensures that the right financial products and services are provided to the right people. Therefore, MFIs may earn profits from their business at the market interest rate or at a reasonable rate from which MFIs can cover their operating costs and also remain viable (VisionFund, 2011). Without enough invested capital, low return on equity and a low repayment rate, any businesses commonly cannot compete in this world of profit. The return on equity (ROE) tends to encourage investors to reinvest in microfinance, so it may operate longer and meet the continual demand of new and existing clients. This section aims to provide a comprehensive review of the impact of scale of operations in microfinance

from the borrowers' (the poor) and the lenders' (MFIs) points of view in order to shed light on the link between funding, scale and financial performance.

### 2.4.6.1. From the Poor's Point of View

It is widely accepted that the poor have varied financial needs that can be categorised into three main purposes: spending on the basic needs of the family, conducting small businesses, and dealing with emergencies as previously mentioned. The poor basically tend to borrow money to meet their financial needs as they have insufficient funds from very low daily income. Therefore, loan sizes depend on what they are going to do with the borrowed money (i.e. the scale depends on the purposes of the loans).[68] It is suggested that MFIs should provide sufficient loan sizes to appropriate borrowers who have innovative minds and the knowledge to create good business ideas. There are possible moral hazards, in that the poor may want larger loan sizes than they really need or are able to manage.[69] Larger loans or over-lending can easily lead to the over-indebtedness of some borrowers, who do not use the borrowed money wisely in small businesses and struggle to pay back loans to the lenders. Smaller loans, on the other hand, are likely to make the poor borrow from multiple sources if their financial needs are not understood and met, which can also lead to over-indebtedness. MFIs, therefore, need in-depth understanding of the financial needs of the poor to provide suitable products to meet their needs.

In addition, the poor tend to borrow from a variety of formal and informal sources for different purposes (i.e. multiple borrowing). It is a great challenge to track the

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[68] See Yunus (1999), WWB (2003), Ngo and Nguyen (2007), VSBP (2009), Arora and Meenu (2010) and Opportunity Fund (2011).

[69] See WWB (2003), Haas (2006), Arora and Meenu (2010) and Silva (2012).

borrowing from several sources. This therefore tends to lead the poor into considerable debt and becomes dangerous if they are unable to pay off their loans. Even if MFIs have suitable products to meet their financial needs, this still cannot stop them from borrowing elsewhere. Clearly, financial education and the consequences of over-indebtedness have to be explained and reinforced periodically.

Overlending and multiple borrowing are the most important early signs of over-indebtedness, in which the poor are unable to pay off their loans (Hass, 2006; CGAP, 2012). This is likely to be caused by the free market and stiff competition between MFIs and other financial providers. According to CGAP (2012) and Duquet (2006), credit bureaus are suggested as a useful mechanism to track the borrowers from other institutions, which share credit data with the bureaus. However, credit bureaus provide only a partial answer because it is difficult to gauge the level of indebtedness and to judge whether the poor are over indebted. This seems to suggest that MFIs should restrict the number of loans the poor can take out to prevent over- indebtedness.

Over-indebtedness basically refers to the inability 'to repay all debts fully and on time' (Haas, 2006, p.3). According to this definition, the poor are considered as being over-indebted if they have insufficient income to cover all their expenses in the given period mentioned in lending contracts (Maurer and Pytkowska, 2010; Wisniwski, 2010; Silva 2012). It has been argued that this definition is just the static one-period and misses a dynamic perspective. The dynamic multi-period definition, on the other hand, states that over-indebtedness only occurs if the net cash flows of the poor are chronically negative (i.e. they are in over-indebtedness in several periods) (Kappel et al., 2010).

According to Rhyne (2001), the first known microfinance crisis, which occurred in Bolivia in 1999, was caused by consumer lending[70] and multiple borrowing. Reille (2009) and Burki (2009) also conclude that consumer lending and relaxing credit policies together with the rapid growth of MFIs contributed to the crisis in Morocco and the Punjab (Pakistan). The case of Zambia shows that the relaxing of the standards of loan officers' responsibilities are the main reasons (Dixon et al., 2007).

Based on a cross-country analysis and the crises[71] in microfinance, Chen et al. (2010) and Guarneri and Spaggiari (2009) have recently concluded that over-indebtedness is typically caused by many factors, such as: the existence of multiple borrowing; the growth targets of MFIs; overstretched MFI systems and controls; an erosion of MFI lending discipline; weak policies and practices of assessing customer repayment capacities, and the absence of effective credit information systems. In addition, the global financial crisis of 2007/2008, politically motivated movements and non-repayment movements are aggravating factors, but not the root cause of crises, such as in Nicaragua, Pakistan, Morocco and Bosnia and Herzagovina (Chen et al., 2010).

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[70] Microfinance has suffered several hardships over the years and recently faced some large hurdles as a result of severe crises, which have shaken the microfinance sector: (1) the 2010 Pakistan floods, (2) the Andhra Pradesh microfinance crisis in 2010, (3) the Kolar microfinance crisis in 2009, (4) the Bosnia and Herzagovina microfinance crisis in 2009 (5) the Nicaraguan microfinance crisis in 2008 and (6) the liquidity crisis in Nigeria in 2005.

[71] Consumer lending simply refers to loans provided to salaried workers for their consumption. Providing consumer loans to the poor is too risky since they basically have no cash return to repay them. Over spending and easy credit are singled out as the main causes of consumer over-indebtedness in many countries.

Clearly, the root causes of the recent microfinance crises are multiple borrowing and the poor quality of loans provided to the poor by the rapid growth of MFIs.

The recent microfinance crisis in the southern Indian state of Andhra Pradesh was caused by a concentrated market which was manifested through competition between MFIs and the existence of multiple borrowing. In the hunger to meet their rapid growth targets, loans were provided to the poor who were indebted to other financial organisations. While many MFIs have suffered losses and still continue to face uncertainty, the real people who will be impacted are the borrowers. There is a real danger that borrowers, especially in Andhra Pradesh may face a hard time in accessing credit for years to come. The case of Andhra Pradesh also shows that the crisis threatened microfinance not only there, but also nationwide.

The poor enter into unaffordable credit when they do not use borrowed money wisely. Therefore, they always struggle to pay back loans and interest to the lenders. Over-indebtedness is very dangerous, not only for the poor but also for MFIs, and may cause many social problems. There are typically several possible solutions for over-indebtedness. According to Arun and Murinde (2010), there are two main perspectives on this issue based on the funding of microfinance. The poor tend to take out larger loans or borrow from several sources for their financial needs and finally end up being over-indebted and unable to pay off the borrowed money. On the other hand, the poor will continue to be financed to solve this problem and be able to repay their debts. This seems to suggest that MFIs should take a risk and give the poor more chance to solve their financial problems. It has been argued that the competition between MFIs and other financial providers in the market makes MFIs accept the higher risk by providing more credit to the poor. Therefore, credit risk in microfinance is considered as the

biggest risk faced by MFIs globally (CSFI, 2009 and 2011). According to CSFI (2009), this is rising across the board, from the micro-borrower through to the MFI and even among MFI lenders. The chain is increasingly being broken at different points.

### 2.4.6.2. From the MFIs' Point of View

The poor can be reached by commercial banks in direct or indirect way through downscaling and upscaling (see Appendix 2.6). The word "downscale" means to cut back in size or scope. In microfinance, downscaling refers to the scale of finance products and services provided "directly" to the poor by commercial banks. It implies reducing the volume of their business to market niches: the poor and MFIs.[72]

Downscaling primarily expresses the involvement of local commercial banks in commercialization based on the assumption that microfinance is a development tool which is effective in fighting poverty but cannot address the poorest of the poor and be utilised in cases of extreme poverty. Therefore, it is possible to establish the intersection between the customers of MFIs and local commercial banks. Downscaling is a way of commercialising the microfinance of local commercial banks, together with the commercial investment of MFIs and transformation of NGOs.

- **Commercialize microfinance**: banks or other formal financial institutions expand their financial services to the poor traditionally served by MFIs and moneylenders (Delfiner and Peron, 2007).

- **Commercial investments**: this refers to the investment of the private sector in microfinance directly or indirectly through other financial intermediaries based on the positive returns of MFIs (CGAP, 2004).

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[72] See Chowdri (2004), Fernando (2004) and Delfiner and Peron (2007)

- **Transformation (Upgrading):** this refers to the transformation process of NGOs into formal financial providers. NGOs or socially motivated MFIs are required to change their organisational and legal structures in order to become self-sufficient and profit driven (Campion and White, 2001; Fernando, 2004).

The terms "upscale" or "scale-up" mean to increase or upgrade from small to higher levels or volumes. In finance, this issue relates to scaling up from small to medium size finance services provided to the poor (Terberger, 2003; Fernando, 2004; Martin, 2008; Lehner, 2009). There is usually a wide gap between the small and medium, and they are really two different aspects; therefore, different financial products and services can be used for them. "Upscaling" involves the addressing of different groups of clients who obviously have different kinds of demand for financial services; the staff who are acquainted with dealing with small-sized loans, and those who deal with large-sized loans differ in skills (Terberger, 2003). Upscaling is used to talk about the bottom-up approach, in which local commercial banks finance the poor indirectly by providing financial services in higher volumes to MFIs (Martin, 2008). After dealing with higher scale loans, MFIs distribute loans to individuals or groups due to the lack of reliable information, collateral and difficulty of inputs in contracts (Lehner, 2009).

The issue which is under debate is whether it is better to upscale or to downscale to encourage the private sector to take part in and improve the speed of poverty reduction. Microfinance is provided to the poor by formal financial institutions directly through group and individual lending or indirectly through intermediate organisations (Lehner, 2009). Among intermediate organisations, MFIs are considered as the best candidate for putting microfinance into practice by dealing with banks to avoid the lack

of reliable information and lack of collateral (Martin, 2008). Therefore, upscaling and downscaling are used together as a package solution to improve microfinance based on the particular conditions of each country and each institution.

First, in most developing countries, MFIs are only set up to cover that particular segment. Their staffs are trained to deal with the poor, who have a low educational background and do not have any financial information or records (Fernando, 2004). However, their products are really designed for poverty reduction. Second, the organisational and financial structures of MFIs are difficult to adjust in order to expand their operations (Martin, 2008). Small financial institutions also need a range of financial products like larger ones, whereas MFIs normally offer one or a few limited products and services to the poor. These products are quite often produced by the larger financial institutions. Nevertheless, the problem with them is that they feel small business lending is risky, and entails high costs to operate. So both aspects are possible.

Upscaling and downscaling are two ways in the commercial progress of microfinance. The main problem is that the poor should take out smaller size loans from small MFIs or larger ones from larger financial providers. This should depend on each individual country's own experience and the state of institutional development in that country.

### 2.4.7. Private versus Public Funds

The core reasons for the success of microfinance in poverty reduction, boosting economic development and developing MFIs are two-fold: (i) requiring that the money be paid back creates a system of empowerment and self-reliance that has a sustainable and contagious impact, and which direct aid has failed to produce time after time and (ii) it brings loan recipients into the formal financial sector (MCI, 2004a and 2004b).

These same two reasons are also at the core of why commercial microfinance –
profit-driven loans from private sources – can be more successful at achieving social
objectives than money from the public, taxpayer sources (Lehner, 2009; Westley, 2006;
Arianto, 2004). To draw a relationship with the macroeconomic level of global finance,
it has long been argued that the use of public funds from the likes of the World Bank
and IMF to bail out ailing governments in the developing world is counterproductive,
because by acting as a lender of last resort, the multinational institutions are creating an
atmosphere that encourages moratoriums on debt payments and sometimes outright
default on loan principal and interest (MCI, 2004a and 2004b).

**Figure 2.4 Uses of Microfinance Funds**
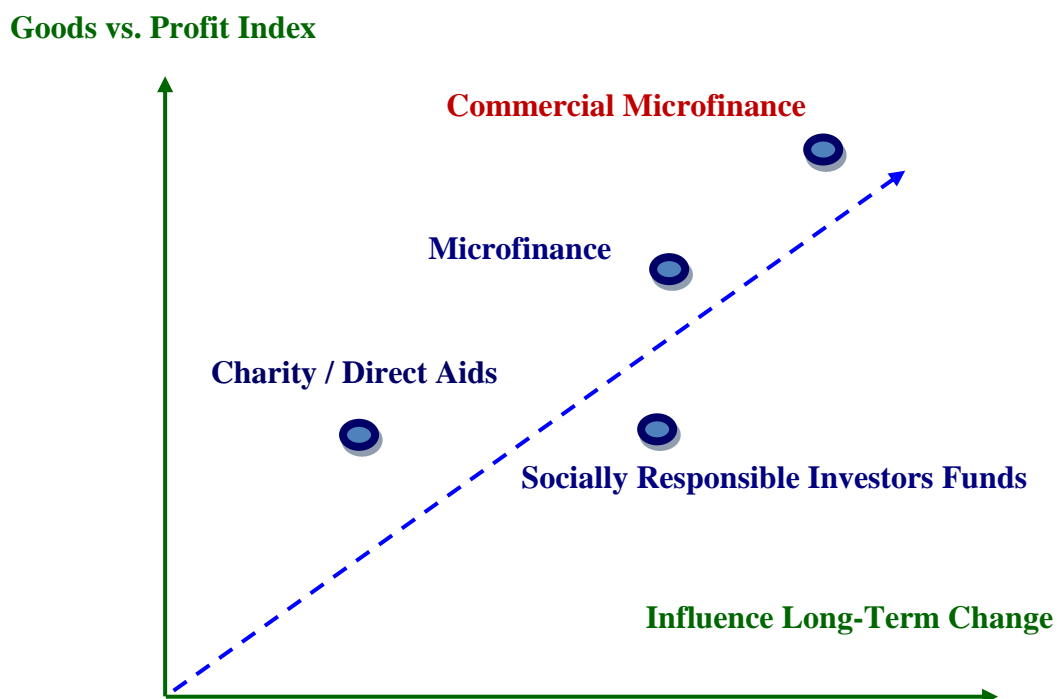


Sources: Tulchin (2004) and MCI (2004a and 2004b)

MFIs that are supported by public monies have less of an incentive to be vigilant
about paying back the loans, as they know that in the end the lender of last resort – be it
the World Bank or local aid institutions – will absorb any non-performing loans.

Consequently, those publicly funded lenders also have a tendency to be less vigilant about selecting profitable MFIs and monitoring their progress. Often, the attitude is if one MFI does not work out, they can always move on to another.

Commercially funded microfinance has built-in efficiencies along the value chain. Because investors expect to be paid back, commercial microfinance funds pay close scrutiny to the MFIs they select to receive the loans from, and monitor them more closely. And that profit-driven attitude is translated to the MFIs when they select clients for loans and monitor loan repayment schedules. Finally, the loan recipients themselves are empowered with a sense of responsibility and obligation to repay the loans. Add to that the added responsibilities that peer-lending groups imply, and the incentives for loan repayment can be quite strong. As a result, making efficient use of that capital becomes paramount. That has a direct result on raising the financial and social level of the loan recipients, those around them, and the community at large.

Furthermore, there are indications that the best-run, most profitable MFIs are more efficient at introducing additional financial products into the community – from mortgages and home-equity loans to savings and checking accounts, insurance and even credit cards. All of this brings the poor who were once below the poverty line into the formal financial sector, and can go a long way toward poverty reduction and economic development.

### 2.4.8. Roles of Regulation and Supervision of MFIs in Microfinance

The legal framework and governing principles of financial intermediation in a country define the roles of its regulatory authorities who set out the rules for the entry and the exit of financial institutions, determine and limit their businesses and products, and specify criteria and standards for sound and sustainable operations (Chavez and

Gonzalez-Vega, 1992; Gallardo, 2001; Seelig and Novoa, 2009). Regulation[73] may include forms of auxiliary regulation and self-regulation by the governing boards of financial institutions, their networks and associations, or apex organisations. Prudential supervision encompasses all measures by which regulators enforce compliance by licensed financial institutions with a given legal and regulatory framework (Davis, 2009). The financial authority assumes full responsibility for the soundness of the regulated or licensed financial institutions (Gallardo, 2001).

Widespread experiences and research have shown the importance of the regulation and supervision of MFIs in microfinance. These studies suggest that MFIs should be prudentially regulated and supervised to protect their depositors and to prevent risks to the financial system[74]. This also protects investors and helps MFIs attract more investment funds from the private sector or international organisations (Davis, 2009). An argument can be made that credit-only MFIs[75] do not need to be subject to prudential regulation and supervision and small community-based MFIs[76] should not be prohibited from deposit taking since they are too small or too remote to be

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[73] Regulation usually refers to non-prudential regulation but may include prudential supervision in its broad general meaning.

[74] See Chavez and Gonzalez-Vega (1992), Vogel et al. (1999), Christen and Rosenberg, (2000), Gallardo (2001), Rhyne (2002), Omino (2005), Seibel (2005), Ledgerwood and White, (2006), Ngo and Nguyen (2007), Haq et al. (2008), Davis (2009), Arun and Murinde (2010) and WSBI (2011).

[75] The term "credit-only MFIs" refers to MFIs which do not take voluntary deposits.

[76] "Community-based MFIs" refer to the many forms and shapes of small MFIs built in informal ways, such as rotating savings and credit associations (ROSCAs), accumulating savings and credit associations or in a legally registered form such as the Savings and Credit Cooperative Societies (SACCOs).

regulated effectively. However, Christen and Rosenberg (2000) believe strongly that the future of microfinance lies in a licensed setting that will permit massive, sustainable delivery of good quality financial services to the poor. Clearly, MFIs are likely to need to meet certain minimum regulatory conditions based on the characteristics of the financial institutions and conditions of each country. MFIs need a licensed environment to achieve their potential. Therefore, an appropriate legal framework to promote viable and sustainable systems of microfinance in a country must be developed (Omino, 2005).

Lack of a clear regulatory framework, on the other hand, will expose MFIs to uncertainties and risks in terms of costs, unhealthy competition, operational challenges, limited funding sources, sustainability and other challenges. According to Gallardo (2001), it tends to boil down to the need for an efficient policy and regulatory environment within the borders of a country that seals the financial system from both internal and external macroeconomic turbulence. The existing legal frameworks in many countries have been unable to support the sustainable growth and commercial integration of microfinance programs into the formal financial system (Ngo and Nguyen, 2007; Christen and Rosenberg, 2000). Therefore, the roles of regulation and supervision are addressed to make governments realize the advantages and benefits of a tiered financial system which facilitates the establishment of smaller, specialised MFIs and creates a good environment for them to develop and strengthen themselves in.

### 2.4.9. Synergies between Microfinance and other Non-Financial Programs

As previously mentioned, microfinance can have a great potential positive impact on a wide range of poverty reduction targets, particularly in income, health care, and education (Wright, 2000; Morduch and Haley, 2002; Gonzalez, 2010a). It is clear from the evidence that poverty is a serious social problem that permeates every dimension of

culture and society (Bartle, 2008). Morduch and Haley (2002) conclude that there are strong potential synergies between microfinance and the provision of basic social services for the poor since the benefits derived from these programs are interconnected. In addition, the impact of each program on poverty reduction tends to increase if they are delivered together. Most researchers find that it is difficult to isolate the impact of a specific development tool as each contributes to the others. The marginal cost of providing social services for the poor tends to be substantially reduced when the infrastructure for microfinance is already in place. However, it is suggested that these social services are relevant to the financial needs of the poor (UNICEF, 1997; MkNelly and Dunford 1999; Marcus et al., 1999; Gonzalez, 2010a).

There are a variety of ways to integrate microfinance into non-financial programs in poverty reduction. According to Dunford and Rueda (2005), these can be: bound, parallel and unified. MFIs can traditionally create a bound program by conducting strategic alliances with other organisations to integrate microfinance into other non-financial services. This strategy can normally maintain different specialities of financial and non-financial services, but MFIs tend to have less control and follow-up in the non-financial area. On the other hand, a parallel or unified combination of microfinance and non-financial services may be provided by MFIs themselves with different or the same specialised personnel. Since the specialised personnel are highly committed, the results are likely to be better. However, the operational costs and the coordination of personnel from different sectors are great challenges. In order to conduct these programs, MFIs need to hire, train and supervise personnel to provide both services. The impact of non-financial services provided by MFIs, therefore, seems to be smaller due to the limit in capacity to provide these services. Clearly, it is necessary to identify the various processes involved in the provision of both financial and non-financial services.

Training and education obviously plays important roles in successfully providing these integrated services to the poor[77].

It is proposed that training might be valuable to the poor and also to MFIs. It tends to improve not only the knowledge and skills of the personnel, but also the attitudes and behaviour of the clients, which in turn strengthens institutional actions. Basic knowledge of and skills in financial and also non-financial topics can help the poor to better address adverse conditions in the environment. Due to the limited capacity for providing non-financial services, MFIs are likely to focus on financial education, such as promoting financial services to potential clients, training clients who have just entered the program, and training group leaders to achieve better management of the group itself (Cohen and Sebstad, 2003; Sebstad et al., 2006; Khumawala, 2009).

As mentioned previously, using borrowed money as an extra source to invest into small business can be very dangerous, especially if the poor have little knowledge of investments. It can lead the poor to over-indebtedness. Therefore, the main purpose of financial education is to teach the poor basic concepts of money and how to manage it wisely. It enables them to become more informed financial decision makers, develop awareness of personal financial issues and choices, and learn basic skills related to earning, spending, budgeting, saving, borrowing, and investing money. It helps people set financial goals and optimise their financial options (Cohen and Sebtads, 2003; Sebstad et al., 2006). Clearly, financial education plays an important role in achieving success in investment businesses and microfinance programs.

Financial education programs run through NGOs, as well as MFIs are timely and can be a win-win situation for the poor and MFIs. They help the poor build assets and

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[77] See Gonzalez-Vega et al. (2002), Maldanado (2005) and Khumawala (2009)

creates wealth to provide the basis for economic security. Common ways in which poor people are likely to build assets are through savings, and investments in land, businesses, and housing. They also build assets by investing in their children's education, health, and the maintenance of reciprocal social relationships that provide support in times of need. According to the findings of Cohen and Sebstad (2003) and Sebstad et al. (2006), good money management is critical to the process of accumulating all kinds of assets and preserving them. Obviously, access to appropriate financial products and services, along with the financial skills to manage these resources well, are keys to the process of asset accumulation.

## 2.5. Conclusions

Microfinance has proven to be an appropriate, effective, and powerful tool for the poor and for poverty reduction in order to reach the Millennium goals. The comprehensive review of microfinance has raised some important issues in the existing literature. First, microfinance clearly cannot immediately turn the poor into the non-poor. The point is that microfinance is basically a long-term process which tends to support the poor financially so that they can combine their skills, knowledge, experience and financial capital to break away from poverty and change their lives. Second, donor funding tends to become insufficient to meet the continual demand for well designed financial products from new and existing clients. Therefore, access to commercial funds is likely to encourage MFIs to move out of heavily subsidised operations and enter into commercialisation in order to achieve efficiency and sustainability. Third, several studies have focused on investigating the impact of microfinance or the trade-off between social mission and financial sustainability, instead of the possibility of remaining viable in providing financial services to the poor

in the long run. Fourth, the funding of microfinance plays important roles in economic viability and sustainability of MFIs. Fifth, lending methodologies, savings, empowerment of women and the impact of microfinance are likely to depend on the legal status, profit status and regulated status of MFIs. Sixth, these studies have shed light on the link between funding and microfinance performance as one of the important gaps in the existing literature (i.e. how MFIs choose financial structure to improve their performance). Therefore, in the following chapters this study attempts to fill these gaps in the literature by investigating the funding of microfinance and testing the effects of financial structure on the different aspects of MFI performance.

# CHAPTER 3

# MICROFINANCE FUNDING

## 3.1. Introduction

Donor funds in microfinance tend to become insufficient to meet the continual demand from new and existing clients, as previously mentioned. Therefore, access to commercial funds is likely to encourage MFIs to move out of heavily subsidised operations and into commercialisation in order to achieve efficiency and sustainability. The positive returns of several MFIs around the world have continued to attract new investment funds. Microfinance continues to evolve, with consistent emphasis on efficiency and growth in outreach. It is relying increasingly on commercial financing to fund this potential growth, whether through debt or equity investments[78]. In addition, the comprehensive review of microfinance in Chapter 2 has shed light on the link between the funding and performance of MFIs as one of the important gaps in the existing literature (i.e. how funders determine financing decision based on the key performance indicators of MFIs).[79] Therefore, this chapter investigates some important issues in microfinance funding to shed new light on previously unstudied topics, especially the impact of financial leverage on the performance of MFIs. The most influential economic theories and empirical evidence, presented here, attempt to provide quality statements for the empirical analysis presented in the following chapters.

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[78] See Hsu (2007) and Hermes et al. (2011).

[79] See Thapa (2007), Bogan (2009) and Imai et al. (2011).

## 3.2. Microfinance Funding

Like other businesses, the financial structures of MFIs nclude two major parts: total liabilities and total equity (see Figure 3.1). Total liabilities, sometimes called total debts, typically include voluntary deposits, compulsory savings, debts and other liabilities[80]. Total equity, on the other hand, generally refers to the total money the owners have invested. Before deciding to start a new business or to expand a current one, one of the first questions is how to raise money or funds to finance the operation based on the business plans. Fundamentally, there are two main separate categories of financing instruments that an MFI can choose: liabilities financing and equity financing (Mullineux and Murinde, 2001). There has been discussion on which is the best option: debt or equity financing?[81] Choosing between liabilities and equity financing regularly creates a dilemma, since the answer always depends on the particular situation[82] of each MFI. Each instrument has its own pros and cons; therefore, a mix of liabilities and equity financing is constantly the optimal strategy, with favourable financial leverage[83] to maximise the benefits for shareholders based on their advantages.

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[80] See Wisniwski (1999), Hsu (2007), MIX Market (2009), Sapundzhieva (2011) and Hermes et al. (2011).

[81] See Marsh (1982), Cornell and Shapiro (1988), Gombola and Marciukaityte (2007), EVCA (2007), Delloite (2010), Hanke et al. (2010) and Peavler (2012).

[82] The particular situations refer to the type, size, profitability, objectives, financial capital, potential investors, credit standing, business plans and tax situations of each firm at a specific period of time.

[83] Debt to equity ratio is calculated by dividing total debts by total equity. It is seen as being below 3:1 for most industries (ideally, 2:1 or 1:1, depending on each industry). The lower values of this ratio are favourable. This means that the business relies less on external lenders than others, thus it has lower risk.

**Figure 3.1 Financial Structures of an MFI**

```
                   ┌────────────────────────────┐
                   │ Total Liabilities and Equity│
                   └──────────────┬─────────────┘
              ┌───────────────────┴───────────────────┐
      ┌───────────────┐                        ┌───────────────┐
      │  Liabilities  │                        │    Equity     │
      └───────┬───────┘                        └───────────────┘
              │
  ┌───────────────────────┐
  │  Voluntary Deposits   │
  └───────────────────────┘
  ┌───────────────────────┐
  │  Compulsory Savings   │
  └───────────────────────┘
  ┌───────────────────────┐
  │      Borrowings       │
  └───────────────────────┘
  ┌───────────────────────┐
  │   Other liabilities   │
  └───────────────────────┘
```
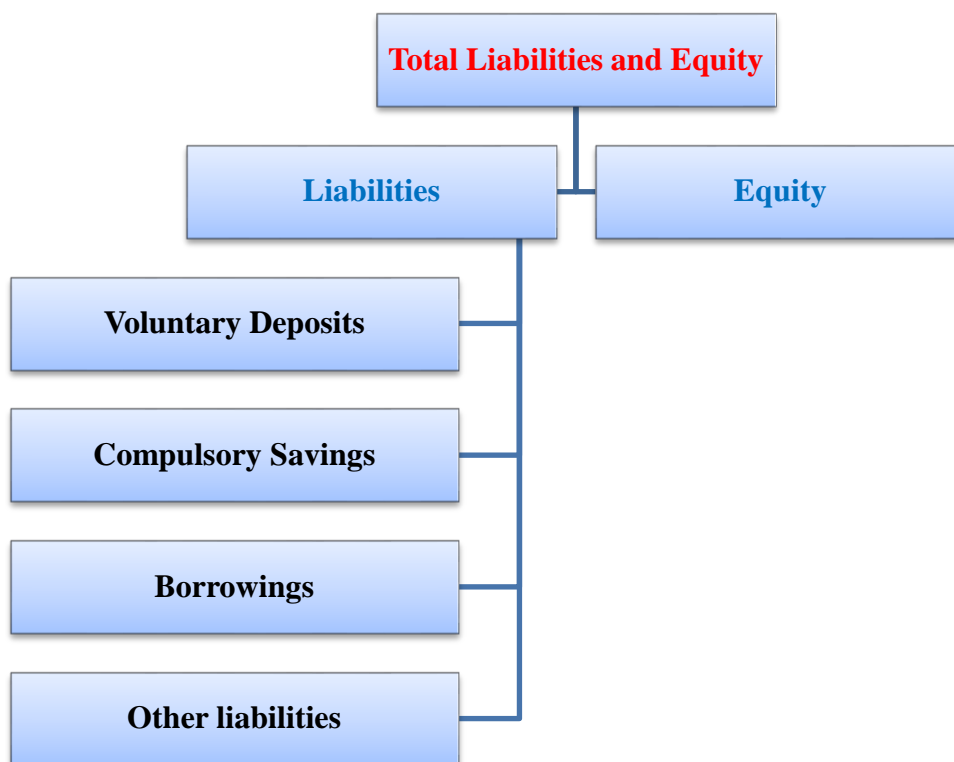
Sources: Adapted from Hsu (2007), MIX Market (2009), Sapundzhieva (2011) and Hermes et al. (2011).

### 3.2.1. Equity Financing

Equity financing refers to the act of raising money to finance business activities by issuing stocks (common or preferred stocks) to the current owners or potential investors. This form of financing enables firms to receive more investment funds from the current owners and potential investors with or without borrowings for their startups or when they need to raise additional equity[84] to offset existing debts.

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[84] In finance, equity is the term used to describe the funds (money) of the owners. It refers to the amount of money the owner has invested in a firm.

At the early stages of a new business, owners need to invest their own money to finance the start-up operations. As the business is a separate entity from its owners, these investments create a liability[85] in the shape of capital. In accounting and finance, owners' equity is the residual interest or claim of owners in assets after all other liabilities are paid (Delloite, 2010). If total debts exceed total assets, negative equity exists. This means that creditors would not be able to get enough money back from their debts, and nothing is left over to reimburse owners' equity. Thus, owners' equity is also known as risk or liable capital.

It is widely accepted that firms with high profitability and poor credit ratings often rely on equity financing to fund their new or small businesses. It is also ideal for start-ups and newly launched firms, since they do not have a solid track record of success and face uncertainty in the early stages of development. There are three main methods of raising equity: retained profits,[86] rights issues[87] and new issues of shares to the public.[88] These methods have the following main advantages:

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[85] In financial accounting, a liability is defined as an obligation of the business arising from corporate financing (IASB, IFRS framework, F.49b). Liabilities include equity from owners' funds or debts from borrowed money. Therefore, the basic accounting equation Total Assets = Total Liabilities demonstrates how assets are financed and shows the relationship between assets and liabilities. In detail, it becomes Total Assets = Total Liabilities (Debts) + Total Owners' Equity. The term "total liabilities" refers to total debts to distinguish between different sources of funds.

[86] The retained profits or capital gains refer to the profits that result from the investments that are retained to increase capital rather than paid out to the shareholders as dividends.

[87] The rights issues refer to new shares issued to current shareholders.

[88] The new issues of shares to the public refer to new shares issued to new investors.

- The investment funds from owners do not necessarily have to be repaid since investors expect a share of the profits (called dividends). If the business does not make any profit or fails, the firm will not have to make any repayment. In the case of bankruptcy, the money does not have to be paid back from the personal funds of the owners.

- There is valuable assistance from the different investors. They have advantages for a firm, especially in the early days of business.

- Owners can use the equity to pay all the start-up costs of the business without the burden of debt.

However, equity financing has some disadvantages. First, the current owners must show the potential investors that they are willing to invest more money and share risks in the current business by using their own money. Second, investors always require a very well-detailed and convincing business plan as they do not receive guaranteed returns. In addition, the current owners have to give up a share of ownership rights and profits to the new investors. This is basically a big sacrifice of independence for any business owner. Finally, any dividend payments to shareholders, if applicable, will not be tax-deductible.

Clearly, equity investments play an important role in providing finance for MFIs around the world. According to Chasnow and Johnson (2010), there are two typical types of investors: social investors and commercial investors. First, social investors, called microfinance focused funders, are individuals or institutions that invest with social objectives as a high priority. Second, commercial investors, called private-equity funders, are profit-driven investors from the private sector who are likely to tend to focus more on financial returns (dividends) from their investments.

### 3.2.2. Liabilities Financing

Liabilities financing, also called debt financing, refers to the borrowed money which a firm must pay back to lenders with interest after a specific agreed period of time. Firms tend to rely on debt financing to fund their businesses if they are well-established and have steady sales, solid collateral and profitable growth. Due to lack of sufficient funds (equity), firms always use borrowed money as an extra source of finance to expand their businesses. Debt may be a good option, but it can be very dangerous if firms do not have in-depth knowledge of the pros and cons of the financial instrument. The main advantages of debt financing are:

- Owners can maintain maximum control over their business without sharing control and profit with lenders.

- The firm has no other obligations apart from the repayment of the loans (the principal and interest) to the lenders.

- Interest on debts is tax-deductible to corporate income tax. This means that it shields a part of the income from taxes and lowers tax liability every year.

However, there are also a number of disadvantages of debt financing. Firms have to show lenders how they are going to repay the loans, and secure loans against their assets as collateral. In addition, they may have large loan repayments for startup' costs. Thus, whenever they use debt financing they run the risk of bankruptcy. The higher the level of debt financing, the higher the risk. Clearly, debt financing can bring some benefits to shareholders, but over-reliance on this financing instrument creates a negative impact on their credit ratings and makes it difficult to raise funds in the future.

### 3.2.2.1. Deposits

Deposits refer to the sum of savings deposited in financial institutions. They are categorised according to the type of client (individual vs. institution) and different products. In microfinance, there is an additional category which includes disclosures of voluntary deposits vs. compulsory deposits[89] (MIX Market, 2011). These terms are often mixed and inappropriately used. Therefore, the correct use of these terms plays an important role in achieving the objectives of MFIs. Voluntary deposits are characterised by convenience and return: the ability to deposit and withdraw at will and earn interest at the market-driven rates (Branch and Klaehn, 2002).

Compulsory savings refer to a sum of money which borrowers have to save at regular intervals with MFIs as a condition for receiving a loan. They are considered as collateral and used to cover missed payments (CGAP, 1997 and 2011a). These savings typically provide clients with little or no choice of saving products, but teach them how to make micro savings. These savings are collected indirectly through groups (group lending) or directly from individuals (individual lending), only one time when the poor receive loans, or many times on a regular basis. The borrower can withdraw immediately upon repayment of the loan. In contrast to saving up, compulsory saving is a kind of saving down, by taking an advance loan from lenders and repaying through the series of savings (Rutherford, 2000). It suggests that the poor are usually not permitted to have compulsory saving, unless they borrow. They also provide a source of lending and investment funds for MFIs. However, they do not, in fact, provide a

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[89] To distinguish voluntary vs. compulsory deposits, the term "deposits" is sometimes used to refer to voluntary deposits, while the term "compulsory savings" is used to refer to compulsory deposits in microfinance.

sufficient volume of funding for the lending activities of MFIs (Branch and Klaehn, 2002; Wisniwski, 1999).

In contrast, voluntary deposits refer to the savings deposited voluntarily by public clients.[90] There are different types of deposits with various features related to interest rate and withdrawal ability, such as current account deposits, savings deposits, time deposits, monthly income schemes or fixed deposits. Most deposits are basically voluntary savings and are withdrawable anytime, apart from time deposits[91] (Seibel, 1999; Giehler, 1999). Voluntary deposits refer to the saving up of small amounts of money to accumulate assets, with the plan to use them in the future[92] (Rutherford, 2000).

Voluntary deposits assume that the economically active poor already save in a variety of forms, and that they do not need to be taught to save, as previously mentioned. If MFIs aim to collect savings from the public, they need to learn to provide a choice of saving products appropriate for clients' demand, particularly for the poor. This is consistent with the fact that two of the biggest obstacles to serving low-income depositors are the distance and the products. Deposits are always the primary source of funds of financial institutions and can be divided into three main types: current account deposits, savings deposits, and time deposits (Giehler, 1999).

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**90** See CGAP (1997), Adams (2002), Gonzalez and Meyer (2009) and MIX Market (2011).

**91** Time deposits, known as term deposits, are not withdrawable unless the stated time is met, since depositors expect higher interest based on the longer term.

**92** See "saving up" and "saving down" in Chapter 2 and Appendix 2.3.

- Current account deposits are normally non-interest bearing funds. They are payable on demand and are the main instruments for the financial transactions of depositors. There are high costs incurred in servicing clients with these accounts and high competition between MFIs and other financial institutions, who offer particular services to attract more clients.

- Savings deposits can be added to and withdrawn at any time by depositors. Transactions and interest payments are recorded in passbooks. They traditionally provide an important source of funds for financial institutions that are specialised in mobilising and stimulating savings.

- Time deposits are not withdrawable during a certain term.[93] Depositors are paid at a higher interest rate than other kinds of deposits. The longer term provides a better yield because financial institutions have the ability to invest in higher gain financial products. Therefore, they are stable funds and may be negotiable on the secondary market.

Deposits are a relatively stable and low-cost source of funds. They help MFIs to achieve independence from donors and investors, which is particularly important in periods of liquidity constraints (Morduch and Haley, 2002). Deposits are more than half of the total assets reported by financial institutions that have deposit mobilisations (Gozalez and Meyer, 2009) because depositors enjoy certain benefits, such as access to loans (Wright, 1999; Elser et al., 1999).

Deposits traditionally represent an important source of funding, but they were neglected by most MFIs until a few years ago, since they provided an insufficient

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[93] For a withdrawal before the term, a minimum period of notification may be required or a penalty is paid (such as a lower interest rate being charged).

volume of funding.[94] There are some particular reasons why MFIs have historically not emphasised deposits. First, the poor were thought not to have enough money to make the saving voluntary[95] (Adams, 2002). Second, most of the institutions involved in microfinance were NGOs or small financial institutions, which were not legally licensed to collect savings from the public. Due to their own lack of capacity, such as limited services and branches, the public prefer to deposit their savings in local commercial banks rather than MFIs. Therefore, deposits become too costly if compared to concessionary funds from governments and donors, or even commercial loans with interest at the market rates.[96]

There are some arguments over whether or not the deposit mobilising MFIs[97] are really serving small depositors (micro-savings). Based on the combined database of MIX Market − MicroBanking Bulletin for 2007 (MBB, 2008), Gonzalez and Meyer (2009) state that most deposit mobilising MFIs were reaching small depositors, perhaps

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[94] See Wisniwski (1999), Maisch et al. (2006), Ngo and Nguyen (2007), Gonzalez and Meyer (2009) and Sapundzhieva (2011).

[95] Poor households spend all of their income on daily food or invest any remaining income in running small businesses. Therefore they tend to have no money left to make proper savings. However, there has been increasing recognition that they do save in non-financial forms due to lack of access to good facilities for formal savings (Hirschland, 2005).

[96] There are many important issues to consider in order to attract deposits, such as transaction costs, advertisement costs, workloads for employees, the volatility of funds, liquidity management and reserve requirements. Otherwise, nobody will be keen to make deposit savings with MFIs. In addition, MFIs also have to provide various services to their depositors (Giehler, 1999; Adams, 2002).

[97] Deposit mobilising MFIs refer to MFIs that mobilise voluntary deposits, excluding MFIs that only mobilise compulsory or institutional deposits.

even smaller than their borrowers. This result suggests MFIs have been able to design and mobilise voluntary deposits to meet the special needs of the people who are poor or even poorer than their borrowers. Therefore, not all MFIs have succeeded at micro deposit mobilisation. Gonzalez and Meyer (2009) also account for 68 million borrowers and 62 million savers in 2007 with MFIs around the world. Their assets represented US\$ 51 billion, their gross loan portfolio US\$ 37 billion and their voluntary deposits US\$ 22 billion. The voluntary deposits included both savings accounts and time deposits by individuals, while institutional accounts and compulsory deposits were excluded. From 2005 to 2007, the number of deposit mobilising MFIs in 2007 was 110% greater than in 2005 (318 versus 298), and they represented on average 39% of all MFIs. The total amount of assets in USD increased by 190%, of gross loan portfolio by 200%, and of voluntary deposits 170% during the period 2005 to 2007. The number of borrowers increased by 150%, and the number of voluntary savers increased by 110%. Weighted by the assets of deposit mobilising MFIs only, this ratio decreased slightly from 63% in 2005 to 58% in 2007. This result is consistent with the fact that assets increased more than deposits in the same period. Deposits are an important source of funds, but they were not yet considered as the primary source of MFIs for lending.

The poor regularly face many of life's worse challenges[98] at the same time; therefore, they live in instability, insecurity and often despair for work and income (Dijk, 2010; Levin, 2009; Boonyabancha, 2001). However, they have the same needs and objectives as non-poor people. They should avoid "living from hand to mouth" by being careful with their low income and need to plan more and manage their finances better than non-poor people (Karlan, 2010). This obviously means that the poor need to

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[98] The poor regularly face the sickness of a child, too many children and large families, problems with giving birth, accidents, criminality and violence.

save and swap small savings from income flows for the lump sums needed for a variety of purposes (Rutherford, 2000).

Two primary arguments can be made for savings. It is widely accepted that the poor have very little income and spend most of it on daily food. From this perspective, most poor people are likely to be too poor to make proper savings, even if they have a very small amount of money. On the other hand, the relevant studies conclude that the poor do have surplus money, and all do indeed save in different ways, tending to put aside money for different purposes[99] (Rutherford, 2000; Karlan, 2010; Robinson, 2004 and 2010). However, not all of them have money for savings in some certain situations, especially the poorest. The income of the poor is not only small but also probably irregular and unreliable. Most of it is quickly spent on essentials. If taking out a loan is typically considered as the best way to access future income (saving down), withdrawing savings is the best way to access past income (saving up). This is always the paradox that faces many of the poor and poorest people (Rutherford, 2000).

### 3.2.2.2. Borrowings and other Liabilities

Borrowings[100] are loans or money borrowed from other financial institutions in the short- or long-term (especially from local commercial banks or international financial organisations) (MIX Market, 2009). International investors can invest money

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[99] The poor participate in informal saving groups which mobilise member contributions for specific purposes such as weddings or funerals, set aside money for school fees or buy and collect bricks to prepare to build houses.

[100] The term "borrowing" is the total amount of money owed at a particular point in time. It is frequently used to describe the process by which debt is taken out, and is also the amount that is used to express the total amount outstanding.

in MFIs directly or indirectly through microfinance investment vehicles[101] (MIVs), known as intermediaries between global investors and local MFIs. Even though debts are the commercial funds generally priced at the market rate and may be expensive for new or small MFIs, they are currently the most popular funding source for lending when MFIs have limited ability to obtain savings from the public (Sapundzhieva, 2011).

Other liabilities are investment funds from other external sources (such as soft loans[102] or grants from local or international donors). They also are mixed with other funding sources (such as commercial debts) to make the interest rate lower than the market rate (MIX Market, 2009).

To sum up, MFIs have three main sources to fund their potential growth: equity, deposits and debts. Each fund has different costs which contribute to the lending interest rate. Besides reducing operating expenses by becoming cost-effective, MFIs try to obtain low-cost funds such as soft loans or public deposits to combine with other commercial funds to reduce costs. Clearly, commercial debts are necessary to fund the continued expansion of microfinance to meet the increasing demand for well-designed financial services for the poor, as previously mentioned.

## 3.3. The Link between Funding and Performance

Economic profit (or loss) refers to the difference between total revenues and all expenses. Responding to profit incentives, firms tend to try to increase total revenues

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[101] Microfinance Investment Vehicles act as financial intermediaries that mobilise funds from international investors to local MFIs and play an important role as the main channel for commercial microfinance in developing countries.

[102] Soft loans or concessionary loans are a special kind of debt borrowed from socially responsible investors at a low interest rate.

and decrease total expenses (including costs of capital). In the case of a financial institution, financial expenses (costs of funding) usually represent a large part of total costs, but this part is more difficult to control by the financial institution, while the revenues depend mostly on the interest on loans provided to borrowers (De Aghion and Morduch, 2005). Therefore, financial structure in terms of funding has become one of the important issues for MFIs in gaining efficiency and sustainability. The effects of funding sources can be positive or negative due to their positive contributions to total financial revenue (i.e. the predicted effects are indeterminate and depend on the specific circumstances of each MFI). However, the increase in financial expenses is always expected to be lower than the increase in financial revenues.

This section will discuss the most influential economic theories on the link between financial structure and performance to provide quality statements for the empirical analysis presented in the following chapters. Therefore, the section is divided into three sub-sections. The first sub-section presents the theories of capital structure concerning financing behaviours and the impact of financial structure on performance. Subsequently, the second and the third sub-sections present other theories concerning the contributions of firm size and financial crisis to the effect of financial leverage.

### 3.3.1. Theories of Capital Structure

In corporate finance, there is a large body of literature that examines the financing behaviours and the impact of financial structure on the performance of firms. However, most current studies in the field of financial structure are dominated by two main theories: trade-off theory and pecking order theory (Swinnen et al., 2005). They have both been developed from Modigliani and Miller's theorem, which is considered as one of the most important cornerstones of finance (Pagano, 2005). These theories provide a

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main framework for the effects of financial structure on the performance of firms in general, and financial institutions in particular. Over the years, three major theories of capital structure have emerged which diverge from the assumption of perfect capital markets under which the "irrelevance principle"[103] works. Therefore, the capital structure of a firm is considered as the result of the transactions with various suppliers of finance.

In a perfectly competitive market, Modigliani and Miller (1958 and 1963) state that the value of a firm is independent of financial structure. Leveraged and un-leveraged firms[104] have the same cost of funds, since debt and equity are assumed to have the same interest rate. This theory has several assumptions, including that there is no transaction cost, no information asymmetry, no taxes and the same interest rate. According to Modigliani and Miller (1963), debts have a tax benefit shield, which leads firms to maximise their value by using as much debt as possible if there are no bankruptcy and agency costs. However, imperfections exist in the real world, including bankruptcy costs,[105] agency costs[106] and gains from leverage-induced tax shields.[107] Thus, financial structure is completely relevant to the value of a firm. It suggests that an

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[103] Modigliani and Miller's theorem is also often called the capital structure irrelevant principle. The term "capital" refers to investment funds (debt or equity financing). Capital structure is the combination of sources of funds (including two main source proportions: debts and equity).

[104] An unleveraged firm refers to a firm financed only by equity. A leveraged firm refers to a firm financed by a mix of equity and debts.

[105] See Baxter (1967), Stiglitz (1972), Kraus and Litzenberger (1973), Kim (1978) Haugen and Senbet (1988) and Leland (1998).

[106] See Jensen and Meckling (1976), Haugen and Senbet (1988) and Leland (1998).

[107] See De Angelo and Masulis (1980) and Lewellen et al. (2005 and 2006).

optimal financial structure may exist and tends to reflect both the tax advantages of debt, fewer default costs and the agency costs of managerial discretion (Lehan, 1998).[108] There are a number of theoretical and empirical studies[109] that largely support the notion that bankruptcy and agency costs are the partial determinants of leverage and optimal financial structure. These studies have generally examined the financing behaviours of firms if Modigliani and Miller's hypotheses do not hold.

**Trade-off theory** refers to the trade-off between the benefits and costs of debt and equity financing after accounting for market imperfections such as taxes, bankruptcy costs and agency costs. According to the assumptions of Modigliani and Miller (1963 and 1958), there are no bankruptcy and agency costs. However, the presence of agency and bankruptcy costs of debt in the real world make its tax benefit exaggerated. This means that there are some threshold levels of debt, under which the values of firms are maximised. The threshold level is generally called the optimal level of financial structure, in which debt is expected to provide maximum tax benefits (Myers, 1984). When firms are profitable, they prefer debts to equity because interest paid to lenders is a deductible item to net income before paying corporate income tax (IFS, 2011). However, one of the disadvantages of debt is the cost of potential financial distress, especially when the firm relies on too much of it. They target their capital structures[110]

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[108] Debts have corporate income tax advantages since the interest payments reduce taxable income, while dividends and share repurchases do not (Lewellen et al., 2006).

[109] See Bradley et al., (1984), Long and Malitz (1985) and Titman and Wessells (1988).

[110] Firms target their capital structures; i.e. if the actual leverage ratio deviates from the optimal one, the firm will adapt its financing behaviour in a way that brings the leverage ratio back to the optimal level targeted. This is an important prediction of the static trade-off theory.

and tend to use more debt to implement highly efficient output strategies when the past positive return is a good proxy for future return (Jensen, 1986). Firms with low profit prefer internal funds, since external ones may be more expensive and non-debt tax shields may be bigger than the advantage of tax benefits (De Angelo and Masulis, 1980). Developed from these predictions, dynamic trade-off theory points out the role of time, expectations and adjustment costs. The correct financing decision typically depends on the financing margin that the firm anticipates in the next period (i.e. some firms expect to pay out funds, while others expect to raise funds in the next period). This suggests that the optimal financial choice today tends to depend on what is expected to be optimal in the next period. These theories explain the difference in the debt to equity ratio between industries but they do not explain differences within the same industry.

**Pecking order theory,** on the other hand, argues that firms follow a financing hierarchy to minimise the problem of information asymmetry between the manager-insiders and the shareholders-outsiders (Myers, 1977 and 1984; Myers and Majluf, 1984). This refers to the impact of asymmetric information[111] on the choice of funding instruments to maximise the value of firms (Myers, 1984). According to this theory, firms prefer to use internal funds (retained earnings) to external funds (debts and equity), since the information asymmetry leads to a mis-pricing of their values on the market and causes a loss of wealth for existing shareholders (Myers, 1984; Myers and

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[111] It is assumed that managers and existing shareholders have better information about the value of firms than external or potential investors. This is called the adverse selection problem. In the real world, asymmetric information is mentioned in most studies on financial intermediation between borrowers and lenders (Leland and Pyle, 1977; Diamond, 1984; Rajan, 1992; Hart and Moore, 1998; Dinc, 2000).

Majluf, 1984; Froot et al., 1989). It has been argued that equity financing has a disadvantage: it makes potential investors believe that the firm is over-valued, and they tend to place a lower value on the newly issued shares (Myers, 1984). This problem leads firms to use debt financing, which helps them mitigate the inefficiencies in making investment decisions caused by the information asymmetry (Myers, 2001). This theory seems to suggest that there is likely to be lower mis-evaluation or adverse selection by using debt compared to equity since firms can limit losses for shareholders through debt contracts. Clearly, firms have hierarchical preferences over sources of funds, which are given to internally generated funds first, followed by debts and then equity as a last resort.[112]

It is widely accepted that taking on debt may increase the probability of financial distress, and it can lead to bankruptcy. According to Myers (1984), the risks of financial distress affect the leverage ratio[113] of a firm. Therefore, Ross (1985) builds the cash flow beta theory by using beta as a standard measurement for controlling financial risks and establishes that there is an inverse relationship between financial leverage and cash flow beta. Based on this result, George and Hwang (2009) also conclude that the expected returns from low leverage firms are higher than those from high leverage ones. In addition, there are some adjustment costs to raise the leverage ratio and debts can easily be reimbursed with excess cash provided by internal sources. According to dynamic theoretical models, the adjustment costs tend to make firms display pecking

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[112] This finding is consistent with numerous studies, such as Kester (1986), Titman and Wessels (1988), Friend and Lang (1988), Harris and Ravi (1993), Rajan and Zingales (1995), Michaelas et al. (1999), Booth et al. (2001) and George and Hwang (2009).

[113] The term "leverage ratio" refers to the financial leverage of a firm and is calculated by dividing total debts by total equity or total debts by total assets.

order behaviour in the short term, although they aim to increase their leverage ratios (Leland, 1998, Fischer et al., 1989).

According to Myers (1977), the growth opportunities are considered as a call option.[114] High growth firms may have more funding and investment options for their future developments. The interests (costs of capital) are paid to the lenders instead of shareholders. In this case, firms tend to prefer to issue new equity to existing shareholders and avoid using debt. The value of growth opportunities will disappear when the firms go bankrupt. Firms with higher growth opportunities usually have larger potential bankruptcy costs; therefore, they face fewer debts (Myers and Majluf, 1984; Myers, 1977, Froot et al., 1989).

### 3.3.2. Theories of Scale of Operation

Arrow (1969) states that the differences between large and small firms arise from the theory of market failure[115] as the contracts cannot be enforced without costs, and lenders are risk-averse. The costs and risks of contracts rise with firm size and there is a trade-off between them (Roberts, 1977). There are some important measurable differences in capital intensity between large and small firms such as: assets, sales, equity, employees, sales and ROA (Roberts, 1977). Large firms pay lower interest rates

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[114] A call option is a financial contract in which the buyer has the right but no obligation to buy an agreed quantity of currency (or goods) from the seller at a certain of time and at a certain of price.

[115] Market failure is a general term describing the situation in which supply does not meet demand; therefore, there is a non equilibrium and an inefficient allocation of resources in a free market. It was first posited by Bator (1959) and developed from the approaches of Mill (1859) and Sidgwick (1885). See Arrow (1969), Khemani and Shapiro (1993), OECD (2006), Medema (2007), King (2007) and Morey (2010).

for long-term debts, while small firms pay higher interest rates for short-term debts. Rudolph (2010) provides evidence concerning the roles of state-owned financial institutions (larger firms) in supporting other financial institutions (smaller firms) in certain conditions, especially in the case of financial crisis.

Smith (1776) concludes that the sizes of firms are limited by the size of the market. Coordination costs play a major role in limiting the size of the firm before the size of the market becomes binding (Becker and Murphy, 1992). In addition, human capital has a positive correlation with the size of a firm (Rosen, 1982; Kremer, 1993). Institutions can affect a firm's size by regulatory and financial development. If the external fund plays an important role in growth, size should be positively correlated to financial development (Rajan and Zingales, 1998a).

**Economies of scale** refer to the advantages of costs (unit cost reductions) and other benefits in business expansion (Bized, 2006). According to this theory, there are some reductions in the unit cost when the size or the volume of output increases.[116] This relates to the theory of Suranovic (2010) concerning the relationship between returns and size. Many benefits arise from efficiencies resulting from scale in competitive markets (Hodgson, 2010). Customers have the ability to choose the best providers, with the best products and services, at the lowest costs. In finance, Benston (1965) provides evidence regarding the relationship between the inputs and outputs of banks. Sources of inefficiency and the presence of the trade-off between efficiency and outreach in microfinance have been investigated by many studies.[117] Berger and Humphrey (1997)

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[116] See Arthur and Sheffrin (2003), Riley (2006) and Suranovic (2010).

[117] See Humphrey (1987), Yuengert (1993), Nghiem et al. (2006), Cull et al., (2007) and Hermes et al. (2011).

establish robust benchmarks to identify optimal sizes by understanding the relationships between inputs and outputs. Financial institutions are divided into groups based on their total assets to investigate the impact of size on operating costs. Recently, Cull et al. (2007) and Campion et al. (2010) have provided evidence concerning the relationship between interest rates and microfinance performance. Some MFIs gain efficiency from economies of scale because microcredit is rather labour intensive: salaries are the largest part of most operating expenses and fixed costs are relatively low compared with variable costs (Hamilton et al., 2008; Rosenberg, 2009).

**Diseconomies of scale**, on the other hand, refer to the disadvantages of large scale. These lead to increases in the unit cost due to firms being too large or expanding too quickly.[118] If diseconomies of scale did not exist, there should be no limit to the growth and the size of a firm (Canback et al., 2006). According to Stigler (1974), if size were a great advantage, small firms would disappear. Similar to the findings of Coase (1937), Williamson (1967) identifies that there is a limit of firm size due to bounded rationality. Economies of scale cannot be applied by all firms since they only have meaning for some particular ones (Riordan and Williamson, 1985).

### 3.3.3. Theories of Economic Integration

Economic integration basically refers to the combination of several national economies into a larger territorial unit by the reduction or elimination of economic borders[119] between countries (Viner, 1950; Balassa, 1967; Brou and Ruta, 2011). This tends to help to reduce costs for both consumers and producers, as well as to increase

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[118] See Arthur and Sheffrin (2003), Riley (2006) and Bized (2006).

[119] Economic borders refer to any obstacle which limits the mobility of goods, services and other factors of production between countries.

trade between the countries taking part in the agreement. Financial integration, a part of the broader process of economic integration, refers to an individual country's link to international capital markets. It is suggested in order to help developing countries to improve growth rates and reduce macroeconomic volatility. However, the risk of financial contagion[120] presents a major threat to otherwise healthy financial systems. Therefore, the integration of microfinance into the mainstream financial system can provide a convenient pathway for the negative impacts of a crisis (Prasad et al., 2003).

Some firms are "too big to fail"; since they play important roles in an economy, and their failure would be disastrous (Sorkin, 2009). According to this theory, governments or central banks must step in when they get into trouble. This concept was integral to the recent global financial crisis. According to Krugman (2009 and 2010), the world economy is considered as the economy of many nations. This suggests that the failure of larger firms has more negative effects on the economy than of smaller ones and of course, they have some efficient protection from bad economic situations or negative effects from market changes. It also means that larger firms are generally less affected than smaller ones.

## 3.4. A Review of the Empirical Evidence of Financial Structure and Performance

This section investigates the financing behaviours and the impact of financial structure of firms in general, and MFIs in particular (i.e. how firms or MFIs choose a financial structure to improve their performance).

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[120] Financial contagion refers to a scenario in which shocks, which initially affect only a few financial institutions or a particular region of an economy, spread to the rest of financial sector and other countries whose economies were previously healthy, in a manner similar to the transmission of a disease. It may happen at both the international and the domestic level.

### 3.4.1. The Effects of Financial Structure on Performance

Many studies have been conducted by using different methods and data from developed and developing countries to define the effects of financial structure on the performance of firms. They investigate the link between the choice of leverage ratios, profitability, firm size, and other factors (such as non-debt tax shields, firm growth and collateral values of assets). The results of most studies provide useful evidence supporting the consistent negative correlation between profitability and the leverage ratio of firms in developed and developing countries.[121] They suggest that firms tend to hold fewer debts, especially fewer short-term debts, but they tend to use more long-term debts and equity in countries with better legal protection for shareholders and investors (Fan et al., 2008). In general, these empirical studies do not shed any light on the adjustment process in which firms must trade off between benefits and costs to achieve an optimal ratio (i.e. the dynamic nature of the financial structure of firms).

On the other hand, several studies have addressed the adjustment process in the leverage ratio or the dynamic nature of the financial structure of firms based on the benefits from the advances in econometrics.[122] They discover that firms in developed and developing countries have a target leverage ratio, adjust very fast to their optimal

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[121]  For more details on this issue, see Titman and Wessels (1988) on US. companies; Rajan and Zingles (1995) on firms in G-7 countries; Bevan and Danbolt (2000 and 2002) on UK non-financial firms; Chen (2004), and Huang and Song (2005) on the Chinese market and Antoniou et al. (2008) on capital market-based systems (USA and UK) and bank based financial systems (France, Germany and Japan).

[122]  See Taggart (1977), Marsh (1982), Jalilvand and Harris (1984), Kremp et al. (1999), De Miguel and Pindado (2001) and Ozkan (2001).

ratio, and rely heavily on external funds and new share issues to finance their growth.[123] The main reason is that the relative costs of equity fell significantly during the 1980s due to the large increase in stock prices. Therefore, equity issues became more attractive than debt issues during this decade (Singh, 1995). Some findings refer to large firms and are unlikely to be valid for smaller ones. However, Hovakiman et al. (2001) and Leary and Roberts (2005) conclude that highly profitable firms will be more likely to issue debt rather than equity because they are less subject to high bankruptcy risk and consequently they can borrow at more attractive interest rates. Clearly, these findings are consistent with the suggestion of the trade-off theory. Leverage is found to be negatively related to profitability due to the presence of transaction costs, which prevent firms from adjusting their ratios towards to the optimal ones. The adjustment process depends on whether the firm is below or above its optimal ratio and other factors, such as firm size (scale of operation) and interest rates.

Based on the suggestion of the pecking order theory, Taggart (1985) examines how US firms build their financial structures and concludes that leverage is negatively related to profitability.[124] The comparative costs of available financing sources tend to make firms use internally generated funds as a first choice before raising funds. The amount of debt needed will be determined as the residual between the desired

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[123] See Singh (1995) on listed firms in ten less developed countries during the period 1980-1990 (India, Brazil, Mexico, South Korea, Jordan, Pakistan, Thailand, Malaysia, Turkey and Zimbabwe); Baker and Wurgler (2002) and Huang and Ritter (2007) on firms in developed countries and Hovakiman et al. (2001) on US firms.

[124] This finding is consistent with the findings of Baskin (1989), Allen (1993), Adedji (1998) and Tong and Green (2005).

investment and the supply of retained earnings (Baskin, 1989; Allen, 1993). The main reason is the presence of asymmetric information (Adedji, 1998)

According to the view of Myers and Majluf (1984), firms tend to issue equity when its cost is relatively low.[125] The results show that higher cash flow firms tend to use low levels of debt, while a higher investment level will increase the need for debt (Benito, 2003). On the other hand, profitable large firms prefer debt to equity and increase debt according to their financing requirements (Mayer and Sussman, 2003). However, when both small and large firms suffer losses and if debt would take them to dangerous levels of leverage, issuing equity would be their financing choice. Therefore, new equity issues are generally associated with loss-making small firms. This also suggests that the pecking order theory is more applicable to large firms than small ones, since their sample of large firms provides more support for pecking order than that of small firms. There have been numerous studies focusing on testing the suggestions of pecking order theory by using different models for different countries. The results are consistent and follow pecking order theory.

Concerning the effects of financial structure on performance in the financial sector, King and Levine (1993) and Levine and Zervos (1998) provide empirical evidence regarding the strong positive relationship between the financial system and economic growth. It is also suggested that firms tend to rely on external funds for their expansion, and that they grow faster in countries with good financial systems. This finding is consistent with the findings of Rajan and Zingales (1998a), Demirguc-Kunt and Maksimovic (1998) and Demirguc-Kunt and Levine (1999).

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[125] This finding is consistent with the findings of several studies, such as Frank and Goyal (2003), Flannery and Rangan (2006) and Huang and Ritter (2007).

Demirguc-Kunt and Huizinga (2000) were the first to consider the impact of financial structure on bank performance for a large number of developed and developing countries in the period from 1990 to 1997. They investigate the effects of financial structure on profitability and bank interest margins. The empirical results show that greater bank development is related to lower profitability and interest margins. This means that lower profitability and lower interest margins should be reflections of increased efficiency due to a high level of competition between banks. The study concludes that financial development has an important impact on bank performance. Following the work of Demirguc-Kunt and Huizinga, some research has been conducted on the determinants of financial structure or profitability in different countries.[126] These findings are consistent with pecking order theory.

Hutchison and Cox (2006) test the causal relationship between bank capital and profitability by using bank data from the US in two different time periods: the less regulated period from 1983 to 1989 and the more highly regulated period from 1996 to 2002. Financial leverage is found to be positively related to the return on equity (ROE) or the return on assets (ROA). The findings of this study tend to support the suggestion of trade-off theory.

Girardone et al. (2006) investigate the cost X-efficiency levels in European banks deriving from differences in ownership, bank type and financial structure for the period 1998 to 2003. The results of this study are mixed with regard to the financial structure hypothesis. This seems to suggest that bank efficiency should not be statistically different in bank-based economies versus market-based economies. The hypothesis seems to hold for the sub-sample. The study concludes that bank type characteristics

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[126] See Athanasoglou et al. (2006), Ruiz-Porras (2009) and Flamini et al. (2009).

have an important role in explaining the differences in cost efficiency across financial systems, an issue that should be of fundamental importance to policy-makers who are interested in corporate governance principles at the international level.

Aburime (2008) examines the impact of ownership structure on bank profitability in Nigeria in the period 1989 to 2004 and finds that ownership structure had no significant impact on bank profitability. This finding is not consistent with other comparative studies.[127] The findings of La Porta et al. (2002) and Micco et al. (2004) suggest that state-owned banks operating in developing countries tend to have lower profitability than privately owned ones due to a lower net interest margin, higher overhead costs, and higher non-performing loans. This seems to suggest that ownership concentration may improve performance by decreasing monitoring costs. However, it may work in the opposite direction (Leech and Leahy, 1991) since there is a possibility that large shareholders may use their control rights to achieve private benefits (Zeitun and Tian, 2007).

In microfinance, Germaine and Natividad (2010) test the effects of asymmetric information on lending and the reductions in information asymmetries based on the assumption of Myers and Majluf (1984).[128] They found that MFIs with highly efficient performance can easily access investment funds, and the increase in the number of MFIs made them provide better quality loans to the poor. A positive relationship between evaluations and financing suggests that evaluations lead MFIs to provide more loans to the poor. Their empirical results provide clear evidence of the impact of financing and

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[127] See Shleifer and Vishny (1986), Claessens et al. (1997) and Zeitun and Tian (2007).

[128] Myers and Majluf (1984) predicted that information asymmetries could reduce the provision of finance.

investment on lending. The nature of MFIs varies greatly, as many of them maintain a non-profit status and rely on donations and subsidies. Lafourcade et al. (2005) attempt to extend microfinance services to the poor, who are underserved by MFIs and classified as outreach. The findings also show that African MFIs fund only 25% of the total assets with equity. MFIs finance their activities with funds from various sources, both debts and equity.

Bogan (2009) examines the link between the financial structure and sustainability of MFIs by testing the life cycle theory of financing on the larger MFIs with total assets above US$1 million. The results show that the life cycle stage variables are significantly related to both operational self-sufficiency and financial sustainability. The age of the MFI is found to be related to operational self-sufficiency. Grants are found to be negatively related to sustainability but positively related to costing per borrower. This result is also consistent with the findings of Matu (2008). The feasibility of investment funds is considered to be a key driver for channelling alternative sources of funding to MFIs. The growing competition to access funding sources leads to a financial gap in the supply of microfinance service. Therefore, increasing funds for MFIs during the financial crisis should be on a short term basis (Littlefield and Kneiding, 2009).

Kyereboah-Coleman (2007) examines the impact of financial structure on the performance of MFIs. This study shows that most MFIs employ high leverage and finance their operations with long-term rather than short-term debt. Highly leveraged MFIs also perform better by reaching out to more clients, and enjoy scale economies; therefore, they are better able to deal with moral hazard and adverse selection, enhancing their ability to deal with risk.

### 3.4.2. The Effects of Scale of Operation on Performance

Several studies investigate the link between scale of operation (firm size), financial structure and the performance of firms. According to Titman and Wessels (1988), short-term debt ratio is negatively related to the size of the firm. The results show that smaller firms, particularly in the US market, rely more on short- than long-term debt due to high transaction costs. Following Titman and Wessels, numerous studies have examined the effects of scale of operation on leverage and performance. They conclude that firms rely heavily on external funds and new share issues to finance their growth.[129] However, these findings refer only to large firms and are unlikely to be valid for smaller ones based on the data of the top hundred largest listed firms in ten less-developed countries during the period 1980 to 1990, as previously mentioned (Singh, 1995). On the contrary, Rajan and Zingles (1995) find that there is no evidence to support the effect of firm size on the leverage ratio, based on a comparative study of firms in G7 countries.

Mayer (1990) concludes that small and medium size firms are considerably more reliant on external finance than large ones, and the majority of external financing comes from bank loans in all countries. Bank loans are found to be the primary source for firms in developed countries. This finding is consistent with those of Beattie et al. (2006). On the other hand, Chen (2004) and Huang and Song (2005) conclude that leverage ratio increases with firm size. Antoniou et al. (2008) also reaches the same results by conducting a comparative study of capital market-based systems (USA and UK) and bank based financial systems (France, Germany and Japan).

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[129] See Singh (1995), Baker and Wurgler (2002) and Huang and Ritter (2007).

According to Flamini et al. (2009), size is found to be positively related to the return. These findings are consistent with pecking order theory. They suggest that, if bank profits are reinvested, this leads to safer banks and promotes financial stability. Larger banks seem to create more efficiency than smaller ones (i.e. this finding is consistent with the economies of scale theory). However, the negative coefficient of size indicates that banks tend to be inefficient when they become too large (i.e. this finding is consistent with the diseconomies of scale theory).

Concerning the economies of scale in financial institutions, some studies have established robust benchmarks to identify optimal firm size by understanding the relationships between the inputs and outputs of banks.[130] Their sizes are categorised by total assets to establish the impact of different size on operating costs (Zacharias, 2008). Berger and Humphrey (1997) outline the idea of X-inefficiency and emphasise the scale and scope of efficiencies. Sources of inefficiency and the presence of the trade-off between efficiency and outreach in microfinance around the world have been investigated by many studies.[131] Cull et al. (2007) and Campion et al. (2010) provide evidence concerning the relationship between interest rate and microfinance performance.

### 3.4.3. The Effects of the Global Financial Crisis on Performance

Tregenna (2009) examines the effects of concentration, market power, bank size and efficiency on profitability by using US bank data in the pre-crisis period of 1994 to 2005. The results show that efficiency does not strongly affect profitability, and the

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[130] See Benston (1965) and Berger and Humphrey (1997).

[131] See Humphrey (1987), Yuengert (1993), Nghiem et al. (2006), Cull et al., (2007) and Hermes et al. (2008).

economies of scale associated with higher operational efficiency are simply manifested in higher concentration. Tregenna (2009) argues that high profits before the crisis in the US banking sector were derived from concentration and not from efficient performance. This suggests that the rising profits were at the expense of an efficient economy as a whole. In addition, high profits in the banking sector cannot prevent banks from bankruptcy in the event of financial crisis if such profits are derived from market share or market concentration, rather than through efficient performance. The crisis caused both banks and regulators to focus on cost reduction and efficiency improvement. In particular, a much stronger regulation of the banking sector in developing banking systems is needed in order to balance returns and risks.

Llanto and Badiola (2009) conduct theoretical analysis to investigate the effects of the global financial crisis on rural areas and microfinance in East Asia. They conclude that the crisis has caused a liquidity shortage and credit crunch worldwide that will have a more adverse impact on MFIs that have limited ability to mobilise deposits. However, MFIs showed good performance in the run-up to the onslaught of the global financial crisis in the region. Performance was, however, worsened by the global financial crisis, with many poor households facing loan repayment difficulties, which could trigger a deterioration in the quality of loan portfolios. This suggests that MFIs will face severe challenges to their viability and sustainability if they cannot effectively manage loan portfolios. The global financial crisis has led MFIs to become more efficient and to diversify funding sources, tapping local savings, and having better information on clients and local economies.

Littlefield and Kneiding (2009) state that MFIs performed better financially than mainstream banks during the currency crises in East Asia and the banking crises in

Latin America in the 1990s. However, MFIs are being impacted in very different ways (such as the structure of an institution's liabilities, its financial state, and the economic health of its clients) since microfinance now has many more links to domestic and international financial markets due to financial integration.

Bella (2011) analyses the performance of a large sample of top MFIs against domestic economic conditions and international capital markets. This study presents an empirical analysis of the factors behind MFI lending rates and interest rate spreads to assist in making informed policy decisions. The results show that the performance of MFIs is correlated to domestic economic conditions and to changes in international capital markets. Efficient MFIs tend to charge lower interest rates. High MFI growth has resulted in an increase in scale and client base and adoption of better management practices and information systems. The study suggests that regulations promote competition and innovation in lending technologies have the chance to lower lending interest rates.

According to CGAP (2011b), borrowers, especially the poor, are affected at different levels by the credit crunch since they tend to spend more income on food and find it more difficult to repay their loans (60% of respondents). Therefore, most MFIs (56%) reduced portfolio growth. Small and medium MFIs have a problem with liquidity. MFIs always have links to domestic and international financial markets, and thus the financial crisis has infected MFIs at different levels (Littlefield and Kneiding, 2009). WWB (2002 and 2003) also provide some evidence concerning the financial integration of MFIs based on different size (i.e. the differences between larger and small scale of operation). This finding shows that larger MFIs have deeper financial integration into a financial market than smaller ones.

These studies have clearly suggested that MFIs are far from homogeneous; therefore, they respond in different ways to the changing economic conditions, such as the global financial crisis. This means that the performance of MFIs varies with the heterogeneous firm characteristics (in terms of legal status, profit status and regulated status or firm size) and country characteristics (regulation and supervision, inflation and GNI per capita). Therefore, the lessons learned from one type of MFI cannot be generalised to other MFIs with different characteristics.

## 3.5. Determinants of Microfinance Performance

In the previous section, we presented the most influential theories and some empirical evidence on the relationship between financial structure and the performance of a firm. In general, the existing empirical studies have focused separately on the determinants of financial structure. A natural extension of this line of inquiry was to investigate the effects of financial leverage on performance, in the particular case of microfinance. However, a large number of studies conducted over the last two decades are fairly limited; by focusing only on the link between financial structure, sustainability (financial performance) and outreach (social performance), they miss other relevant aspects of MFI performance: efficiency and portfolio quality. The following section is divided into three sections. The first section presents the main aspects of microfinance performance from the funders' point of view. The second section presents the determinants of microfinance performance and their background, with definitions for the empirical model presented in the third section.

### 3.5.1. Microfinance Performance

The performance of MFIs is typically measured in four main critical areas: outreach, financial sustainability (profitability), efficiency, and portfolio quality. These

core indicators are categorised into two groups: financial and social performance. Sustainability, efficiency and portfolio quality are indicators of financial performance. On the other hand, outreach captures the social performance of MFIs. These indicators do not capture all the relevant aspects of performance for internal management but they ideally represent the minimum performance areas for the basic investigations of external investors (Rosenberg, 2009).

### 3.5.1.1. Outreach

Outreach refers to reaching out to the poor and is measured by the number of poor being served at a given point in time (Rosenberg, 2009). The two most usual aspects of outreach in the literature are its depth and breadth.[132] Depth of outreach refers to the poverty level of the clients served, while breadth of outreach refers to the scale of operations of an MFI. Expanding outreach is an ultimate goal of almost all MFIs, but rapid expansion sometimes proves to be unsustainable, especially during an MFI's early years, when designing its products and building systems. It has very seldom been useful for funders to pressurise MFIs for rapid expansion, as in the case of Andhra Pradesh, as mentioned in the previous chapter. The most common indicators recommended to measure outreach are average loan balance per borrower (ALB) and number of active borrowers (NAB), representing the social performance and the depth and breadth of outreach (Lafourcade et al., 2005; Rosenberg, 2009, Littlefield and Kneiding, 2009).

There is disagreement on the benefits of the depth and breadth of outreach. The non-profit MFIs would rather reach out to the poorest; therefore, depth of outreach is

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[132] See Titman and Wessels (1988), Rajan and Zingales (1995), Christen et al. (1995), Navajas et al. (2000), Ozkan (2001), Zeller and Meyer (2002), Cull et al. (2007), Bogan (2009), Agarwal and Sinha (2010), Ahlin et al. (2010) and Imai et al. (2011).

more important for achieving their social objective, whereas the proponents of sustainable microfinance are more interested in opening access to a wide range of unserved or underserved clients (Rhyne, 1998). According to Navajas et al. (2000, p.336), 'Breadth matters since the poor are many but the aid dollars are few.' According to the breadth logic, MFIs should have large-scale outreach in order to make a difference to the world's poverty levels. Some argue that shallow depth can be compensated for the breadth of outreach or that it is even more important than depth (e.g. Navajas et al., 2000; Robinson, 2001). The objective functions might thus differ in the weight MFIs assign to different aspects of outreach. The common approach has been to study outreach by investigating the impact of microfinance and how to achieve this outreach.

### 3.5.1.2. Efficiency

There are many indicators recommended to measure whether an MFI is cost effective, such as cost per loan, cost per client, or operating expense ratio. These ratios focus on nonfinancial operating expenses and do not include interest paid on the liabilities or loan loss provision expenses. They tend to allow a quick comparison between the portfolio yield and its personnel and administrative expenses - how much it earns on loans versus how much it spends to make and monitor them. These indicators show how much it costs the retail financial service provider to serve each client. Since it does not penalise MFIs for making smaller loans, cost per client is a better efficiency ratio for comparing institutions. If one wishes to benchmark an MFI's cost per client against similar MFIs in other countries, the ratio should be expressed as a percentage of per capita GNI, which is used as a rough proxy for local labour costs.

According to Rosenberg (2009), measured in terms of costs as a percentage of amounts on loan, very small loans are more expensive to make than large ones. Only a few extremely efficient MFIs have an operating expense ratio below 10%; commercial banks making larger loans usually have ratios well below 5%. The median ratio of MFIs reporting to MIX Market for 2006 was about 19%.

When a microfinance market starts to mature and MFIs have to compete for clients, price competition on interest rates will usually push MFIs to become more efficient. But many MFIs do not yet face much real competition. External monitoring of efficiency is especially important in those cases. Young or fast-growing MFIs will look less efficient by either of these measures, because those MFIs are paying for staff, infrastructure and overheads and are not yet producing at full capacity.

Many funding agencies have a hard time determining the effectiveness of their support for retail microfinance. If an agency wants to keep track of whether its projects are producing sustainable results, it needs to collect these basic indicators regularly and make them available in an agency-wide database. When designing projects and choosing MFIs to participate, staffs need to check whether the MFIs have systems that can produce this minimum core information reliably. Where such systems are lacking, the project usually needs to include the support necessary to build them. Without attention to reporting systems at the earliest possible stage, it is unrealistic to expect meaningful information to be produced later.

### 3.5.1.3. Sustainability

Sustainability generally refers to the ability of a program or a firm to continuously carry out activities and services in pursuit of its statutory objectives. As mentioned in the previous chapter, MFIs can maintain and expand their financial services in the long

run, unless they cannot cover all of their costs and generate net income. Therefore, sustainability basically refers to profitability or commercial microfinance.[133] According to this approach, since MFIs are viewing their activities more and more as profitable businesses, it is important to constantly look for possible cost reductions to operate profitably and to be economically viable (Hermes et al., 2011).

The most common measure of profitability in commercial institutions is return on assets (ROA), which reflects an organisation's ability to deploy its assets profitably, and return on equity (ROE), which measures the returns produced on the owners' investments (Lafourcade et al., 2005). ROE calculations should use starting equity unless there has been a substantial infusion of new equity from an outside source during the reporting period. These are appropriate indicators for institutions that do not receive subsidies. But donors and social investors typically deal with institutions that receive substantial subsidies, most often in the form of grants or loans at below-market interest rates. In such cases, the critical question is whether the institution will be able to maintain itself and grow when subsidies are no longer available. To determine this, financial reporting must be "adjusted" to reflect the impact of the present subsidies, such as subsidised cost of funds, in-kind subsidy and inflation. Self-sufficiency (including operational self-sufficiency and financial self-sufficiency) is a subsidy-adjusted indicator often used by donor-funded NGOs. It measures the extent to which an MFI's revenue - mainly interest received - covers the adjusted costs. If it is below 100%, then the MFI has not yet achieved breakeven.

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[133] In the literature, the terms "sustainability" and "profitability" are sometimes used interchangeably. However, sustainability refers to the ability of a firm to cover all expenses from the operating incomes in order to be economically viable. On the other hand, profitability refers to the condition of yielding a financial profit or gain.

Operational self-sufficiency (OSS) measures operating revenue as a percentage of operating and financial expenses, including loan loss provision expense. It generally includes all the cash costs of running a MFI, depreciation and the loan loss reserve. Therefore, it becomes one of the major goals for MFIs to achieve in order to maintain viability and further grow their operations. OSS is calculated as follows:

$$\text{OSS} = \frac{\text{Total Financial Revenue}}{\text{Total Financial Expense} + \text{Loan Loss Provision Expense} + \text{Operating Expense}} \ \textbf{(3.1)}^{134}$$

$$\text{OSS} = \frac{\text{Operating Income}}{\text{Total operating expenses}} \ \textbf{(3.2)}^{135}$$

On the other hand, financial self-sufficiency (FSS) is the ability to cover all costs on an adjusted basis[136] and indicates the ability to operate without ongoing subsidy[137] or losses. This ratio is calculated as in equation 3.3 below. According to Dichter and Harper (2007), out of the approximately 10,000 MFIs worldwide, it is estimated that only 3 to 5% have achieved full financial sustainability. Therefore, OSS is preferred by several studies when investigating the effects of financial structure on the financial performance of MFIs.

$$\text{FSS} = \frac{\text{Adjusted Operating Income}}{\text{Adjusted operating expenses}} \ \textbf{(3.3)}^{138}$$

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[134] Source: MBB (2008, p.13).

[135] Source: UNCDF (2009).

[136] Adjusted basis means showing how MFIs would look on an unsubsidised basis with funds rasied on the commercial market, plus inflation adjustment.

[137] Ongoing subsidy typically includes soft loans and grants.

[138] Source: UNCDF (2009).

### 3.5.1.4. Portfolio Quality

This is the most revealing of the performance areas. An MFI must have the ability to collect loans for its success: if delinquency is not kept to very low levels, it can quickly spin out of control (Rosenberg, 2009). Furthermore, loan collection has proved to be a strong proxy for general management competence. Long experience with evaluating microfinance has shown that very few successful projects have bad repayment, and very few unsuccessful projects have good repayment. More than any other indicator, this one deserves special care to ensure meaningful and reliable reporting. Therefore, this aspect of performance tends to be indirectly investigated by examining efficiency.

Unfortunately, the reporting of loan collection is complicated. MFIs have used a range of ratios that measure very different things and terminology and calculation methods are not always consistent. Ratios can obscure rather than clarify performance if they are not calculated according to international standards. Therefore, whenever any measure of loan repayment, delinquency, default, or loss is reported, the numerator and denominator of the ratio should be explained very precisely.

MFIs' self-reported collection performance often understates the extent of problems, usually because of information system weaknesses rather than the intent to deceive. Collection reporting should be regarded as reliable only if it is verified by a competent independent party. The common indicator is portfolio at risk (PAR) beyond a specified number of days.[139] When any full or partial payment is past due, the whole

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[139] The number of days used for this measurement varies. In microfinance, 30 days is a common breakpoint. If the repayment schedule is other than monthly, then one repayment period could be used as an alternative.

outstanding balance of the loan is at higher than normal risk of non-repayment. PAR should not be confused with arrears or past due payments, which measure the value of the past due amount rather than the full loan amount that remains outstanding. The PAR ratio should also include the outstanding value of all renegotiated loans, including rescheduled and refinanced ones, because they have higher than normal risk, especially if any payment is missed after renegotiation.

### 3.5.2. Determinants of Microfinance Performance

A substantial number of studies have been carried out on the determinants of the performance of firms in general, and MFIs in particular, as mentioned in the previous sections of this chapter. The results have suggested that MFIs are far from homogeneous based on scale of operation, legal status, profit status and regulated status.[140] Therefore, they respond in different ways to the changing economic conditions of their countries and regions (including global financial crisis). This means that the performance of MFIs varies with the heterogeneous firm, country and regional characteristics. Therefore, this increases the need to address the importance of firm-specific factors (internal) and macroeconomic factors (external) in investigating the relationship between funding and microfinance performance.

These empirical studies generally employ models which involve the regression of the observed indicators of microfinance performance variables (MPV) against a number of explanatory variables. The microfinance performance variables include social and financial performance indicators representing the minimum relevant aspects of MFI

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[140] See WWB (2003), Lafourcade et al. (2005), Kyereboah-Coleman (2007), Bogan et al. (2007), Matu (2008), Bogan (2009), Tregenna (2009), Rosenberg (2009), Llanto and Badiola (2009), Flamini et al. (2009), Tchakoute-Tchuigoua (2010), Germaine and Natividad (2010), Bella (2011) and CGAP (2011b).

performance (sustainability, efficiency, portfolio quality, and outreach), as previously mentioned. They also suggest that the explanatory variables are typically categorised into two groups: macroeconomic variables (MEV) and firm-specific variables (FSV). However, the indicators used to represent macroeconomics and firm-specific are different and depend on the approach of each study.

### 3.5.2.1. Macroeconomic Variables (MEV)

The previous empirical studies suggest that macroeconomic variables are based primarily upon an economic tradition, emphasising the importance of external market factors in determining a firm's success.[141] These typically include inflation, GDP or GNP growth, GDP per capita or GNI per capital, population, the unemployment rate and interest rate differentials.[142] The common approach has been to study the impact of macroeconomic factors by investigating the impact of GDP growth and inflation on performance. Therefore, in this study, we use GNI per capita and inflation as two proxies for the external market factors that affect microfinance performance and how to achieve the outreach.

The inflation indicator refers to a rise in the general level of prices of goods and services in an economy over a period of time. When the general price level rises, each unit of currency buys fewer goods and services. Most economists favour a low and

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[141] See Hansen and Wernerfelt (1989) for more detailed discussions of the relative importance of economic and organisational factors on the determinants of performance.

[142] See Hansen and Wernerfelt (1989), Demirguc-Kunt and Huizinga (2000), Hutchison and Cox (2006), Cull et al. (2007), Kyereboah-Coleman (2007), Littlefield and Kneiding (2009), Bogan (2009), Littlefield and Kneiding (2009), Tregenna (2009), Flamini et al. (2009), Ahlin et al. (2010), Campion et al. (2010), Germaine and Natividad (2010) and Bella (2011).

steady rate of inflation.[143] In order to be worth the same amount, the income or savings and investments are expected to increase by at least the rate of inflation each year to avoid losing value in real terms. It is common sense that the rate of interest (after tax) earned from savings is greater than the rate of inflation, in order for money to actually be growing. If the interest rate on savings is lower than the inflation rate (as it was in the case study of Vietnam in 2011), the poor find it difficult, or even impossible, to beat inflation. Therefore, the inflation rate becomes one of the most common indicators in investigating the effects of macroeconomic factors on performance. Inflation is measured at time t-1 annual % change of the GDP deflator at market prices for each country where the MFI is located for each year.

GNI per capita (formerly GNP per capita) is the gross national income divided by the midyear population. It measures the wealth earned by nations through economic activities. There are two good reasons why this study uses GNI per capita instead of the annual growth rate of GDP or GDP per capita.[144] First, GDP is used to establish the strength of a country's local economy, while GNP is used to observe how the nationals of a country are doing economically. Due to some practical difficulties in the measurement of international flows of income, GDP per capita is the most widely used indicator of income or welfare, even though it is theoretically inferior to GNI per capita. Second, data on GNI per capita are available for use on MIX Market.

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[143] Low inflation tends to reduce the severity of economic recession by enabling the labour market to adjust more quickly in a downturn, and reduces the risk that a liquility trap prevents monetary policy from stabilizing the economy.

[144] See Demirguc-Kunt and Huizinga (2000), Ahlin et al. (2010), Campion et al. (2010), Germaine and Natividad (2010) and Bella (2011).

As previously mentioned, the performance of MFIs also varies between regions and countries characteristics. This suggests that we should investigate the impact of regulation and supervision on microfinance performance (Gallardo, 2001). However, the regulation and supervision involve the regulatory status, which is also considered as one of the firm-specific factors of MFIs.

### 3.5.2.2. Firm-Specific Variables (FSV)

Firm-specific variables of MFIs typically include financial structure in terms of financial leverage, scale of operation, profitability, deposits, legal status,[145] lending methodologies, empowerment of women, and profit status. However, this study focuses on legal status, profit status and regulated status as the main proxies for MFI characteristics, for a number of reasons. First, regulated status refers to the ability of MFIs to access commercial capital, mobilise savings, improve customer service and expand outreach, as well as the ability to attract savers and provide the right financial products and services, in particular savings to the poor (Gallardo, 2001; Cull, Demirguc-Kunt and Morduch 2009). Second, profit status refers to the reason why MFIs exist. For profit MFIs are generally founded to provide microfinance to generate income and to distribute profits between owners, employees, shareholders and the business itself while non-profits ones focus heavily on their social mission. Third, legal status refers to the dominant legal forms for the operation (i.e. organisational and operating structure). This allows room for innovation. Therefore, they provide a general overview of MFI characteristics, including the ability, mission, and organisational and operating structure, that are directly related to performance and capital structure.

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[145] With regard to legal status, MFIs are mainly categorised into Credit Unions, Microfinance Banks, Rural Banks, NGOs and Non-Bank Financial Institutions (NBFIs).

The comprehensive review in this study suggests that using the lending methodologies depends on the profit status and/or legal status, as well as the developmental stages of MFIs, and leads them to better performance. In addition, intentional focus on lending methodologies and empowerment of women as the main proxies may become hard for funders to determine financing decisions since there is always a trade-off between financial and social performance. As explained in the previous chapter, these factors tend to lead MFIs to additional activities that could affect the efficiency of providing financial services to the poor in a sustainable way (Cheston and Kuhn, 2002). Clearly, using the right lending methodologies and providing financial products to the right person result in better performance, although each case depends on the specific circumstances of each MFI. Therefore, commercial funders avoid intentionally focusing on the lending methodologies and lending to women in order to give MFIs more room for innovation.

Moreover, several empirical studies have focused on the suggestions of lending methodologies and/or gender in interpreting the results of the effects of financial structure on performance. The results show that many commercial MFIs are switching tactics and beginning to favour lending to individuals as the practice of aggressively lending to women is often more harmful than beneficial. The majority of women with access to microcredit are not nearly involved enough in the handling of loans to achieve any sort of empowerment. On the contrary, many women suffer from an increase in violence following their loans due to ensuing power struggles in the home. In most cases, women are the favoured clients of MFIs because they are more docile rather than because they invest more responsibly and efficiently. Therefore, an obvious extension of this study is to introduce possible explanations that might be relevant in the context of other firm characteristics, such as legal status, profit status and regulatory status.

### 3.5.3. Estimation Methodology

Based on the determinants of microfinance performance, this section presents the methodology and empirical model used to investigate the relationship between MFIs characteristics (including capital structure and scale of operation) and performance.

#### 3.5.3.1. Research Questions

Five main research questions are formulated for investigation in the following chapters. First, how does financial leverage affect the different aspects of microfinance performance (including efficiency, sustainability and outreach)? Second, is there any trade-off between the financial and social performance of MFIs? Third, is there any trade-off between depth and breadth of outreach? Fourth, how does scale of operation together affect microfinance performance (social and financial performance)? Fifth, how did the recent global financial crisis of 2007/2008 affect microfinance performance?

#### 3.5.3.2. Data

The data were collected from MIX Market which have been reported from MFIs around the world from 1997 to the end of 2010 for a cross-country analysis. The number of available data series varies considerably from year to year. There are many different reasons for this, most of which involve the legal framework in the local country that determines and limits their businesses and products, and specifies criteria and standards for the sound and sustainable operations of MFIs (Chavez and Gonzalez-Vega, 1992; Gallardo, 2001; Seelig and Novoa, 2009). In order to increase the number of the poor with access to microfinance and reduce donor dependence, many MFIs have been driven toward greater integration with the formal financial sector and a large number of NGOs have considered converting into private owned, regulated entities.

There are a large number of MFIs which enter and exit the market. Therefore, a panel data was conducted over the whole period. However, the data was self-reported from MFIs to MIX Market. Due to the lack of accounting standards designed for MFIs, international comparison between different countries becomes difficult (Haq et al., 2008). In addition, there are a great number of MFIs who do not submit updated data, which may also create a selection bias. Any conclusions from the proceeding analysis will therefore be somewhat limited. However, this has been considered as the nature of MFI analysis: limited data is likely to be followed by limited conclusions.

### 3.5.3.3. Design of the Models

This study tests the impact of capital structure in terms of financial leverage and scale of operation on microfinance performance by investigating the relationship between the observed performance indicators and a set of explanatory variables. The performance of MFIs is further broken down into social performance and financial performance while the explanatory variables are categorised into macroeconomic and firm-specific variables.

To examine whether the performance of MFIs varies widely based on the differences in characteristics, the following regression model is estimated to carry out a cross-country analysis.

$$MPV_{itc} = \alpha + \sum_{i=1}^{k} \beta_1^i FSV_{it} + \sum_{j=1}^{l} \beta_2^l MEV_{jt} + \varepsilon_{it} \qquad (3.4)$$

where $MPV_{itc}$ is the observed performance of $MFI_i$ at year t; $FSV_{itc}$ is the firm-specific variables; $MEV_{itc}$ is the macroeconomic variables; $\alpha$ is constant; $\beta$ is a regression coefficient, while $\varepsilon$ is the disturbance term.

### 3.5.3.4. Methodology

Different methods are utilised in this study to find answers to the research questions that were stated in Chapter 1. The first technique is the Ordinary Least Square (OLS)[146]. First, the OLS estimator is consistent when the regressors are exogenous and there is no perfect multicollinearity and is optimal in the class of linear unbiased estimators when the errors are homoscedastic and serially uncorrelated. Under these conditions, the OLS method provides unbiased estimators when the errors are assumed to have finite variances. Under the additional assumption that the errors be normally distributed, OLS is the maximum likelihood estimator. Therefore, OLS is one of the strongest and most used estimators for unknown parameters based on the Gauss-Markov theorem. Second, the weaker the correlations between the instruments and the explanators are, the less efficient instrument variables are compared to OLS. Third, much of the diagnostic information for multicollinearity can be obtained by calculating an OLS regression model using the same dependent and independent variables (Menard, 2002). Therefore, this may be preferred to other instrumental variables methods (GLS,[147] TSLS[148] and GMM[149]) in some cases.

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[146] See Sala-I-Martin (1997), Wooldridge (2002), Gujarati (2003), Baltagi (2008), Brooks (2008), Greene (2011) and Dougherty (2011).

[147] GLS - Generalized Least Square.

[148] TSLS - Two-Stages Least Square.

[149] Two types of the GMM (Generalized Method of Moments) are frequently used. The first method is first-difference GMM, developed by Arellano and Bond (1991), which uses first-differenced equations with suitable lagged levels as instruments. The second method is system GMM, developed by Arellano and Bover (1995) and Blundell and Bond (1998), which augments the former by additional equations in levels with lagged first-differences as instruments.

The second technique is GMM which is the preferred method over OLS, GLS and TSLS since it helps to solve several econometric problems that may arise from estimating the equation above. First, the panel dataset with particular regard to this study (a cross-country analysis) has a short time dimension and a larger country dimension. The Arellano − Bond estimator was designed for small-T panels in order to remove any autocorrelation between the explanatory variables. Second, there is a possibility of reverse causation which makes variables correlate with the error term in the equation. Therefore, some explanatory variables are assumed to be endogenous. To cope with that problem (fixed effects), the GMM uses first-differences to transform the regressors in order to remove the fixed country-specific effect since it does not vary with time. Third, the presence of the lagged dependent variable gives rise to autocorrelation. Therefore, the lagged levels of the endogenous regressors (i.e. the first-differenced lagged dependent variable) is added to the explanatory variables and also instrumented with its past levels. This makes the endogenous regressors pre-determined and, therefore, not correlated with the error term.

The GMM is also preferred to fixed effect model (FEM), as well as random effects model (REM)[150] since in small-T panels a shock to the country's fixed effect, which shows in the error term, will not decline over time. In addition, the correlation of the lagged dependent variable with the error term will be significant (Roodman, 2006). Therefore, the fixed effect model does not allow for controlling of the unobserved heterogeneity which describes individual specific effects that are not captured by observed variables (this means that there is no evidence of individual effects in the data). Since REM is considered as a special case of FEM and also does not allow one to

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[150] The Hausman test is conducted to test the significant differences in the coefficiency (i.e. whether FEM or REM is appropriate) (Dougherty, 2011).

capture the unobserved effects by the error term, consisting of an individual specific one and an overall component which is the combined time series and cross-section error.

## 3.6. Conclusion

Over the past few years, equity investments from social investors with social objectives as a high priority have played an important role in providing financing for several MFIs around the world. These funds have tended to become insufficient to meet the continual demand from the poor. Therefore, MFIs are likely to move out of heavily subsidised operations and access commercial funds to improve their performance. Responding to profit incentives, MFIs have tried to increase revenues and decrease total expenses (including costs of capital). The financing behaviours and their effects become an important issue. On the other hand, there has been a very little research on the effects of financial structure on the performance of MFIs. The existing empirical research has analysed the determinants of financial structure and the trade-off between profitability and outreach. These studies miss out other relevant aspects of MFI performance, such as efficiency and portfolio quality. Therefore, they do not shed new light on the relationship between funding and performance for funders to investigate and make important financing decisions. This study has raised the important role of firm-specific factors in terms of scale of operation and other characteristics (such as charter type, profit status and regulated status), as well as the macroeconomic factors in terms of GNI per capita and inflation, in presenting the effects of financial structure on the social and financial performance of MFIs. This chapter has discussed the most influential economic theories and empirical evidence to provide the theoretical sign of the proxy variables for the empirical analysis presented in the following chapters.

# CHAPTER 4

# THE LINKAGE BETWEEN FINANCIAL STRUCTURE AND MICROFINANCE PERFORMANCE

## 4.1. Introduction

In the previous chapter, we presented the most influential theories and empirical evidence related to the relationship between financial structure and the performance of MFIs. The theories and evidence have raised some significant shortfalls of the literature. First, the empirical studies have basically focused on the determinants of financial structure to explain how an MFI can finance business activities by using debt and equity to maximise the benefits for shareholders based on their advantages.[151] A natural extension of this line of inquiry is to investigate the effects of financial structure on the main aspects of performance of MFIs from the external funders' points of view. However, previous studies have tended to be fairly limited, focusing only on the links between financial structure, profitability and outreach, and thereby missing other important aspects of performance: sustainability, efficiency and portfolio quality.

Second, MFIs are far from homogeneous; their performance therefore responds in different ways to changes in return to firm-specific internal factors (such as scale of operation, legal status, profit status and regulatory status), as well as macroeconomic factors (such as inflation, GNI per capita and global financial crises). Clearly, this

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[151] See Mullineux and Murinde (2001).

argument increases the need to address the issue of the heterogeneity of MFIs by investigating the relationship between microfinance funding and the different aspects of performance.[152] From this point of view, the results of the investigation will help internal and external funders determine financing decisions or take corrective actions when needed based on the key performance indicators of MFIs.

Third, the existing empirical research focuses on savings, lending methodologies and gender in interpreting the results of the effects of financial structure on the performance of MFIs. It concludes that using the right lending methodologies, as well as intentionally focusing on lending to women, totally depends on the profit status and/or legal status, as well as the developmental stages of MFIs and leads them to better performance. However, the research suggests that using the lending methodologies and/or lending to women as the main proxies for funding tends to lead MFIs to additional activities that could affect the efficiency of providing financial services to the poor in a sustainable way (Cheston and Kuhn, 2002). It also may become hard for funders to determine financing decisions since there is always a trade-off between financial and social performance. Therefore, commercial funders would not intentionally focus on the lending methodologies, nor lending to women, as the main proxies for financing in order to give MFIs more room for innovation.

An obvious extension of this study is to introduce the possible explanations that might be relevant in the context of other firm characteristics, such as scale of operation, legal status, profit status and regulatory status for a number of reasons, as discussed in the previous chapter (see page 115). Therefore, in this chapter, we conduct an empirical

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[152] See Kyereboah-Coleman (2007), Bogan et al. (2007), Bogan (2009) and Tchakoute-Tchuigoua (2010).

investigation to examine the relationship between financial structure in terms of financial leverage and microfinance performance (including social and financial performance). The indicators investigated here represent the minimum relevant aspects of MFI performance (sustainability, efficiency, and outreach). The chapter is divided into two main sections. The linkages between financial structure, outreach and sustainability are examined in the first section, while the linkage between financial structure and efficiency is examined in the second.

## 4.2. The Linkage between Financial Structure, Sustainability and Outreach

### 4.2.1. Research Objective

The performance of MFIs is commonly measured by two common indicators, sustainability and outreach, and in two main critical areas, financial and social performance,[153] as mentioned in the previous chapter. It has been argued that there is a potential trade-off between reaching a high number of the poor to achieve the social mission and attaining profitability to achieve financial sustainability. Purely socially motivated MFIs have to consider the possibility that the problem of insufficient funds for microfinance can be replaced by being sustainable and economically viable in the long run.[154] Numerous studies suggest that MFIs can maintain profitable operations and remain viable without any subsidies (sustainability), while serving a high number of the poor to achieve their social goals (outreach). This means that MFIs can trade off outreach (depending totally on subsidies for their social mission) for sustainability (i.e. attempt to maintain themselves and grow when subsidies are insufficient or no longer

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[153] See Rosenberg (2009).

[154] See Christen and Drake (2001), Zeller and Myer (2002), Srinivasan and Sriram (2006) and Hammill et al. (2008).

available for the financial mission). Therefore, MFIs tend to access commercial funds (including savings) and move towards operational sustainability, complemented by financial and social efficiency, based on funding sources. This suggests that funding sources are an important fundamental component to achieve the mix of the double bottom line (i.e. the balance between social and financial performance).

In order to answer the main research questions (RQ1, RQ2 and RQ3) presented in the previous chapters, empirical tests are conducted to investigate the link between financial leverage, and the social and financial performance of MFIs across countries. They aim to shed light on how funding affects the social and financial aspects of microfinance performance to help funders determine and make investment decisions, as well as to improve the performance of MFIs and achieve the double bottom line. It is, therefore, hypothesised that positive relationships exist between financial leverage, sustainability and outreach. This hypothesis can be broken into four basic sub-hypotheses (SH) in order to test the central hypothesis and provide empirical evidence for this section.

**SH4.1:** Financial leverage can help MFIs to achieve sustainability ($H_0$).

**SH4.2:** Financial leverage can help MFIs to expand their outreach ($H_0$).

**SH4.3:** There may be thresholds or reversals in the causal relations between financial leverage and microfinance performance (H0)

**SH4.4:** Sustainability can promote the outreach of MFIs ($H_0$).

**SH4.5:** The breadth of outreach can promote the depth of outreach ($H_0$).

### 4.2.2. Models

#### 4.2.2.1. Dependent and Independent Variables

In order to accomplish the above objectives, a cross-country analysis is carried out to investigate how sustainability and outreach are influenced by financial structure in terms of financial leverage and how they vary depending on the characteristics of MFIs. There is a large body of literature on factors influencing microfinance performance, as mentioned in Chapters 2 and 3. These studies conclude that operational self-sufficiency (OSS), return on assets (ROA), and return on equity (ROE) are the most common indicators used to assess sustainability, while gross loan portfolio (GLP), number of active borrowers (NAB), and average loan balance per borrower (ALB) are the most common indicators used to assess outreach (Lafourcade et al., 2005; Rosenberg, 2009). However, this study primarily focuses on investigating the impact of financial leverage on outreach and sustainability, as well as profitability (ROA and ROE).[155] Therefore, debt to equity ratio (DTE) is used as one of the independent variables. The dependence variables include OSS, ROA, ROE, ALB and NAB, representing sustainability, profitability, and the depth and breadth of outreach, respectively.[156] More specifically, the financial performance and outreach indicators are regressed on a set of explanatory

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[155] First, it is common sense that firms who have achieved break-even are profitable. This means that an MFI may be profitable, but it has not yet achieved sustainability – break-even without the subsidised cost of funds. Second, ROA and ROE may become inappropriate indicators for any firms that receive substantial subsidies (Rosenberg, 2009). Therefore, OSS is preferred in microfinance over ROA and ROE.

[156] See Titman and Wessels (1988), Rajan and Zingales (1995), Christen et al. (1995), Navajas et al. (2000), Ozkan (2001), Zeller and Meyer (2002), Cull et al. (2007), Bogan (2009), Agarwal and Sinha (2010), Ahlin et al. (2010) and Imai et al. (2011).

variables used to proxy for factors affecting performance. There are several other firm-specific factors (such as scale of operation,[157] percentage of lending to women (Pwomen), legal status, profit status and regulated status) and macroeconomic factors (such as inflation and GNI per capita) that may influence the performance of MFIs and are also considered in this study. Outreach is measured in terms of the natural logarithm of ALB and NAB (lnALB and lnNAB). According to the suggestion of Professor Malcolm Harper, we add percentage of lending to women indicator into the regressions since it is considered as one of the main factors that affects the financing decisions of external funders and it relates to the "doing good" of MFIs.

### 4.2.2.2. Models

Based on the general regression models presented in chapter 3, the relationships between financial leverage, sustainability and outreach have been analysed by the following regression models (RM) in order to answer RQ4A and RQ4B:

$$MFP_{itc} = \alpha + \beta_1 MFP_{itc-1} + \beta_2 DTE_{itc} + \sum_{i=1}^{4} \beta_3^i FSV_{itc} + \sum_{i=1}^{3} \beta_4^3 MEV_{itc} + \varepsilon_{itc} \qquad \textbf{(RM 4.1)}$$

where $MFP_{it}$ is the microfinance performance indicators of $MFI_i$ at time t located in country c, (including OSS, ROA, ROE, lnNAB and lnALB); $DTE_{it}$ is the financial leverage of $MFI_i$ at time t; $FSV_{itc}$ represents other firm-specific variables, including lnGLP, Pwomen and dummy variables referring to legal status, profit status and regulated status; $MEV_{itc}$ represents macroeconomics factors, including inflation, GNI per capita and a dummy variable referring the global financial crisis of 2007/2008 (before and after the crisis); $\alpha$ is constant; $\beta$ is a variable coefficient and $\varepsilon_{itc} = \vartheta_i + \gamma_t +$

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[157] The effects of scale of operations on performance and the contributions of different scales of operation to the relationship between financial structure and microfinance performance will be investigated in the next chapter.

$\boldsymbol{\mu_{itc}}$ is an error term that includes $\boldsymbol{\vartheta_i}$ (the unobserved complete set of the MFI-specific effect), $\boldsymbol{\gamma_t}$ (the unobserved time effect) and $\boldsymbol{\mu_{itc}}$ (the idiosyncratic error).

There are possible interactions between financial leverage (DTE) and other firm-specific variables (FSV) that could come into play. Therefore, we created an interaction by multiplying DTE by dummy variables in terms of legal status (bank, credit union, NFBI, NGO and rural bank), as well as profit status (profit and non-profit) and regulated status (regulated and unregulated) in order to test and explain the relationship between financial leverage and microfinance performance. In addition, we also created squared variables to investigate whether there is an optimal financial leverage that help MFIs to achieve sustainability and expand their outreach. This means that the effect of financial leverage on performance changes from positive to negative, or from negative to positive at some levels of financial leverage. Maybe, as financial leverage increases, performance increases or decreases down to some threshold. But if it goes beyond the critical point (the inflection point), the relationship reverses.

To avoid an unbalanced two-way error component model, we add the country-specific dummy into the regression model and test country and time hypotheses separately as well as jointly by the Lagrange Multiplier (LM) test. The results show that country and time specific dummy variables are insignificant for a cross-country analysis. Therefore we should neither include year-specific nor country-specific dummies in the model. In addition, we perform the Sargan test for over-identifying restrictions in the GMM dynamic model estimation to confirm the validity of the instruments, as well as also testing whether the Arellano-Bond orthogonality conditions are fulfilled. In all regressions, the lags of dependent variables are statistically significant in order to justify our use of the system GMM.

### 4.2.3. Predicted Effects of Independent Variables

The predicted effects of the proxy variables are constructed depending on the theoretical model and empirical evidence of the variables. These predicted effects provide convincing statements for the empirical analysis below.

**Table 4.1 Predicted Effects of the Independent Variables**

| Variable | Indicator | Notation | Predicted Effects | Source of Data |
|---|---|---|---|---|
| **Dependent Variable** | | | | |
| Outreach | Number of Active Borrowers | NAB | | MIX Market |
| Sustainability | Operational Self-Sufficiency | OSS | | MIX Market |
| Profitability | Return on Assets Return on Equity | ROA ROE | | MIX Market |
| **Independent Variable** | | | | |
| **Firm-Specific Variables (FSV)** | | | | |
| Financial Leverage | Debt to Equity | DTE | Negative | MIX Market |
| Scale of Operation | Gross Loan Portfolio | GLP | Positive | MIX Market |
| Gender | Share of Lending to Women | Pwomen | Negative | MIX Market |
| Legal Status | Dummy ($D_{LS}$) | Bank NGO Credit Union NBFI Rural Bank | Indeterminate | MIX Market |
| Profit Status | Dummy ($D_P$) | Profit and Nonprofit | Indeterminate | MIX Market |
| Regulated Status | Dummy ($D_R$) | Regulated and Unregulated | Indeterminate | MIX Market |
| **Macroeconomic Variables (MEV)** | | | | |
| Inflation | Inflation | INF | Negative | Datastream |
| GNI per capita | GNI per capita | GNI | Indeterminate | Datastream |
| Financial Crisis | Dummy | Beforecrisis and Aftercrisis | Positive Negative | Datastream |

### 4.2.4. Descriptive Statistics

Table 4.2 shows the descriptive statistics of all the variables used for the regression. The mean value of OSS for the period 1996 to 2010 was 1.18 (118%), while the minimum value was -0.29 (-29%) and maximum 19.38 (1,938%). This means that some MFIs can cover their costs by operating revenue. However, the mean value is very small and the minimum value is negative. An MFI reaches sustainability if OSS is at least 1 (100%). This result shows that there are a number of MFIs, who do not earn enough profit to cover their total costs. In this case, equity will be reduced by losses (negative equity), unless they receive grants or concessional loans from external sources. Comparing this result to the "key stages in microfinance" (Charitonenko and Campion, 2003) shows that MFIs are at the midway stage of achieving sustainability and are not fully commercial.

**Table 4.2: Descriptive statistics of all variables**

| Variable | Mean | Max | Min | Std. Dev | Obs. |
|----------|------|-----|-----|----------|------|
| **OSS** | 1.1847 | 19.38 | -0.29 | 0.6871 | 4,570 |
| **ALB** | 1,166.77 | 99,889.5 | 0 | 2,799.52 | 4,657 |
| **NAB** | 59,619.96 | 6,397,635 | 0 | 338,013.5 | 4,684 |
| **DTE** | 4.4125 | 2940.2 | **-2,478.24** | 82.7328 | 4,671 |
| **CPB** | 292.85 | 179,116 | 0 | 3,813.71 | 3,653 |
| **Pwomen** | 0.6254 | 2.12 | 0 | 0.2670 | 3,938 |
| **Inflation** | 8.1367 | 431.7 | -13.23 | 16.7145 | 1,462 |
| **GNI** | 547.8553 | 999.99 | 80 | 244.976 | 1,692 |

Table 4.2 shows that the value of DTE was 4.4125 times on average. There is a big gap between the minimum value (-1,221.26 times) and the maximum value (2,940.2 times). DTE gives a measure of how much of the company's worth is funded through debt and how much through equity. A ratio of greater than 1 means that the MFI has less equity than total liabilities; a ratio of greater than 0 but less than 1 means that the MFI has more equity than total liabilities. These rules apply, only so long as the MFI has positive equity. A negative DTE would indicate that many MFIs have negative equity, when total liabilities exceed total assets. This suggests that MFIs depend heavily on borrowings and subsidised funds for lending. It leads to MFIs having negative equity since they do not earn enough revenue to cover total costs. This index provides the level of dependence on external funds for their expansion.

**Table 4.3 Correlation Matrix between the dependent and independent variables**

|  | OSS | ROA | ROE | DTE | lnGLP | Pwomen | Inflation | lnGNI |
|---|---|---|---|---|---|---|---|---|
| **OSS** | 1.0000 |  |  |  |  |  |  |  |
| **ROA** | -0.0293 | 1.0000 |  |  |  |  |  |  |
| **ROE** | -0.0308 | 0.0836* | 1.0000 |  |  |  |  |  |
| **DTE** | -0.0112 | -0.0026 | -0.0168 | 1.0000 |  |  |  |  |
| **lnGLP** | 0.0431* | 0.0237 | 0.0194 | -0.0004 | 1.0000 |  |  |  |
| **Pwomen** | -0.0272 | -0.0190 | -0.0148 | 0.0085 | -0.1745* | 1.0000 |  |  |
| **Inflation** | -0.0180 | -0.0296 | -0.0090 | -0.0241 | -0.0747 | -0.0465 | 1.0000 |  |
| **lnGNI** | 0.0112 | 0.1156* | 0.0426 | 0.0096 | 0.1830* | 0.0389 | -0.1356* | 1.0000 |

Note: * is statistically significant at a level of 5% or lower.

Table 4.3 is a correlation matrix for all the variables in the regression model. The figures are Pearson correlation coefficients ranging from -1 to 1. Closer to 1 means a strong correlation and a negative value indicates an inverse relationship (i.e. one goes up while other goes down). The table shows the bi-variate relationships for the period

1996 to 2010 between dependent and independent variables. The results are consistent with the argument that MFIs may not have the revenue greater than the cost of debts for a number of reasons, such as costs of being regulated. Therefore, stockholder equity is reduced by losses and has a negative value. This also suggests that MFIs rely heavily on grants or concessional loans from external sources. An interesting observation is the positive and significant relationship between gross loan portfolio and sustainability. This may be an indication that expanding their outreach helps MFIs achieve sustainability and vice versa. In addition, the negative relationships between share of lending to women, sustainability and profitability are also consistent with the results of the comprehensive review in this study. Intentionally focusing on lending to women leads MFIs to additional activities which could have a negative impact on the efficiency of microfinance in a sustainable way. This means focusing on lending to women can make MFIs less efficient and therefore less profitable.

### 4.2.5. Estimation Results of Sustainability

The main aim of this section was to determine whether sustainability and profitability depend on microfinance funding. The descriptive statistic in the previous section led us to test further the relationship between sustainability, profitability and capital structure in terms of financial leverage, while the control for other MFI specific characteristics and macroeconomics factors are not within the control of MFI management and external funders. We perform a regression analysis in four different specifications by adding the squared term of financial leverage and the interaction term of financial leverage and MFI-specific characteristics. This includes the specification without the squared and interaction terms (MS4.1), with the interaction term of financial leverage and MFI specific characteristics (MS4.2), with the squared term of financial

leverage (MS4.3) and with the squared and interaction term of financial leverage and MFI specific characteristics (MS4.4).

Table 4.4 shows the results from our basic specifications using operational self-sufficiency (OSS, log) as the sustainability. The result is overwhelming evidence to support our hypotheses (SH4.1 and SH4.3) from the review of the literature. It suggests that sources of funding play an important role in helping MFIs around the world achieve sustainability. The results indicate that financial leverage was negatively related to sustainability (see table 4.4), as well as profitability (see table 4.5). This suggests that any funding source has its costs (called costs of funding) which include interest paid to investors for debts, dividends paid to owners for equity and interest paid to depositors for savings. In microfinance, debts (including borrowings and savings) are normally from commercial sources at the market interest rate or from socially responsible investors at a low rate (known as "soft" loans). Therefore, debts tend to increase financial expenses and have negative effects on net income (Gozalez and Meyer, 2009). This may point to the fact that MFIs do not earn enough revenue to cover total costs when using commercial funds to provide subsidised loans to the poor. The current trend away from subsidies towards a commercial approach adds to the costs and directly narrows the gross margin on loans. Therefore, savings become an even more attractive refinancing alternative in a mixed overall calculation and perspective. In the long run, to fulfil the goal of fighting against worldwide poverty, it becomes clear that MFIs need to operate on a sustainable and efficient basis. This suggests that larger loans, as well as higher interest rates, would result in more income for MFIs and make them more profitable due to cost and some scale effects. However, it might create disadvantages for the poor who are dependent on the loans and who might have difficulties in paying back larger amounts.

**Table 4.4 Impact of financial leverage on sustainability**

| Variables | (MS4.1) | (MS4.2) | (MS4.3) | (MS4.4) |
|---|---|---|---|---|
| Lag 1 lnOSS | 0.5946*** | 0.5477*** | 0.5582*** | |
| DTE | -0.0379*** | | -0.0278* | -0.0226 |
| DTE$^2$ | | | -0.0164 | -0.0804*** |
| lnGLP | 0.0356*** | 0.0515*** | 0.0311** | -0.0468 |
| Pwomen | -0.0001 | -0.0016 | -0.0503 | -0.2385** |
| Regulated | -0.0074 | | -0.0106 | -0.3928 |
| Profit | 0.1199 | | 0.1116 | 0.5616 |
| Micro Bank | -0.0963* | | -0.0216* | 0.0499 |
| Credit Union | 0.0387 | | 0.1083 | 0.4219 |
| NGO | 0.0072 | | 0.0439 | 0.4967 |
| NBFI | -0.1081** | | -0.0379* | 0.0027** |
| Inflation | 0.0009 | 0.0015 | 0.0018 | -0.0079 |
| lnGNI | -0.0566* | -0.0498 | -0.0178 | 0.1652*** |
| Beforecrisis | 0.0973*** | 0.1012*** | 0.1141*** | -0.0278** |
| DTEregulated | | -0.0071* | | -0.0259 |
| DTE$^2$regulated | | | | 0.0002 |
| DTEprofit | | 0.0102* | | 0.5415** |
| DTE$^2$profit | | | | -0.0963** |
| DTEbank | | -0.0156** | | -0.5076** |
| DTE$^2$bank | | | | 0.0965** |
| DTEcreditunion | | 0.0054 | | 0.0002 |
| DTE$^2$creditunion | | | | -0.0242 |
| DTEnbfi | | -0.0009** | | 0.0964** |
| DTE$^2$nbfi | | | | -0.4942** |
| DTEngo | | 0.0001* | | 0.0148* |
| DTE$^2$ngo | | | | -0.0002 |
| Observations | 425 | 420 | 425 | 544 |
| AR (1)[a] | -2.62*** | -2.02*** | -2.42*** | |
| AR (2)[b] | 0.51 | 1.12 | 0.49 | $R^2 = 0.8257$ |
| Wald Test | 367.70*** | 346.75*** | 317.84*** | |
| Sargan Test[c] | 247.60 (p-value=0.601) | 281.39 (p-value=0.495) | 219.46 (p-value=0.713) | |

Note: ***, **, and * are statistically significant at the levels of 1%, 5% and 10%, respectively.

[a] Arellano-Bond test for AR (1) in first differences.

[b] Arellano-Bond test for AR (2) in first differences.

[c] Sargan test for overidentifying restrictions in GMM dynamic estimation.

However, the real effects of funding on performance can in theory be positive or negative due to their contributions to financial revenue (i.e. MFIs may take on more debt to increase profitability by creating greater revenue than costs). The insignificant result on the squared term of financial leverage in the third model specification (MS4.3) is consistent with this approach. It suggests that the differences in characteristics of MFIs contribute to the impact of financial structure on performance in various ways. Therefore, we investigate the interaction effects between financial leverage and other MFI specific factors in terms of profit status, legal status and regulatory status. The results indicate that there exists some thresholds and if financial leverage goes beyond the threshold, the relationship between financial leverage and microfinance performance reverses (MS4.4). The results show us that the coefficient for the normal term of financial leverage is positive (or negative) and the coefficient for the squared term is negative (or positive). This tell us that, as financial leverage increases (decreases, the level of sustainability increases (or decreases) at first (the first term), but then turns negative (or positive) beyond the threshold (by using the squared term). In addition, we can also determine the threshold value by using the coefficient of the linear term divided by -2 times the value of the coefficient of the squared term.

As previously mentioned, OLS regression is not an appropriate statistical technique as it has various problems. However, much of the diagnostic information for multicollinearity (e.g. VIFs[158]) can be obtained by calculating an OLS regression model using the same dependent and independent variables we use in our logistic regression model (Menard, 2002). According to Menard (2002, p.76), "because the concern is with the relationship among the independent variables, the functional form of the model for the

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[158] VIFs – the variance inflation factor.

dependent variable is irrelevant to the estimation of collinearity." This means we could run an OLS regression and ignore most of the results but still use the information that pertained to multicollinearity (see MS4.4 in table 4.4).

We find that the results of the percentage of lending to women coefficient for all the model specifications are negative and insignificant. This is consistent with the findings of the literature and the comprehensive review of this study and may point to the fact that focusing on lending to women makes MFIs less efficient and therefore less profitable (Hermes et al., 2011). Many arguments against focusing on lending to women has been considered as "doing good" of MFIs. In order to give MFIs more room for innovation, external funders tend to focus on the main indicators of microfinance performance instead of the lending to women indicator to determine financing decisions. It is therefore excluded from the following regression model for investigating the impact of funding and microfinance performance.

The results indicate that gross loan portfolio was positively related to sustainability, as well as profitability. This result suggests that an increase in outstanding loans (scale of operation) tends to help MFIs achieve higher self-sufficiency. Consistent with Hermes and Lensink (2007) and Cull et al. (2012), MFIs could improve their sustainability by increasing outstanding loans. However, according to the diseconomies of scale, large scale lead to an increase in the unit cost and there is also a limit of scale due to bounded rationality. This means we need to carry out a more comprehensive model in the following chapter to investigate the impact of scale of operation on microfinance performance in order to find the convincing answers for research question 4 (RQ4).

**Table 4.5 Impact of financial structure on sustainability and profitability**

| Variables | lnOSS | lnROA | lnROE |
|---|---|---|---|
| **Lag 1 (ln.OSS/ROA/ROE)** | 0.5613*** | 0.6957*** | 0.0408* |
| | (0.0198) | (0.0547) | (0.0298) |
| **lnGLP** | 0.0534*** | 0.0069** | 0.1057 |
| | (0.0133) | (0.0028) | (0.1312) |
| **DTEprofit** | 0.0127 ** | 0.0037* | 0.0434 |
| | (0.0060) | (0.0031) | (0.0344) |
| **DTEregulated** | -0.0097* | -0.0036* | -0.0804*** |
| | (0.0057) | (0.0034) | (0.0286) |
| **DTEbank** | -0.0153** | -0.0017* | -0.0319 |
| | (0.0061) | (0.0012) | (0.0794) |
| **DTEcreditunion** | 0.0077* | 0.0031 | 0.0794 |
| | (0.0056) | (0.0031) | (0.0856) |
| **DTEnbfi** | 0.0006*** | 0.0004*** | 0.0062*** |
| | (0.0002) | (0.0001) | (0.0008) |
| **DTEngo** | 0.0001** | 3.78e-06 | 0.0018*** |
| | (0.001) | (5.52e-06) | (0.0002) |
| **Inflation** | -0.0005 | -0.0003*** | -0.0024 |
| | (0.0040) | (0.0001) | (0.0031) |
| **lnGNI** | -0.0504 | -0.0059 | -0.1102 |
| | (0.0494) | (0.0105) | (0.2991) |
| **Beforecrisis** | 0.0964** | 0.0275** | 0.3797 |
| | (0.0376) | (0.0112) | (0.7591) |
| **Observations** | 452 | 334 | 334 |
| **AR (1)[a]** | -2.01*** | -2.40** | -2.34** |
| **AR (2)[b]** | 1.12 | 0.75 | 0.78 |
| **Wald Test** | 1,422.84*** | 656.72*** | 439.41*** |
| **Sargan Test[c]** | 283.52 | 315.74 | 317.88 |
| | P-value = 0.497 | P-value = 0.718 | P-value = 0.688 |

Note: ***, **, and * are statistically significant at the levels of 1%, 5% and 10%, respectively.

The value of the standard error is in parentheses.

[a] Arellano-Bond test for AR (1) in first differences.

[b] Arellano-Bond test for AR (2) in first differences.

[c] Sargan test for overidentifying restrictions in GMM dynamic estimation.

We also find that financial leverage in the case of profitable MFIs is positively related to sustainability and is significant at a level of 5% (see table 4.5). Consistent with Campion and White (2001), Fernando (2004) and Bogan (2009) and with the economies of scale theory, profitable MFIs take on considerably more debt and are therefore have more revenue and achieve higher sustainability than non-profit MFIs. Therefore, debts have recently become one of the main funding sources for profitable MFIs, together with savings and other low cost funds. This result is important, as it would also encourage the transformation process of MFIs from simply achieving their social mission to becoming profitable businesses in order to be self-sufficient and remain viable. However, the smaller MFIs take on more debt and tend to be exposed to considerably more risk than their larger counterparts. Many signs point to the fact that profit status has significantly interacted with large scale of operation. This also suggests that scale of operation interacts with financial structure and has an impact on performance.

Financial leverage in the case of regulated MFIs was negatively related to sustainability (-0.0097) and was significant at a level of 10% (see table 4.5). This result indicates that regulated status, as well as taking on more debt, also has some disadvantages that MFIs should be aware of. These include a cost increase from licensing fees, savings mobilisation, capital requirements and control of interest rates. Therefore, using more debts tends to result in the lower revenue. Consistent with Christen and Rosenberg (2000), Ngo and Nguyen (2007) and David (2009), MFIs have to equip themselves with knowledge on the how and why of being a regulated institution. Therefore, it is argued that only MFIs which achieve a significant scale and degree of sustainability should be regulated, as mentioned in the previous chapters. In addition, the microfinance industry already has to endure high operating expenses in

relationship to loan size, savings mobilisation and additional costs from regulation and supervision, which increase the difficulty of maintaining operations. Therefore, creating a good environment for MFIs to develop and strengthen themselves plays an important role in promoting viable and sustainable systems of microfinance (Omino, 2005).

The financial leverage of microfinance banks was negatively related to sustainability and profitability (-0.0154, -0.0018 and -0.0337) and was significant at a level of 5%. Consistent with Myers (1984) and Bogan (2009), microfinance banks are regulated and profitable MFIs which tend to rely more on debts than subsidized funds for their lending. Therefore, they may not have a revenue greater than the costs of debts and other high expenses associated with being regulated, as previously mentioned in the case of regulated MFIs. Compared to profitable MFIs, microfinance banks need to broaden their services or increase their scale of operation for economies of scale, reduce the costs of savings mobilisation and obtain more savings to achieve an overall lower cost of funds (Cull et al., 2011).

Another interesting finding in this study is that financial leverage was positively related to the sustainability of profitable MFIs, but was negatively related to the sustainability of regulated MFIs and microfinance banks. This suggests that the cost of compliance may be very costly on top of the costs of savings mobilisation and causes more damage than it remedies. Therefore, MFIs should transform their organisational and legal structures to those of regulated and profitable MFIs only because of the practicality of expanding their scale of operations and the usefulness in effectively generating added resources, as well as the compulsory regulations for microfinance of each country. Low-cost funds are always preferable in microfinance.

Financial leverage at Credit Unions, NBFIs and NGOs were positively related to sustainability and significant at the level of 10%, 1% and 5% respectively. This indicates that some Credit Unions, NBFIs and NGOs have achieved higher sustainability and profitability by increasing and mixing debts with other funding sources. However, note that the coefficient for the first term is positive and that the coefficient for the squared term of financial leverage is negative (see MS4 in table 4). This suggests that in contrast to microfinance banks, other MFIs can initially increase sustainability and profitability by increasing financial leverage, but these then turn negative beyond the thresholds previously discussed. Consistent with the findings of MIX Market (2006 and 2009), these MFIs have created higher revenue by using more commercial debts (perhaps including savings) in order to mix debts with subsidised funds and/or by using more subsidised funds to obtain a lower capial cost. We also find that there is a positive relationship between gross loan portfolio and sustainability. This suggests that several MFIs take on more debt in their financial structure to expand their scale of operation in order to have a positive impact on sustainability. This means that higher sustainability may also help MFIs to expand their outreach. Therefore, an optimal mix of financing sources has indirect positive effects on the growth in outreach and the level of sustainability in various ways. The impact of financial leverage on outreach is investigated in the following section to order to test sub-hypothesis (SH4.2).

The results indicate that gross loan portfolio was positively related to sustainability, as well as profitability. This suggests that an increase in outstanding loans (scale of operation) tends to help MFIs achieve higher self-sufficiency. Consistent with Hermes and Lensink (2007) and Cull et al. (2012), MFIs could improve their sustainability by increasing outstanding loans. However, according to the diseconomies of scale, large scale leads to an increase in unit cost and there is also a limit of scale.

This led us to carry out a more comprehensive model specification in the following chapter to test further the link between scale of operation and performance.

The effects of macroeconomic variables (inflation and GNI per capita) are negative and insignificant. This result may point to the fact that high inflation may increase the costs of capital and other MFI expenses, while borrowers have trouble with the repayment of loans since prices have increased but not wages. On the other hand, when poor households have a higher income (GNI per capita) and have been lifted out of poverty, they tend to move from MFIs to local commercial banks because of the advantages they offer. The results also provide strong evidence that the positive coefficient on the "before crisis" dummy shows that the global financial crisis may pose an obstacle to the performance of MFIs. It is common sense that the global financial crisis, as well as high inflation, tends to have the same negative impact on microfinance performance, increases the cost of living and affects the income of the population.

### 4.2.6. Estimation Results of Outreach

Outreach is considered as one of the main aspects of microfinance performance that captures the social mission of MFIs. In order to test sub-hypothesis (SH4.5), the main aim of this section is to determine whether the social performance ("doing good") of MFIs in terms of depth and breadth of outreach also depends on funding (SH4.2), as well as whether there is any trade-off between the depth and breadth of outreach. We focus on performing a regression analysis in two different specifications by adding the squared term of all variables (MS4.5 and MS4.7) and the interaction term of financial leverage and other MFI-specific characteristics (MS4.6 and MS4.8).

Table 4.6 shows the results from our basic specifications using average loan balance (ALB, log) and number of active borrowers (NAB, log) as the depth and

breadth of outreach to investigate the effects of financial structure on outreach. The results support our null hypotheses (SH4.2 and SH4.5) and suggest that funding plays an important role in expanding the outreach of MFIs and that breadth can indirectly promote the depth of outreach based on improving profitability and sustainability.

The effects of funding on outreach can be positive or negative due to the interaction between financial structure and the differences in the characteristics of MFIs. This tells us that some MFIs may take on more debt to increase profitability. Therefore, financial leverage has a positive impact on outreach. Others do not earn enough revenue to cover total costs when using commercial funds to provide subsidised loans to the poor. However, the relationship between funding and outreach can reverse and change the sign from positive to negative, or vice versa, if financial leverage goes beyond the threshold, as explained earlier.

An interesting finding in the results is that financial leverage has the opposite effect on breadth (loan size) and depth (number of borrower) based on the characteristics of MFIs. This means that once financial leverage passes the inflection point, increases (or decreases) in financial leverage result in increases (or decreases) in breadth but decreases (or increases) in depth. The percentage change in number of borrowers is equal to the percentage change in loan size. This provides us with evidence of a trade-off between the depth and breadth of outreach beyond the threshold of financial leverage. Due to funding constraints, some MFIs may choose to focus on their social mission by providing loans to a large number of borrowers, while others may focus on loan size. Sometimes it is useful to think of the use of funds to the poor as in slices of a pie. If so, the goal of the MFI manager will be to choose the financial leverage that makes the pie as big as possible in order to increase the threshold level.

# Table 4.6 Impact of financial structure on the depth and breadth of outreach

| Variables | lnALB | | lnNAB | |
|---|---|---|---|---|
| | MS4.5 | MS4.6 | MS4.7 | MS4.8 |
| Lag 1 (lnALB/lnNAB) | | 0.8987*** (0.0286) | | 0.8668*** (0.0427) |
| lnGLP | 0.8229*** | 0.0362* (0.0187) | -0.1170 | 0.0652** (0.0345) |
| lnGLP$^2$ | -0.0249*** | | 0.0249*** | |
| DTE | -0.0695 | -0.0047 (0.0159) | 0.0695 | 0.0006 (0.0267) |
| DTE$^2$ | -0.0418* | | 0.0418* | |
| DTEprofit | -0.1526* | -0.0056* (0.0077) | 0.1526* | 0.0156* (0.0113) |
| DTE$^2$profit | 0.0018 | | -0.0018 | |
| DTEregulated | -0.0187 | 0.0111* (0.0070) | 0.0187 | -0.0175* (0.0181) |
| DTE$^2$regulated | 0.0023* | | -0.0023* | |
| DTEbank | 0.5415*** | 0.0014 (0.0099) | -0.5415*** | -0.0150* (0.0110) |
| DTE$^2$bank | -0.0168*** | | 0.0168*** | |
| DTEcreditunion | 0.1186*** | -0.0132* (0.0073) | -0.1186*** | 0.0128 (0.0117) |
| DTE$^2$creditunion | -0.0037** | | 0.0037** | |
| DTEnbfi | 0.1671** | -0.0013*** (0.0003) | -0.1671** | 0.0005 (0.0006) |
| DTE$^2$nbfi | -0.0043* | | 0.0043* | |
| DTEngo | -0.0279* | -0.0002 (0.0001) | 0.0279* | 0.0001 (0.0001) |
| DTE$^2$ngo | 0.0002*** | | -0.0002*** | |
| Inflation | 0.0094 | -0.0027*** (0.0006) | -0.0094* | -0.0012* (0.0008) |
| Inflation$^2$ | -0.00001* | | 0.00001 | |
| lnGNI | -5.3804*** | 0.0690* (0.0452) | 5.3804*** | -0.1771** (0.0766) |
| lnGNI$^2$ | 0.5167*** | | -0.5167*** | |
| Beforecrisis | 0.0072 | 0.1269** (0.0594) | -0.0072 | 0.0402 (0.0834) |
| Observations | | 462 | | 462 |
| AR (1)[a] | | -2.62*** | | -2.45** |
| AR (2)[b] | | -0.14 | | -.032 |
| Wald Test | | 3,365.42*** | | 2.732.85*** |
| Sargan Test[c] | | 259.80 (P-value = 0.367) | | 263.56 (P-value = 0.378) |

Note: ***, **, and * are statistically significant at the levels of 1%, 5% and 10%, respectively.

The value of the standard error is in parentheses.

[a] Arellano-Bond test for AR (1) in first differences.

[b] Arellano-Bond test for AR (2) in first differences.

[c] Sargan test for overidentifying restrictions in GMM dynamic estimation

An implication of this is the possibility that there is a possible trade-off between the depth and the breadth of outreach. Consistent with Goldberg (2005) and Cull et al. (2007), a large number of borrowers can lead to small loan size due to funding constraints. Therefore, to guarantee a large-scale outreach on a long-term basis, MFIs may need a big increase in funds, as suggested by Hermes et al. (2011). This finding contributes additional evidence that an increase in funds implies an increase in scale of operation, which may also increase the depth of outreach.

The results show that gross loan portfolio (GLP, log) was positively related to the depth and breadth of outreach (0.0362 and 0.0652) and significant at the levels of 5% and 10%, respectively (see table 4.6). This means that there is a positive relationship between scale of operation and outreach. Therefore, MFIs may need to upscale their operations in order to expand their outreach to the poor. Consistent with Terberger (2003), Fernando (2004), Martin (2008) and Lehner (2009), MFIs can increase loan size and/or number of borrowers depending on their characteristics to avoid overlending and multiple borrowing by fulfilling the increasing demand for larger loans. Increasing outstanding loans helps MFIs improve their sustainability and also creates the causal effect of sustainability. The possible trade-off between the depth and breadth of outreach due to funding constraints is consistent with the findings of Navajas et al. (2000), Robinson (2001) and Cull et al. (2012). However, it raises the issue of a shift in the composition of new clients or a reorientation from poorer to wealthier clients among the existing clients of MFIs. There is an interesting issue here, which is that successful MFIs tend to shift their mission and practices with the changes in their clients, who will be less poor and need larger loans over time. This means that MFIs are able to reach larger numbers of the poor and have the ability to offer bigger loans to meet the increasing demand of the poor after the expansion in their scale of operation. Therefore,

the result is not "trade-off," as the term is generally understood, between loan size and number of borrowers. This is a trade-off between the wealthier and poorer clients among existing clients.

The results in the case of profitable MFIs follow the theoretical prediction of the impact of financial leverage on outreach. Financial leverage was positively related to the number of active borrowers (0.0156, significant at the level of 5%) but was negatively related to average loan balance (-0.0056, significant at the level of 5%) (see table 4.6). This result indicates that using more debts allows profitable MFIs to reach a larger number of borrowers and may allow them to offer smaller loans to the poor. Consistent with Yunus (1998), Arora and Meenu (2010) and Opportunity Fund (2011), the cost efficiency of profitable MFIs enables them to offer small loans, which are associated with high transaction costs. This may point to the fact that profitable MFIs tend to pay more attention to the purposes of loans and to provide sufficient loans sizes to the appropriate borrowers (Cull et al., 2007).

We also find that financial leverage has a significant effect at the level of 5% on the number of active borrowers (0.0111) and loan size (-0.0175) (see table 4.) in the case of regulated MFIs. This result indicates that regulated MFIs may provide larger loans to the poor in order to maximise the benefits of fixed costs (such as licensing fees, capital requirements and control of interest rates) and to minimise the transaction costs of providing small loans. Complementary services are sometimes offered by MFIs, but supplying them increases operating costs, thereby jeopardising financial sustainability if the additional costs are not covered by the borrowers; however this almost never happens. It has been found in many studies that regulated MFIs are less efficient than profitable MFIs. Consistent with Lafourcade et al. (2005), regulated MFIs tend to be

much bigger than unregulated ones since they have mobilisation of savings and can reach more depositors. This result is also consistent with the effects of financial leverage on the sustainability of regulated MFIs, as mentioned in the previous section.

With microfinance banks, financial leverage was negatively related to both the breadth and the depth of outreach. This result indicates that commercial debts may be more expensive than equity and other funding sources in microfinance. Therefore, debts are not desirable for expanding outreach at first, as they are negative or decrease during the first term, but then become positive beyond the threshold. In addition, microfinance banks are regulated, therefore they have the cost efficiency of profitable MFIs but also the disadvantages of being regulated. These pros and cons lead microfinance banks to offer loans to appropriate borrowers based on their purposes. Consistent with the effects of financial leverage on sustainability, microfinance banks may have high costs of savings mobilisation and need to broaden their services for economies of scale and secure more deposits for an overall lower cost of funds.

The effect of financial leverage was positively related to the breadth of outreach but was negatively related to the depth of outreach at Credit Unions, NBFIs and NGOs. Contrary to the results of regulated MFIs, these MFIs may choose to focus on the number of active borrowers instead of concentrating on loan size due to their social mission, commitment to sponsors and funding constraints. Consistent with De Sousa-Shields and Frankiewiecz (2004), the subsidised funds and social mission lead MFIs to focus on providing small loans to a large number of borrowers. Clearly, the results tell us that unsubsidised MFIs with commercial funds focus on sustainability and providing microfinance to the poor over the long term. Therefore, they have a higher probability of reaching more people based on this commercial basis.

As anticipated, we also find the effects of macroeconomic variables on outreach. Inflation was negatively related to the depth (-0.0027) and breadth of outreach (-0.0012) and significant at the levels of 1% and 10%, respectively. This result shows that high inflation tends to make MFIs reduce their outreach. Consistent with the effects of inflation on sustainability, this tends to increase the cost of capital and other expenses of MFIs and means borrowers have trouble in the repayment of loans. GNI per capita (log) was negatively related to the number of active borrowers (the breadth of outreach) but was positively related to average loan balance (the depth of outreach). Consistent with the effects of GNI per capita on sustainability, poor households tend to have different financial needs and to require larger loans when they become less poor. This may point to the fact that wealthier clients tend to move to commercial banks to benefit from their advantages after being lifted out poverty. In addition, the positive coefficient of the dummy before crisis on outreach is consistent with its effects on sustainability. This indicates that the global financial crisis may have caused an obstacle to microfinance performance.

Another new and interesting finding in this section is that the inflation ratio was negative and significantly related to outreach. This sheds light on the inflection point of the inflation ratio, where the relationship between inflation and outreach reverses (see MS1 of table 4.6). The results point to the fact that as inflation increases, loan size also increases, while the number of borrowers decreases at first, but it starts to decrease or increase beyond the threshold. In contrast to the inflation ratio, GNI per capita was positively related to loan size, while it was negatively related to number of borrowers. However, there is also a threshold of GNI per capita that makes the relationships between GNI per capita, loan size and number of borrowers become negative or

positive. The results provide further information about the response to the impact of macroeconomic factors on performance.

### 4.2.7. The Trade-Off between Sustainability and Outreach

The significant impact of financial leverage on operational self-sufficiency and gross loan portfolio from the previous section indicates that there is a positive relationship between sustainability and outreach in some MFIs. The results suggest that MFIs may take on more debts to achieve a positive impact on sustainability and to have the ability to expand their outreach. This increases the need to carry out an additional empirical to investigation to shed new light on the trade-off between sustainability and outreach in order to seek convincing answers to RQ3. It is hypothesised that sustainability can promote the outreach of MFIs (SH4.4). In this section, we focus on performing a regression analysis RM4.2 based on RM4.1 in two different specifications by the squared term of all variables (MS4.9) and the interaction term of financial leverage and MFI-specific characteristics (MS4.10). We also use operational self-sufficiency (OSS) as the sustainability, average loan balance (ALB, log) and number of active borrowers (NAB, log) as the depth and the breadth of outreach.

$$OSS_{itc} = \alpha + \beta_1 OSS_{itc-1} + \beta_2 Outreach_{itc} + \sum_{i=1}^{4} \beta_3^i FSV_{itc} + \sum_{i=1}^{3} \beta_4^3 MEV_{itc} + \varepsilon_{itc} \quad \text{(RM 4.2)}$$

Table 4.7 shows that loan size and number of borrowers were positively related to sustainability and were significant at a level of 1% (0.0530 and 0.0510). This may point to the fact that MFIs can expand their outreach to achieve sustainability based on the advantages of the economies of scale. MFIs need to convert from credit-only NGOs into regulated MFIs in order to provide other financial services to their clients. Consistent with the previous findings, this conversion allows MFIs take on more debts, especially

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savings, as well as to offer a greater basket of products and services. However, it is a lengthy process and requires a great deal of resources; costs are high and a large amount of resources are required to change the organisational structure. In addition, there is also a risk of broken brand promise if brand expectations are not reached across subsidiaries. Due to the causal relationship between sustainability and outreach, the sustainable MFIs tend to serve the large majority of borrowers since on average sustainable MFIs are much larger than unsustainable ones. This suggests that we should weigh the results by number of borrowers or gross loan portfolio. It would make no sense to give each of the hundreds of tiny MFIs the same weight as one large one. Furthermore, most of the investors who identify themselves as socially responsible will not apply a negative screen or accept a lower return and higher risks than any other commercial investors. Clearly, government MFIs tend to be unsustainable and will continue to be so. However, the proposition that microfinance can be a perfectly viable business in most settings has been demonstrated very compellingly by now.

We also find that the coefficient for the first term is positive (or negative) and the coefficient for the squared term is negative (or positive). This tells us that there is a threshold that makes the relationship between variables reverse (if it goes beyond that point). Clearly, the results also provide strong evidence that there is an optimal mix of efficiency in terms of sustainability and outreach. Furthermore, the results tend to vary with the heterogeneity of MFI characteristics. This also provides us with evidence of a trade-off between sustainability and outreach beyond the threshold. However, the positive and significant relationship between loan portfolio size and outreach found in the previous section (see table 4.6) suggests that MFI managers need to focus on increasing the level of thresholds to achieve a higher level of operational self-sufficiency and a wider outreach.

## Table 4.7. Trade-off between sustainability and outreach

| Variables | lnOSS | |
|---|---|---|
| | MS4.9 | MS4.10 |
| Lag 1 lnOSS | | 0.5524*** (0.0181) |
| lnALB | -1.4748*** | 0.0530*** (0.0185) |
| lnALB2 | 0.1174*** | |
| lnNAB | 0.0069 | 0.0510*** (0.0169) |
| lnNAB$^2$ | -0.0069 | |
| DTE | -0.0817 | |
| DTE$^2$ | -0.0561** | |
| DTEprofit | 0.0067 | 0.0112 (0.0073) |
| DTE$^2$profit | -0.0008 | |
| DTEregulated | -0.0126 | -0.0094 (0.0069) |
| DTE$^2$regulated | 0.0005 | |
| DTEbank | -0.0474 | -0.0119* (0.0067) |
| DTE$^2$bank | 0.0016 | |
| DTEcreditunion | 0.0094 | 0.0072* (0.0073) |
| DTE$^2$creditunion | -0.0041 | |
| DTEnbfi | 0.0159 | 0.0009** (0.0004) |
| DTE$^2$nbfi | -0.0004 | |
| DTEngo | 0.0069 | 0.0001* (0.0001) |
| DTE$^2$ngo | -5.49e-06 | |
| Inflation | -0.0063 | -0.0006 (0.0005) |
| Inflation$^2$ | 0.0001 | |
| lnGNI | -1.1185 | -0.0646 (0.0522) |
| lnGNI$^2$ | 0.0675 | |
| Beforecrisis | 0.0951 | 0.0997*** (0.0357) |
| Observations | | 452 |
| AR (1)[a] | | -2.37** |
| AR (2)[b] | | 1.06 |
| Wald Test | | 1,073.22*** |
| Sargan Test[c] | | 282.67 (P-value = 0.563) |

Note: ***, **, and * are statistically significant at the levels of 1%, 5% and 10%, respectively.

The value of the standard error is in parentheses.

[a] Arellano-Bond test for AR (1) in first differences.

[b] Arellano-Bond test for AR (2) in first differences.

[c] Sargan test for overidentifying restrictions in GMM dynamic estimation.

One of the best ways to shift the threshold is by raising the effective interest rates to meet the demands of higher profitability, by which MFIs have the ability to earn sufficient income to cover the full costs of operation. In addition, MFIs may also need to create an environment to attract the poor by providing vocational training, counselling, mentoring and market analysis through partnerships with training institutions. This will provide a platform for the poor to enter self-employment in groups through close collaboration with MFIs. In the long run, MFIs will be able to ensure an increase in their clientele, closely monitor them, ensure sustainability and ultimately achieve their social missions.

## 4.3. The Linkage between Financial Structure and Efficiency

### 4.3.1. Introduction

This section attempts to answer the same research questions (RQ1, RQ1 and RQ1) as in the previous section but uses efficiency as different aspect of microfinance performance. There are two main reasons why we carry out this investigation. First, there have been several studies which have measured the effects of financial structure on microfinance performance by focusing on profitability and outreach, thereby missing efficiency as another important aspect of performance. This investigation makes contributions to the existing knowledge and provides more useful information for funders to determine financing decisions based on the key performance indicators. Second, external funders tend to collect information about portfolio quality indirectly by investigating efficiency, since there are very few successful MFIs who suffer from bad repayments (i.e. MFIs with good repayments tend to become efficient) (Rosenberg, 2009). Therefore, this section tests two hypotheses.

(**SH4.6**) Financial leverage can make MFIs more efficient (H0).

(**SH4.7**) Expanding outreach makes MFIs more efficient (H0).

### 4.3.2. Models

To accomplish the above objectives, we perform the regression model RM4.3 below derived from RM4.1 by using the natural logarithm of cost per borrower (CPB) as the dependent variable to assess sustainability, while financial leverage and outreach are two of the explanatory variables.

$$lnCPB_{itc} = \alpha + \beta_1 lnCPB_{itc-1} + \beta_2 DTE_{itc} + \beta_3 Outreach_{itc} + \sum_{i=1}^{3} \beta_4^i FSV_{itc} + \sum_{i=1}^{3} \beta_5^3 MEV_{itc} + \varepsilon_{itc} \text{ (RM 4.3)}$$

Similar to the previous section, we also perform an analysis with four different specifications by using gross loan portfolio (GLP, log), as well as number of borrowers (NAB, log) and loan size (ALB, log) to represent outreach and by using the squared term of all variables. The predicted effects of the explanatory variables are as follows.

**Table 4.8 Predicted effects of the independent variables**

| Variable | Indicator | Notation | Predicted Effects | Source |
|---|---|---|---|---|
| **Dependent Variable** | | | | |
| **Efficiency** | **Cost Per Borrower** | **CPB** | | **MIX Market** |
| **Independent Variable** | | | | |
| **Firm-Specific Variables (FSV)** | | | | |
| **Financial Leverage** | **Debt to Equity** | **DTE** | **Negative** | **MIX Market** |
| **Outreach** | **Gross Loan Portfolio** <br> **Number of Borrowers** <br> **Average Loan Balance** | **GLP** <br> **NAB** <br> **ALB** | **Positive** <br> **Positive** <br> **Positive** | **MIX Market** |
| **Gender** | **Share of Lending to Women** | **Pwomen** | **Negative** | **MIX Market** |
| **Legal Status** | **Dummy ($D_{LS}$)** | **Bank** <br> **NGO** <br> **Credit Union** <br> **NBFI** <br> **Rural Bank** | **Indeterminate** | **MIX Market** |
| **Profit Status** | **Dummy ($D_P$)** | **Profit and Nonprofit** | **Indeterminate** | **MIX Market** |
| **Regulated Status** | **Dummy ($D_R$)** | **Regulated and Unregulated** | **Indeterminate** | **MIX Market** |
| **Macroeconomic Variables (MEV)** | | | | |
| **Inflation** | **Inflation** | **INF** | **Negative** | **Datastream** |
| **GNI per capita** | **GNI per capita** | **GNI** | **Indeterminate** | **Datastream** |
| **Financial Crisis** | **Dummy** | **Beforecrisis or Aftercrisis** | **Positive** <br> **Negative** | **Datastream** |

Table 4.2 in the previous section (page 131) shows that the mean value of the efficiency ratio for the period 1996 to 2010 was 292.85, while the minimum value was 0 and the maximum 179,116.

**Table 4.9 Correlation matrix between lnCPB and independent variables**

|  | lnCPB | lnGLP | lnNAB | lnALB | DTE | Pwomen | Inflation | lnGNI |
|---|---|---|---|---|---|---|---|---|
| **lnCPB** | 1.0000 | | | | | | | |
| **lnGLP** | 0.2117* | 1.0000 | | | | | | |
| **lnNAB** | -0.3246* | 0.7879* | 1.0000 | | | | | |
| **lnALB** | 0.7987* | 0.0463* | -0.2425* | 1.0000 | | | | |
| **DTE** | -0.0099 | -0.0004 | 0.0013 | -0.0026 | 1.0000 | | | |
| **Pwomen** | -0.4878* | -0.1745* | 0.2101* | -0.5827* | 0.0085 | 1.0000 | | |
| **Inflation** | 0.0314 | -0.0747* | -0.0727* | -0.0183 | -0.0241 | -0.0465 | 1.0000 | |
| **lnGNI** | 0.1398* | 0.1380* | 0.0505* | 0.2201* | 0.0095 | 0.0389 | -0.1356* | 1.0000 |

Note: * is statistically significant at the level of 5% or lower.

Table 4.9 is a correlation matrix between cost per borrower and other variables in the regression model (RM4.3). The results are consistent with the argument that the high costs of MFIs are often misunderstood, especially in comparison with other credit institutions. For total costs covered by interest rates and fees paid by borrowers, operating costs represent around 60% on average, financial expenses 30% and profits 10%. Therefore, from the point of view of efficiency it makes sense to focus on operating expenses since financial expenses are more difficult for MFIs to control. This suggests that MFIs should improve efficiency while balancing social responsibility to staff and clients in term of appropriate salaries and incentives and the provision of high quality services at a low cost. Loan size is one of the most important determinants of the average cost of microcredit. The average cost per dollar lent tends to be lower for larger loans, while the average cost per borrower is higher. This relationship is the main reason why smaller loans require higher interest rates than larger ones.

**Table 4.10. The Impact of Financial Structure on Efficiency**

| Variables | lnCBP | | | |
|---|---|---|---|---|
| | **MS4.11** | **MS4.12** | **MS4.13** | **MS4.14** |
| **Lag 1 lnCBP** | 0.8453*** (0.0369) | | 0.7076*** (0.0525) | |
| **lnGLP** | 0.0004 (0.0259) | 0.5283** | | |
| **lnGLP$^2$** | | -0.0204** | | |
| **lnALB** | | | 0.2591*** (0.0415) | 1.0651*** |
| **lnALB$^2$** | | | | -0.0276* |
| **lnNAB** | | | -0.0336** (0.0157) | 0.0271 |
| **lnNAB$^2$** | | | | -0.0071* |
| **DTE** | -0.0080 | -0.0845* | -0.0115 (0.0229) | -0.0781* |
| **DTE$^2$** | | 0.0046 | | 0.0102 |
| **Pwomen** | -0.3538 | **-1.8184*** | -0.0315 (0.0674) | **-0.0652** |
| **Pwomen$^2$** | | **-0.4426*** | | **-0.0168** |
| **DTEprofit** | -0.0069 (0.0197) | -0.5194* | -0.0019 (0.0137) | -0.0514 |
| **DTE$^2$profit** | | 0.0885 | | 0.0041* |
| **DTEregulated** | 0.0091* (0.0149) | -0.0764* | 0.0042 (0.0130) | -0.1057*** |
| **DTE$^2$regulated** | | 0.0069*** | | 0.0067*** |
| **DTEbank** | -0.0036 (0.0096) | 0.9622*** | -0.0073 (0.0068) | 0.2976*** |
| **DTE$^2$bank** | | -0.1120* | | -0.0096*** |
| **DTEcreditunion** | -0.0021 (0.0154) | 0.1652*** | -0.0005 (0.0129) | 0.0899*** |
| **DTE$^2$creditunion** | | -0.0082*** | | -0.0062*** |
| **DTEnbfi** | -0.0013*** (0.0004) | 0.5254* | -0.0013** (0.0006) | 0.1332** |
| **DTE$^2$nbfi** | | -0.0949* | | -0.0023 |
| **DTEngo** | -.00001* (0.0001) | -0.0251* | -0.0001*(0.0001) | -0.0078 |
| **DTE$^2$ngo** | | 0.0001** | | 0.0001* |
| **Inflation** | -0.0022* (0.0051) | -0.0002 | -0.0005* (0.0039) | -0.0074* |
| **Inflation$^2$** | | 0.0002 | | 0.0001 |
| **lnGNI** | 0.2276*** (0.0553) | -0.5995 | 0.0637 (0.0619) | -1.3510 |
| **lnGNI$^2$** | | 0.0936 | | 0.1055 |
| **Beforecrisis** | -0.0011 (0.0607) | -0.3023** | -0.0613* (0.0494) | -0.2579*** |
| **Observations** | 306 | 425 | 306 | 425 |
| **AR (1)[a]** | -2.05** | | -2.20** | |
| **AR (2)[b]** | -0.96 | | -0.92 | |
| **Wald Test** | 3,354.13 | | 3,883.26 | |
| **Sargan Test[c]** | 303.65 | | 301.64 | |
| | P-value = 0.253 | | P-value = 0.239 | |

Note: ***, **, and * are statistically significant at the levels of 1%, 5% and 10%, respectively.

The value of the standard error is in parentheses.

[a] Arellano-Bond test for AR (1) in first differences.

[b] Arellano-Bond test for AR(2) in first differences.

[c] Sargan test for overidentifying restrictions in GMM dynamic estimation.

### 4.3.3. Estimation Results

Table 4.10 shows the results from our basic specifications using the cost per borrower indicator (CPB, log) as efficiency to investigate the impact of financial structure in terms of financial leverage on efficiency. In the regressions MS4.11 and MS4.13, the lags of dependent variables are statistically significant, which justifies the use of the system GMM estimator for the dynamic panel data models.

The results show that gross loan portfolio (log) was positively related to efficiency (0.0004), but was insignificant (see MS4.10, table 4.10). This insignificant result may point to the fact that MFIs may face economies or diseconomies of scale in business expansion, perhaps because they have expanded too quickly in this case, which leads to an increase in the unit cost of nonfinancial operating expenses, such as personnel and administrative expenses. This is consistent with the findings of Arthur and Sheffrin (2003), Riley (2006) and Rosenberg (2009). In addition, according to Williamson (1967), there is a limit to scale of operation. The results in MS4.11 provide evidence that there exists an inflection point that makes the relationship between outreach and efficiency reverse if it goes beyond it.

The results follow the predictions from the literature for the relationship between lending to women and microfinance performance in terms of efficiency. This may alert MFIs to the fact that focusing on lending to women in microfinance may make them less efficient. In fact, MFIs tend to charge higher interest rates to women borrowers on small loan sizes (i.e. the cost per borrower tends to increase when providing small loans to women). In addition, for microfinance to be appropriate, women, like other clients of MFIs, must have the capacity to repay their loans under the terms under which they have been provided. Otherwise, they may not be able to benefit from microfinance and

risk being pushed into debt problems. Another new and interesting finding in this section is that the coefficients for the first term and the squared term of the lending to women indicator are negative. It is logically possible, of course, for both coefficients to be positive, or to be negative. In these cases there is still an inflection, but the curve does not reverse direction; rather, it accelerates or decelerates. Such relationships are rarely hypothesised or discovered in social science data.

Another interesting finding in microfinance is that the depth of outreach (loan size, lnALB) was positively related to efficiency and significant at the level of 1%, but the breadth of outreach (number of borrower, lnNAB) was negatively related to efficiency and was significant at the level of 5% (see table 4.10). Consistent with Attanasio et al. (2011), MFIs may achieve a better efficiency ratio by offering to larger groups of borrowers. However, they have started to move from group to individual lending due to the potential downside of joint-liability lending.[159] The results suggest that cost per borrower tends to increase with loan size. Over time, loan size tends to creep up, partly because as borrowers become successful and wealthier they want larger loans. As loan size grows, MFIs perhaps need to be especially careful about selecting and monitoring borrowers and also require higher labour inputs. Consistent with Cull et al. (2007), Hermes et al. (2011) and the diseconomies of scale theory, the average cost per dollar lent is lower for larger loans, while the average cost per borrower is higher due to an increase in refinancing costs and non-financial operating expenses. Therefore, a negative relationship is found between average loan balance (depth of outreach) and efficiency, as mentioned in Hermes et al. (2011) and several other studies.

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[159] Group lending often involves time-consuming weekly repayment meetings and exerts strong social pressure, making it potentially onerous for borrowers (Attanasio et al., 2011).

One of the more significant findings to emerge from this study is that offering loans to a larger number of borrowers (expanding the breadth of outreach) tends to help MFIs reduce the cost per borrower. Consistent with Hamilton et al. (2008), Rosenberg (2009), the economies of scale theory and the results from the previous chapter, MFIs gain higher efficiency by expanding the breadth of outreach. A new and interesting finding is that the conclusion of this study seems to be inconsistent with the conclusions of Hermes et al. (2011), but the reality is that the conclusions of the two studies are totally consistent. In fact, Hermes et al. (2011) evaluated a trade-off between the outreach and efficiency of MFIs between 2000 and 2010 by using average loan balance as a proxy for outreach, and cost per borrower as a proxy for efficiency and concluded that there was a significant negative correlation, as had been found in many previous studies. A negative correlation found in Hermes et al. (2011) was between efficiency and depth of outreach. Therefore, this has contributed additional evidence to the existing literature which states that there is a significant positive correlation between efficiency and the breadth of outreach.

The insignificant result from financial leverage in the case of profitable MFIs may point to the fact that they are cost efficient (i.e. MFIs may take on more debt, mobilise savings and other transaction costs to reduce costs per borrower). Consistent with Rosenberg (2009), operating costs in profitable MFIs account for roughly half of interest yields, and therefore represent the biggest cost block. This also suggests that MFIs have spent an increasing proportion of operating expenses on non-credit activities (such as savings, insurance and money transfers), therefore efficiency improvements may be systematic and improvement in credit would be greater than non-credit activities.

However, the effect of financial leverage on efficiency was positive for regulated MFIs. This result indicates that these MFIs are less efficient (i.e. employing more debt may increase costs per borrower). Consistent with Masood and Ahmad (2010), regulated MFIs also incurred more expenses and disadvantages than unregulated ones. This addresses the importance of creating a good environment for MFIs to develop and strengthen themselves in promoting viable and sustainable systems of microfinance (Omino, 2005).

Based on the legal status, all financial leverage was negatively related to efficiency in the case of banks, credit unions, NBFIs and NGOs. This result suggests that taking on more debt (including savings) tends to make these MFIs cost efficient. Consistent with the findings from profitable MFIs, this encourages MFIs to achieve self-sufficiency and promotes commercial microfinance. However, the relationship reverses if it goes beyond the threshold. In addition, debt financing always faces the risks of being inability to pay back loans (financial distress). This may therefore lead to the foreclosure and even liquidation of the MFI. Even though the cost of debt is lower than the cost of equity due to tax advantages, it raises forth financial risks that increase the cost of equity.

Consistent with the findings of the previous section, the relationship between financial leverage and microfinance performance in terms of efficiency in this section is in line with expectations. First, the effects can be positive or negative due to the contributions of commercial debts and savings towards financial revenue, based on the differences in MFI characteristics. Second, the effects can reverse from positive to negative and vice versa, since there may exist a threshold which is the value of the coefficient of the normal term and the squared term divided by -2.

The effects of inflation on cost per borrower are negative and significant at the level of 5%. This result suggests that high inflation tends to make MFIs consider reducing costs for borrowers. On the contrary, cost per borrower tends to increase with the increasing income of households, since the financial products and services of the MFIs may not be appropriate for their financial demands. Therefore, the poor tend to move to commercial banks after being lifted out poverty. In addition, the results also provide strong evidence that the negative coefficient on dummy "before crisis" shows that the global financial crisis may increase the cost per borrower and MFIs need to minimise or reduce their costs in those circumstances.

## 4.4. Conclusion

Due to the limitations of the literature on the effect of financial structure on performance, this study makes a contribution in several ways. First, the most common performance indicators for microfinance were employed to investigate the impact of financial leverage on performance with the heterogeneity of MFI characteristics. Second, this study introduced new evidence and possible explanations from an explicit perspective that might be relevant in the context of scale of operation, profit status, regulated status and legal status. Third, this study employed system GMM and used the squared terms of all variables in order to identify their threshold relationships and to search for deeper explanations. This study therefore provides several new and interesting findings that contribute additional empirical evidence to the literature on the impact of financial structure on performance.

The global financial crisis and high inflation rate create obstacles for MFIs and poor borrowers by increasing the cost of living, cost of capital and other expenses. Therefore, MFIs tend to consider reducing costs for borrowers and to help them solve

their financial problems and repay their loans. However, poor borrowers prefer to deal with local commercial banks after becoming wealthier and being lifted out poverty since they may require larger loans to meet their financial demands and enjoy the advantages of local commercial banks.

Profitable and regulated MFIs who take on considerably more commercial funds (including debts and savings) are therefore expected to have more revenue than costs and to have higher sustainability, efficiency and outreach. This finding would encourage the transformation process of MFIs from simply achieving their social mission to becoming profitable and regulated businesses in order to provide other financial services to their clients (especially savings), as well as to become self-sufficient and remain viable. Profitable MFIs are cost efficient since they tend to pay more attention to the purposes of loans and to provide sufficient loans sizes to the appropriate borrowers on a commercial basis. On the contrary, regulated MFIs have been found to be less efficient and to face many disadvantages from being regulated, such as cost increases from licensing fees, savings mobilisation, capital requirements, control of interest rates and networks. The cost of compliance, as well as the cost of savings mobilisation and regulation, is very high. This causes an increase in expenses and results in a lower revenue than costs. Therefore, MFIs need to achieve a significant scale and degree of sustainability before becoming regulated and profitable.

The differences in legal status tend to contribute to the impact of financial structure on performance in various ways. However, the results follow the theoretical predictions for profitable and regulated MFIs. Therefore, the possible explanations for the impact of financial structure on microfinance performance are relevant to the context of profit and the regulated status of MFIs.

There is a positive relationship between scale of operation and outreach. This suggests that MFIs need to upscale their operations in order to expand their outreach to the poor. Therefore, there is a possible trade-off between the depth and breadth of outreach due to funding constraints. There is an interesting issue here, which is that successful MFIs tend to shift their mission and practices with the changes in their clients, who will become less poor and need larger loans over time. This means that MFIs are able to reach larger numbers of the poor and have the ability to offer bigger loans to meet the increasing demands of the poor after expansion their scale of operation. The result is a trade-off between the wealthier and poorer clients among existing clients.

Consistent with the economies of scale theory, MFIs gain higher efficiency from expanding their breadth of outreach. The findings of this study seem to be inconsistent with the conclusions of Hermes et al. (2011), who evaluated the trade-off between the outreach and efficiency of MFIs between 2000 and 2010 by using average loan balance as a proxy for outreach and by using cost per borrower as a proxy for efficiency, concluding that there was a negative relationship, as had been found in the previous studies. However, the reality is that the conclusions of the two studies are totally consistent. The negative relationship found in Hermes et al. (2011) was between efficiency and depth of outreach, while the positive correlation between efficiency and breadth of outreach found in this study is because there exists a trade-off between depth and breadth of outreach.

Inconsistent with the conclusions of other studies, that smaller loans have higher costs, this study contributes additional evidence for the positive correlation between loan size and loan cost. That is, larger loan sizes are associated with higher loan costs. Data reported from MFIs to MIX Market show that loan size and loan costs for large

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MFIs are higher than for small MFIs by a factor of 1.2 to 5.0. Loan size tends to creep up, partly because as borrowers become successful and wealthier and they want larger loans. As loan size grows, MFIs perhaps need to be especially careful about selecting and monitoring borrowers and they also require higher labour inputs, as well as refinancing costs. Therefore, an increase in loan size also increases loan costs. In addition, the average cost per dollar lent is lower for larger loans, while the average cost per borrower is higher.

This chapter suggests that there is a threshold relationship between variables. This tends to lead MFIs to having a threshold shift to higher frequencies in order to achieve higher self-sufficiency, efficiency and outreach. This chapter has also shed new light on the important role of scale of operation and the effect of the global financial crisis on microfinance performance.

# CHAPTER 5

# SCALE OF OPERATION
# IN MICROFINANCE

The number of MFIs increased rapidly during the period 1995 to 2011 (MIX Market, 2011). Several MFIs improved their efficiency, became self-sufficient and played an increasingly important role as financial intermediaries in local financial economies for poverty reduction (Djeudja and Heidhues, 2005; Hossian and Knight, 2008; UN, 2011). Therefore, understanding the differences between large and small MFIs is necessary in order to choose the optimal size which is most suitable for their operations and for being regulated, profitable, self-sufficient and viable. Consistent with Zacharias (2008), the results reported in the previous chapter strongly suggest that scale of operation may relate to financial structure and have a positive impact on performance. The main goal of this chapter is to carry out further investigation into the relationship between scale of operations and efficiency (RQ4), as well as the effect of the global financial crisis on microfinance performance, based upon differences in size (RQ5). The findings of this study are expected to contribute to the existing knowledge by providing possible explanations for both funders and MFI managers who seek recommendations and solutions for choosing the most suitable size for their operations. The chapter is divided into two sections. The first presents the relationships between scale of operation and efficiency and the second section the effect of the global financial crisis of 2007/2008 on microfinance performance.

## 5.1. The Impact of Scale of Operation on Microfinance Performance

### 5.1.1. Motivations`

Like other industries, scale of operation matters for a number of reasons, since MFIs have reacted differently to macroeconomic changes and tend to have different funding opportunities depending on scale.[160] In the presence of the non-trivial fixed costs of raising external funds, large MFIs tend to have cheaper access to outside financing and are more likely to diversify their financing sources. However, each MFI must choose the most suitable scale for its operation depending on its pros and cons. The optimal scale is the theoretically most competitive size for achieving the greatest efficiency and profitability from economies of scale. This suggests that MFIs ideally aim for the lowest possible expenses and the highest possible profit per unit, as well as the smallest possible negative effects from market changes. In addition, optimal scale also refers to the speed, extent of growth and the target sizes for the expansion of small MFIs (Beck et al., 2008).

Scale of operation (also called firm size) is defined by many different factors, such as number of employees, number of customers, capital investment, volume of output, total assets, total revenue and value of input used.[161] However, total assets and volume of output are the most common indicators used to classify scale of operation in banking and finance.[162] In microfinance, MFIs are divided into three categories based

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[160] See Roberts (1977), Gibson (2008), Zacharias (2008) and Little (2011).

[161] See Kimberly (1976); Kumar et al., (1999); Kurshev and Strebulaev (2007) and Articles Base (2010).

[162] See Grossman and Hart (1982 and 1986), Hart (1995) and Articles Base (2010).

on total assets or gross loan portfolio (see Table 5.1). This classification established the general picture of MFIs grouped by size.

**Table 5.1 Size of MFIs**

| Unit: US$ | Small | Medium | Large |
|---|---|---|---|
| **Total assets** | 1 to 20 million | > 20 to 100 million | > 100 million |
| **Gross loan portfolio** | ≤ 2,000,000 | 2,000,000 to 8,000,000 | > 8,000,000 |

Source: MIX Market (2008, 2011)

**Table 5.2 Number of MFIs in the period 1995 to 2011 (adjusted)**

| Year | Small | Medium | Large | Total | Growth Rate |
|---|---|---|---|---|---|
| **1995** | 3 | - | - | 3 | - |
| **1996** | 18 | 8 | 2 | 28 | 833.33% |
| **1997** | 44 | 14 | 10 | 68 | 142.86% |
| **1998** | 69 | 23 | 15 | 107 | 57.35% |
| **1999** | 90 | 37 | 19 | 146 | 36.45% |
| **2000** | 126 | 59 | 23 | 208 | 42.47% |
| **2001** | 199 | 73 | 40 | 312 | 50% |
| **2002** | 320 | 104 | 73 | 497 | 59.29% |
| **2003** | 496 | 147 | 119 | 762 | 53.32% |
| **2004** | 574 | 203 | 164 | 941 | 23.49% |
| **2005** | 677 | 232 | 219 | 1,128 | 19.87% |
| **2006** | 665 | 283 | 264 | 1,212 | 7.45% |
| **2007** | 659 | 348 | 354 | 1,361 | 12.29% |
| **2008** | 624 | 362 | 393 | 1,379 | 1.32% |
| **2009** | 462 | 342 | 408 | 1,212 | -12.11% |
| **2010** | 592 | 385 | 473 | 1,4,50 | 19.64% |
| **2011** | 503 | 341 | 480 | 1,324 | -8.69% |

Source: MIX Market (2011).

Table 5.2 shows that the number of MFIs with different scales increased from three to 1,324 during the period 1995 to 2011. The growth rate of all MFIs increased rapidly in the period 1995 to 2003 (around 50%) and decreased in the period 2006 to 2009. The number of large MFIs increased continuously, from two in 1996 to 480 in 2011, while the number of small MFIs increased from three to 677 in the period 1995 to 2005, but started to decrease from 2006. The number of medium MFIs also increased, from eight to 362 in the period 1996 to 2008, but decreased in 2009 (see Figure 5.1). This suggests that changes in the quantity and scale of operation over the last five years are due to the impact of scale on performance, as well as the global financial crisis of 2007/2008. This creates alerts to notify of the emerging trends in microfinance industry (including merger and acquisition) that would play a vital role in shaping future. Several small MFIs would still exist to meet high demand for the financial needs of the poor but are shadowed by the consolidation anticipated in the segment. Downscaling and upscaling have become an impetus fuelling the spurt in MFI growth in order to achieve its mission and avoid the negative macroeconomic impact.

**Figure 5.1 Number of MFIs in the period 1995 to 2009**
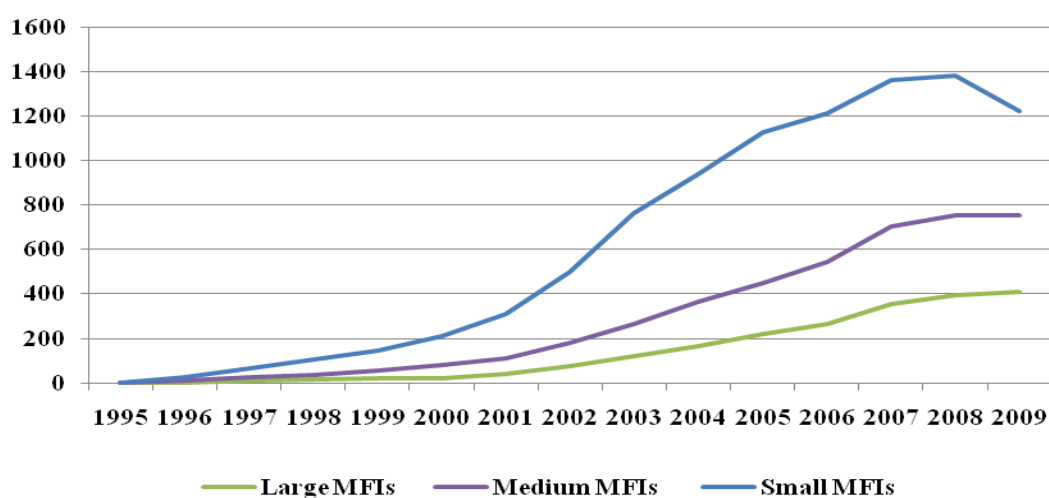


Source: MIX Market (2011)

Figure 5.2 shows that large MFIs reached more borrowers (from 10 to 20 times as many) and had higher efficiency and profitability than small and medium MFIs in the period 1996 to 2009. Consistent with Morduch (2000), the small MFIs did not achieve sustainability and had a negative return on total assets (ROA) until 2001. Large MFIs had larger loan sizes than small ones, from 2.5 to 5 times higher, while cost per borrower was 1.2 to 2 times higher (see Figure 5.3). According to the results from the survey in 2002 by the MicroBanking Bulletin, large MFIs, particularly in Latin America, accessed more funds and achieved higher financial leverage than small ones. Commercial debts make up a greater proportion of the funding of large MFIs.[163] This suggests that large MFIs may have a deeper financial integration than smaller ones (WWB, 2003). Therefore, consolidation of MFIs would be a step in the right direction to increase their capital base and lead to healthy competition between MFIs and definitely better regulation and management of the microfinance sector.

**Figure 5.2 Outreach of MFIs in the period 1996 – 2009**
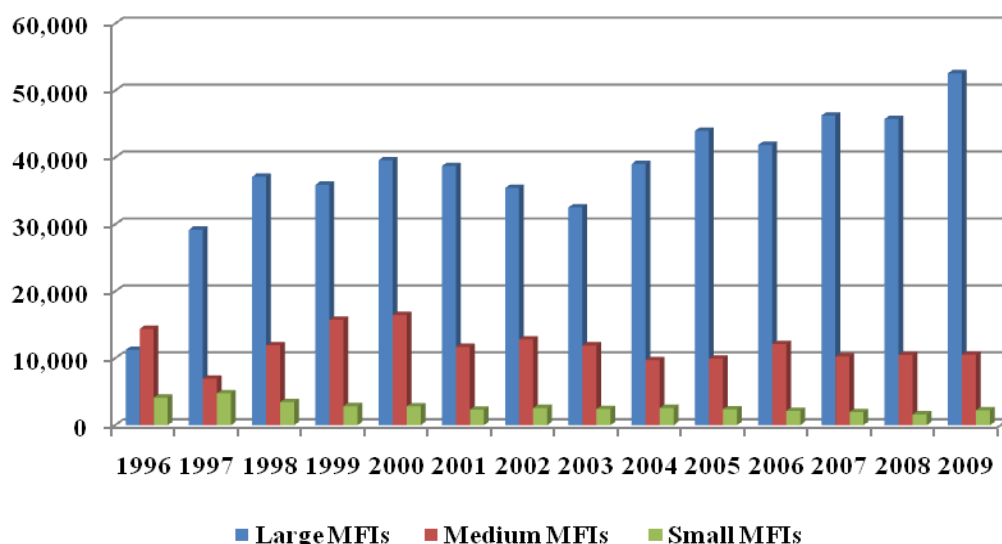


Source: MIX Market (2011)

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[163] Commercial funds are at 75% or above of the market rate (WWB, 2003).

# Figure 5.3 Performance of MFIs in the period 1995 to 2009[164]

### Panel A: Operational Self-Sufficiency



### Panel B: ROA



### Panel C: Cost Per Borrower



### Panel D: Loan Size
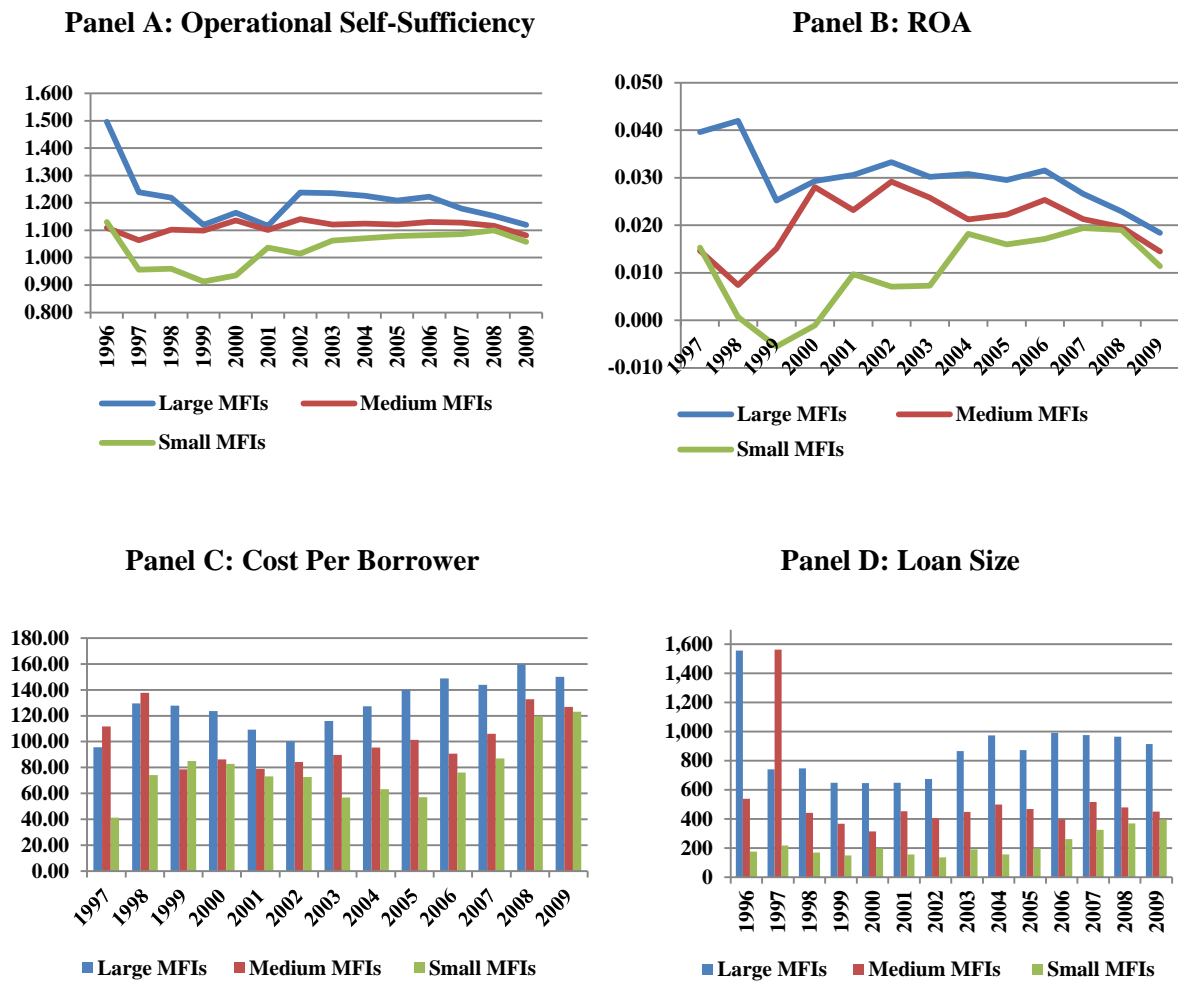


Source: MIX Market (2011)

## 5.1.2. Models

This section aims to evaluate the impact of scale of operation on performance in order to contribute to the existing literature by providing possible explanations for the relationship between scale of operation, sustainability and efficiency. It is, therefore, hypothesised that positive relationships exist between scale of operation, sustainability and efficiency. This hypothesis can be broken into basic three sub- hypotheses (SH):

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[164] See Appendix 5.1

(**SH5.1**) Scale of operation can help MFIs to become efficient (H0).

(**SH5.2**) Scale of operation can help MFIs to become sustainable (H0).

(**SH5.3**) There exists an optimal scale of operation that helps MFIs achieve sustainability and efficiency (H0).

To achieve the above objectives, we also perform the regression model RM5.1 and RM5.2 derived from the previous chapter to answer the research question RQ4.

$$lnOSS_{itc} = \alpha + \beta_1 lnOSS_{itc-1} + \beta_2 SOP_{itc} + \sum_{i=1}^{3} \beta_4^i FSV_{itc} + \sum_{i=1}^{3} \beta_5^3 MEV_{itc} + \varepsilon_{itc} \quad \text{(RM 5.1)}$$

$$lnCPB_{itc} = \alpha + \beta_1 lnCPB_{itc-1} + \beta_2 SOP_{itc} + \sum_{i=1}^{3} \beta_4^i FSV_{itc} + \sum_{i=1}^{3} \beta_5^3 MEV_{itc} + \varepsilon_{itc} \quad \text{(RM 5.2)}$$

where $SOP_{itc}$ denotes the scale of operation dummy variable of $MFI_i$ at time t located in country c. Scale of operation is typically categorised into three groups: large, medium and small. $FSV_{itc}$ represents other firm-specific variables, including financial leverage (DTE) and dummy variables referring to the profit and regulated status ($D_P$ and $D_R$); $MEV_{itc}$ represents macroeconomics factors, including inflation, GNI per capita and a dummy variable referring to the global financial crisis of 2007/2008 (before and after crisis); $\alpha$ is constant; $\beta$ is a variable coefficient and $\varepsilon_{itc} = \vartheta_i + \gamma_t + \mu_{itc}$ is an error term that includes $\vartheta_i$ (the unobserved complete set of the MFI-specific effect), $\gamma_t$ (the unobserved time effect) and $\mu_{itc}$ (the idiosyncratic error).

There are also possible interactions between scale of operation and other firm-specific variables that could come into play. Therefore, we create an interaction by multiplying scale of operation by financial leverage and the dummy variables in terms of the profit and regulated status of MFIs. In addition, we also use the squared term of the variables to investigate whether there is an optimal scale of operation that helps MFIs achieve sustainability and become efficient. In order to investigate whether

Vietnam (young industry) differs significantly from Bangladesh, as well as the rest of the world, we create and add dummies in the regression models RM5.1 and RM5.2.

### 5.1.3. Estimation Results

Table 5.3 shows that the results from our basic specifications using sustainability and efficiency measures for the performance of MFIs. Our preferred system GMM estimates in the regression models RM5.1 and RM5.2 suggest that scale of operation plays an important role in the financial performance of MFIs. The results overwhelmingly support our main hypothesis in this section. In particular, the financial leverage of large and medium MFIs appears to boost sustainability and efficiency. Consistent with Zacharias (2008), Gibson (2008) and Little (2011), as well as the findings of the previous chapter, large MFIs tend to have more funding opportunities and cheaper access to outside financing than small ones. Therefore, they may take on more debts in their financial structure and also create greater revenues than expenses. The effect of financial leverage on sustainability changes from negative for the first term to positive for the squared term (see MS5.2), while the effect of financial leverage on efficiency changes from positive to negative in the quadratic model (see MS.5.4). Taken together, these results suggest that there exists an optimal scale of operation that helps MFIs achieve sustainability and become efficient.

The second major finding in this chapter was that expanding scale of operation and taking on more debts had a positive effect on sustainability (i.e. they help MFIs to achieve sustainability) but a negative one on efficiency (i.e. they help MFIs to enjoy advantages from economies of scale and become more efficient). This may point to the fact that scale of operation matters greatly to the financial performance of MFIs. Therefore, in order to achieve higher levels of performance, small MFIs must operate at

the most suitable size, which is consistent with the findings of Coase (1937), Stigler (1974) and Canback et al. (2006). However, economies of scale cannot be applied by all MFIs (Riordan and Williamson, 1985). In addition, the results also show that MFIs should consider expanding their scale of operation, together with being profitable and cost efficient, as well as sustainable. When donor subsidies are phased out and the accompanying donor controls are removed, MFIs may need to be profitable, just like any business activities competing for their owner's limited resources. This study supports the prior research findings that profitable MFIs are cost efficient (Charitonenko and Campion, 2003; Rosenberg, 2009; Masood and Ahmad, 2010). Clearly, sustainability has been referred to full financial sustainability which is considered as the ability to cover the opportunity costs of capital. Consistent with Cull et al. (2007), this finding sheds light on the trade-off between depth of outreach and sustainability. The results suggest that there is no evidence supporting this trade-off, since profitable MFIs are cost effective and have the ability to increase their average loan size.

The results of this investigation show that regulated status was positively related to sustainability. This suggests that regulated MFIs may have higher operational self-sufficiency than unregulated ones. Consistent with Christen and Rosenberg (2000), Omino (2005), Davis (2009), Arun and Murinde (2010) and WSBI (2011), regulated MFIs tend to attract more investment funds from the private sector and international organisations in order to have lower costs of capital. These advantages enable regulated MFIs to enjoy higher earnings and sustainability. However, the cost of compliance and the cost increases from being regulated may be high and lead to higher costs per borrower. Therefore, converting into regulated MFIs tends to make them less efficient in some cases (Masood and Ahmad, 2010). This is the reason why for-profit and

regulated MFIs prefer to provide loans to clients who are are better off, rather than the poorest ones, in order to cut costs.

**Table 5.3 Impact of scale of operation on sustainability and efficiency**

| Variables | lnOSS | | lnCPB | |
|---|---|---|---|---|
| | **MS5.1** | **MS5.2** | **MS5.3** | **MS5.4** |
| **Lag 1 (lnOSS or lnCPB)** | 0.6149*** (0.0532) | | 0.8582*** (0.0528) | |
| **$D_{Large}$** | 0.1448** (0.0639) | 0.2342** | -0.0652* (0.0734) | -0.0065 |
| **$D_{Medium}$** | 0.0333 (0.0531) | 0.0058 | -0.0218 (0.0811) | 0.1909 |
| **$D_{Profit}$** | 0.1359* (0.0756) | 0.0685 | -0.0241* (0.1707) | -0.0571 |
| **$D_{Regulated}$** | 0.0055 (0.0777) | 0.0549 | 0.0033 (0.1286) | 0.0721 |
| **DTE** | -0.0227* (0.0173) | -0.0009 | 0.0014** (0.0006) | 0.0469 |
| **$DTE^2$** | | 0.0224*** | | -0.0045 |
| **Inflation** | -0.0006 (0.0009) | -0.0009 | -0.0012 (0.0014) | -0.0176** |
| **$Inflation^2$** | | 3.08e-06 | | 0.0001** |
| **lnGNI** | -0.0147 (0.0423) | -1.5624* | 0.1778*** (0.0558) | 5.7363*** |
| **$lnGNI^2$** | | 0.1347** | | -0.4267*** |
| **Beforecrisis** | 0.1179*** (0.0434) | 0.1386** | -0.0071 (0.0451) | -0.0999 |
| **$DTE*D_{Large}$** | 0.0004* (0.0001) | 0.0128 | -0.0013** (0.0006) | -0.0554* |
| **$(DTE*D_{Large})^2$** | | -0.0001 | | 0.0016* |
| **$DTE*D_{Medium}$** | 0.0001* (0.0007) | 0.0025 | -0.0004 (0.0006) | -0.0067 |
| **$(DTE*D_{Medium})^2$** | | -0.0001 | | 0.0001 |
| **$D_{Profit}*D_{Large}$** | 0.1338* (0.1063) | -0.0122 | -0.0985 (0.1894) | -0.2575 |
| **$D_{Profit}*D_{Medium}$** | 0.2172* (0.1184) | -0.1402 | -0.1009 (0.2338) | -0.0243 |
| **$D_{Regulated}*D_{Large}$** | 0.0317 (0.1012) | 0.28738 | -0.2395* (0.1510) | 0.1293 |
| **$D_{Regulated}*D_{Medium}$** | 0.1931** (0.0813) | 0.3133** | -0.0203 (0.1823) | 0.2308 |
| **$D_{Bangladesh}$** | 0.1167** (0.0563) | 0.3992*** | -0.1873* (0.1227) | -2.0484*** |
| **$D_{Vietnam}$** | -0.0559* (0.0613) | -0.0761 | -0.2257* (0.1232) | -1.2030*** |
| **Observations** | 449 | 601 | 331 | 465 |
| **AR (1)[a]** | -2.44** | | -2.10** | |
| **AR (2)[b]** | 0.78 | | -0.92 | |
| **Wald Test** | 707.23*** | | 634.68*** | |
| **Sargan Test[c]** | 259.74 P-value = 0.630 | | 137.38 P-value = 0.902 | |

Note: ***, **, and * are statistically significant at the levels of 1%, 5% and 10%, respectively.

The value of the standard error is in parentheses.

[a] Arellano-Bond test for AR (1) in first differences.

[b] Arellano-Bond test for AR (2) in first differences.

[c] Sargan test for overidentifying restrictions in system GMM for the dynamic estimation model.

The results of this research support the idea that increases in the cost of capital and cost of living due to high inflation encourage MFIs to reduce the cost per borrower in order to be more efficient and sustainable. On the other hand, an increase in GNI per capita causes a rise in cost per borrower and a decrease in sustainability since the poor tend leave MFIs and move to commercial banks after achieving a higher income and being lifted out of poverty. This result points to the fact that over time the borrowers of MFIs become less poor. They therefore require larger loans to meet their higher financial requirements and prefer to deal with local commercial banks due to their advantages, as indicated in the findings of the previous chapter. In addition, the result also indicates that MFIs may have had higher self-sufficiency during the period before the global financial crisis of 2007/2008. In general, therefore, the findings of this section suggest that we need to carry out further investigations into the impact of the global financial crisis on performance of MFIs during and after the crisis in order to examine their reactions to macroeconomic changes (see the following section).

Taken together, these results suggest that access to commercial funding could enable MFIs to expand their outreach. Therefore, MFIs are recommended to move away from being heavily subsidised by local governments and donors and to rely more on deposits as a source of loanable funds, as well as on commercial debts. This is consistent with several previous studies. The results also suggest that MFIs may be able to provide larger loans only when they have tapped commercial sources of funding (debts) and deposits, since these other sources barely cover 5% to 10% of existing needs. Even though debts are generally priced at the market rate, which new and small MFIs may find expensive, debt and deposits have become popular sources of funds. The inability of MFIs to obtain sufficient funds is a major hindrance in the growth of microfinance. In the absence of adequate funds, the growth and outreach of MFIs

become restricted; to overcome this problem MFIs should look for other sources to fund their loan portfolio. Some of these alternative fund sources are through convertion to for-profit MFIs, portfolio buyouts and securitisation of loans, which only a few large MFIs are currently doing.

One of the more significant findings to emerge from this study is that the sustainability of MFIs is increasing in Bangladesh (the country dummy variable is positively and significantly related to sustainability). This may point to the fact that most MFIs in Bangladesh are sustainable ones. In fact, Bangladesh is known as the birthplace of microfinance and competition there has markedly increased during the last decade. The microfinance industry has put mechanisms in place to develop commercialisation and innovation in order to reduce subsidised funds. In addition, Grameen Bank and the BRAC are considered as leading MFIs, not only in Bangladesh but also across the world. However, the main reason that increases the sustainability of MFIs in Bangladesh is that there is an increase in competition between commercial MFIs to reach as many poor people as possible in the long run. It became clear that this outreach is only possible on a sustainable and efficient basis. Sustainability in general means the ability of a program to continuously carry out activities in pursuit of its statutory objectives, as mentioned in the previous chapter. According to this approach, MFIs need to have the ability to continue operating as financial development institutions for the poor.

Compared with Bangladesh, in Vietnam, a large number of microfinance programs still depend on government non-profit programs and donor subsidies. One of the major goals for MFIs is to achieve sustainability in order to maintain viable and further grow in their operations. Therefore this finding gives the alert to MFIs which do not achieve sustainability. However, operating sustainably tends to depend on many factors inside and outside the MFI. Institutional transparency, good governance, cost

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allocation, savings and at least reaching break-even are major firm-specific factors of success. At the same time, MFIs have to operate under favourable macroeconomics factors such as easy, low-cost access to a large number of economically active poor clients, a favourable legal environment without regulative interest rate ceilings and demand for relatively large average loan sizes.

## 5.2. The Impact of the Global Financial Crisis of 2007/2008 on Performance

### 5.2.1. Research Objectives

The global financial crisis (credit crunch) of 2007/2008, which started in the US in the summer of 2007 with a credit boom and housing bubble and ended in 2009, is considered as the worst financial crisis in history (Reuters, 2009). It has been compared to others such as the US Great Depression of 1929/1930, the Russian crisis of 1992/1993 and the Asian crisis of 1997/1998. A result was the collapse of large financial institutions; several banks went bankrupt and governments needed to take intervene and take over their operations. The financial crisis has caused the decline and failure of many key businesses and a slow down in several economies due to tightened credit (Bailey and Elliott, 2009; Te Velde, 2009). The economic recession was particularly caused by a decline in GDP growth, falling housing prices and a drop-off in business investment. It typically indicates that the global financial crisis of 2007/2008 had a negative impact on consumers and stock markets worldwide. It is spreading quickly in emerging markets but little is known about its impact on the microfinance sector. However, microfinance is considered as a part of the financial market. Therefore, it has also tended to have a negative impact on microfinance. This explains why MFIs have slowed the growth of gross loan portfolios after a decade of exceptional growth (Te Velde, 2008; UN, 2009; CGAP, 2011b).

There is a rapidly growing body of literature studying the impact of the global financial crisis of 2007/2008 on microfinance performance and funding. However, most studies focus on the degree of financial integration to explain the drop-off in funding and the slow down in gross loan portfolio of MFIs, as well as the issue of systemic risk, lending technologies and lending interest rates to the poor. In light of the findings of the previous section, MFIs tend to expand their scale of operation in order to become efficient and achieve sustainability, as well as to avoid and minimise the negative effects of macroeconomic changes. Therefore, to shed further light on the effect of the global financial crisis on microfinance performance, this study will carry out further investigation into the factors affecting the gross loan portfolio and sustainability of MFIs. It aims to provide new empirical evidence with possible explanations from the scale of operation. Returning to the main research question (RQ5) posed at the beginning of this study, it is now possible to break it into the three following sub-research questions:

(RQ5.1) How does gross loan portfolio vary in the period before and after the global financial crisis of 2007/2008?

(RQ5.2) How does sustainability vary in the period before and after the global financial crisis of 2007/2008?

(RQ5.3) How can MFIs minimise the negative effect of the global financial crisis by expanding scale of operation?

It is hypothesised that the global financial crisis has had a negative impact on performance. This section sets out to determine whether performance varied in the period before, during and after the global financial crisis of 2007/2008 and whether expanding scale of operation can help MFIs minimise the impact of the crisis (SH5.6).

### 5.2.2. Models

In this investigation, we perform regression models RM5.3 and RM5.4 by using operational self-sufficiency (OSS, log) and gross loan portfolio (GLP, log) as dependent variables to assess sustainability and the gross loan portfolio of MFIs, while financial leverage (DTE), number of active borrowers (NAB, log) and cost per borrower (CPB, log), are firm-specific variables.

$$lnOSS_{itc} = \alpha + \beta_1 lnOSS_{itc-1} + \sum_{i=1}^{4} \beta_2^i FSV_{itc} + \sum_{i=1}^{2} \beta_5^3 MEV_{itc} + \varepsilon_{itc} \text{ (RM 5.3)}$$

$$lnGLP_{itc} = \alpha + \beta_1 lnGLP_{itc-1} + \sum_{i=1}^{4} \beta_2^i FSV_{itc} + \sum_{i=1}^{2} \beta_5^3 MEV_{itc} + \varepsilon_{itc} \text{ (RM 5.4)}$$

In an attempt to test the hypotheses, we create interaction dummy variables between year and scale of operation by multiplying the scale of operation dummy by year dummy to create interaction dummy variables. Consistent with Krauss and Walter (2009) and Bella (2011), year dummy is created to represent the years before, during and after the global financial crisis from 2006 to 2010.

### 5.2.3. Empirical Results

Tables 5.4 and 5.5 show the results from our basic specifications using sustainability measures for the performance of MFIs. Our preferred system GMM estimates in the regression models RM5.3 and RM5.4 suggest that microfinance performance varies in the period before and after the global financial crisis of 2007/2008. The results overwhelmingly support our main hypothesis in this section. In particular, the links between microfinance, domestic conditions and international capital markets have grown stronger. The sharp rates of MFI growth during the last two decades across the world have resulted in an increase in the scale of operation, have forced the microfinance industry to diversify its funding structure and have increased

their client base. As a result, MFIs have adopted better management practices and information systems. Therefore, the global financial crisis of 2007/2008 is likely to have a negative effect on most MFIs and has forced them to slow the growth of loan portfolios after enjoying a decade of exceptional growth. However, the impact of the economic crisis varies depending on scale of operation. As expected, larger MFIs are less affected and started recovering at the end of 2009. They were able to expand their loan portfolio in 2010. Small and medium MFIs appear to be struggling more with liquidity issues and funding problems. Overall, the operations of most MFIs have had less impact from macroeconomic factors, especially the crisis, since they may have a low degree of financial integration in the financial market and depend on subsidised funds and grants fully committed by local governments and international organisations. This is totally consistent with the findings of WWB (2003), Krauss and Walter (2006 and 2009), Littlefield and Kneiding (2009), Bella (2011) and CGAP (2011b).

This study has shown that in general the gross loan portfolio growth rate of MFIs dropped in 2008 (see table 5.4). However, it might not be the same in the case of large MFIs, whose gross loan portfolio changed only slightly during the financial crisis of 2008 to 2010, while smaller MFIs were more affected and started to suffer a negative impact earlier. This also suggests a significant drop in the loan portfolio of private MFIs, since public MFIs are heavily dependent on subsidies from local governments and international donors. A large number of MFIs that were established as non-profit NGOs have converted themselves into regulated MFIs, partially funded by private funds. The high rates of growth of the last two decades make the crisis and gross loan portfolio relevant from a macroeconomic perspective. Therefore, all these conversions have contributed to an increase in the systemic risk of the microfinance industry based on the links between MFIs and the general economic environment.

## Table 5.4 Impact of the global financial crisis on gross loan portfolio

| Variables | lnGLP | | |
|---|---|---|---|
| Lag 1 lnGLP | 0.5850*** (0.0603) | 0.6423*** (0.0658) | 0.6199*** (0.0881) |
| DTE | 0.0503** (0.0247) | 0.0351* (0.0248) | 0.0205 (0.0288) |
| lnNAB | 0.3986*** (0.0606) | 0.3661*** (0.0673) | 0.3677*** (0.0929) |
| lnCPB | 0.3596*** (0.0657) | 0.3150*** (0.0618) | 0.3159*** (0.0849) |
| lnOSS | 0.3719*** (0.1311) | 0.2294** (0.1053) | 0.2286* (0.1292) |
| Inflation | -0.0036*** (0.0007) | -0.0045*** (0.0016) | -0.0044** (0.0019) |
| lnGNI | 0.0745 (0.0633) | -0.0040 (0.0671) | 0.0278 (0.07190 |
| 2006 | | 0.1088** (0.0459) | |
| 2007 | | 0.0188 (0.0519) | |
| 2008 | | -0.0796* (0.0122) | |
| 2009 | | -0.1399** (0.0591) | |
| 2010 | | -0.1057* (0.0563) | |
| Large-2006 | | | 0.1617*** (0.0588) |
| Medium-2006 | | | 0.2137** (0.1077) |
| Large-2007 | | | 0.1428** (0.0664) |
| Medium-2007 | | | 0.0897 (0.1112) |
| Large-2008 | | | 0.1117* (0.0723) |
| Medium-2008 | | | -0.0638 (0.0941) |
| Large-2009 | | | 0.0309 (0.0458) |
| Medium-2009 | | | -0.1753* (0.0905) |
| Large-2010 | | | 0.0478 (0.0641) |
| Medium-2010 | | | -0.0614 (0.0718) |
| Observations | 452 | 328 | 328 |
| AR (1)[a] | -2.36** | -2.39** | -2.26** |
| AR (2)[b] | -0.07 | 0.25 | 0.35 |
| Wald Test | 326.02*** | 368.17*** | 383.69*** |
| Sargan Test[c] | 357.14 (p-value = 0.765) | 94.47 (p-value=0.326) | 103.34 (p-value=0.242) |

Note: ***, **, and * are statistically significant at the levels of 1%, 5% and 10%, respectively.

The value of the standard error is in parentheses.

[a] Arellano-Bond test for AR (1) in first differences.

[b] Arellano-Bond test for AR (2) in first differences.

[c] Sargan test for overidentifying restrictions in system GMM for the dynamic estimation model.

**Table 5.5 Impact of the global financial crisis on sustainability**

| Variables | lnOSS | | |
|---|---|---|---|
| Lag 1 lnOSS | 0.4984*** (0.0642) | 0.4071*** (0.0799) | 0.3988*** (0.0740) |
| DTE | -0.0565*** (0.0166) | -0.0536*** (0.0174) | -0.0578*** (0.0152) |
| lnNAB | -0.2153*** (0.0419) | -0.2141*** (0.0740) | -0.2278*** (0.0780) |
| lnCPB | -0.2169*** (0.0388) | -0.2077*** (0.0742) | -0.2219*** (0.0781) |
| lnGLP | 0.2342*** (0.0377) | 0.2376*** (0.0746) | 0.2519*** (0.0778) |
| Inflation | 0.0003 (0.0007) | 2.97e-06 (0.0013) | -0.0407 (0.0018) |
| lnGNI | -0.0665* (0.0445) | -0.0421 (0.0416) | -0.0407 (0.0486) |
| 2006 | | 0.0538 (0.0467) | |
| 2007 | | 0.0141 (0.0449) | |
| 2008 | | -0.0703 (0.0637) | |
| 2009 | | -0.1478**8 (0.0531) | |
| 2010 | | -0.0124 (0.0583) | |
| Large-2006 | | | 0.0096* (0.0469) |
| Medium-2006 | | | 0.0933* (0.0721) |
| Large-2007 | | | 0.0221* (0.0517) |
| Medium-2007 | | | 0.0721* (0.0739) |
| Large-2008 | | | -0.0897 (0.0788) |
| Medium-2008 | | | -0.1113* (0.0889) |
| Large-2009 | | | -0.0463 (0.0519) |
| Medium-2009 | | | -0.1972** (0.0801) |
| Large-2010 | | | 0.0157* (0.0531) |
| Medium-2010 | | | -0.1012* (0.0887) |
| Observations | 443 | 328 | 328 |
| AR (1)[a] | -2.48** | -2.56** | -2.68** |
| AR (2)[b] | 1.34 | 0.88 | 0.71 |
| Wald Test | 307.45*** | 310.74*** | 359.82*** |
| Sargan Test[c] | 323.45 (p-value = 0.446) | 314.63 (p-value=0.406) | 3.57 (p-value=0.615) |

Note: ***, **, and * are statistically significant at the levels of 1%, 5% and 10%, respectively.

The value of the standard error is in parentheses.

[a] Arellano-Bond test for AR (1) in first differences.

[b] Arellano-Bond test for AR (2) in first differences.

[c] Sargan test for overidentifying restrictions in system GMM for the dynamic estimation model.

One of the more significant findings to emerge from this study is that the relationship between sustainability and year went from positive to negative during the financial crisis of 2008-2010. The fact is that the global financial crisis presented an obstacle to microfinance performance by increasing the cost of capital and other MFI expenses, as well as by increasing the cost of living in many countrie, without increasing wages. The poor may have problems in the repayment of loans since income does not catch up with increasing prices. In this case, larger MFIs may be more affected since they always have a larger number of active borrowers than smaller ones. Therefore, a drop off in business investment across the world tends to affect the gross loan portfolio of MFIs which have a high degree of financial integration and operational self-sufficiency. However, the gross loan portfolio of larger MFIs only changed slightly during the financial crisis of 2008-2010, as discussed above. Taken together, these results suggest that large MFIs have wealthier clients who may have been less affected by the financial crisis. The poorest of the poor are commonly the ones who will be most affected, irrespective of the continent, country, urban or rural area where they live.

Table 5.5 also suggests that large MFIs may have recovered earlier than expected in 2010. Consistent with Sorkin (2009) and Krugman (2009 and 2010), large MFIs tend to have a degree of efficient protection from poor economic situations or negative effects produced by market changes. In addition, large MFIs play important roles in an economy and their failure may be disastrous. Therefore, local governments and central banks step in to help when they find themselves in a bad situation.

In general, the negative effect of the global financial crisis erupted in late 2007 in relation to the performance of MFIs. This result follows the theoretical predictions for performance and answers the research questions presented at the beginning of this

section; that is, microfinance performance varied during the period before and after the global financial crisis according to the heterogeneity of size.

The contributions of this study are two-fold. First, the results show that the negative impact may be weak since MFIs tend to have a low level of self-sufficiency associated with a low degree of financial integration. This finding points to the fact that MFIs still rely heavily on subsidised funds and grants that are fully committed by local governments and international organisations. Therefore, a drop off in business investment or a sudden reversal of international capital flows may have less impact on a short-term basis.

Second, MFIs which have a larger scale of operation are less affected and have earlier recovery. The global financial crisis was an obstacle to the performance of MFIs by increasing operating expenses and causing problems in the repayment of loans for borrowers. The poor have been especially affected since they have to spend more than they earn on daily food when prices go up. As explained in the previous chapter, MFIs make an effort to be cost effective in order to be sustainable and to help the poor to pay off borrowed money. This finding suggests that there is an optimal scale of operation that leads to the higher sustainability of MFIs and helps them to minimise the negative effects of the global financial crisis.

## 5.3. Conclusion

In the context of the microfinance industry, the findings from this study make several contributions to the current literature through its empirical investigation to analyse the impact of scale of operation on microfinance performance.

A key finding of this study is that larger MFIs achieve higher efficiency, profitability, sustainability and outreach (breadth and depth) than smaller ones. They have also higher financial leverage to create revenues greater than expenses and have been less affected by the global financial crisis of 2007/2008. Therefore, this study sheds new light on the important role of scale of operation and calls for mergers and acquisitions between small MFIs. It also calls for the restructuring and strengthening of the microfinance sector after the drop off in business investment and the sudden reversal of international capital flows due to the global financial crisis. This would enable MFIs to access long-term debts and to mobilise deposits in order to become efficient and viable.

Another interesting finding is that regulated MFIs may have higher sustainability and lower efficiency due to cost increases and the presence of cost of compliance. This finding contributes additional empirical evidence on the advantages and disadvantages of being regulated. The advantage of being regulated is that MFIs can attract more investment funds from the private sector (including savings mobilisation), which leads to an optimal mix of financing for low capital costs. On the other hand, there is a cost increase from licensing fees, savings mobilisation, capital requirements, control of interest rates and other costs related to networks and administration.

The links between microfinance, domestic conditions and international capital markets have grown stronger, which means that the global financial crisis has had a significant effect on the performance of most MFIs. It has been forced them to slow the growth of their loan portfolios after enjoying a decade of exceptional growth. However, the impact of the economic crisis varies according to scale of operation. Small and medium MFIs appear to be struggling more with liquidity issues and funding problems, while large MFIs are less affected and have recovered earlier. However, in general, the

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operations of most MFIs have been less affected by macroeconomic factors, especially the global financial crisis, since they may have a low degree of financial integration in the financial market and depend on subsidised funds and grants fully committed by local governments and international organisations. Therefore, a drop off in business investment or a sudden reversal of international capital flows may have less impact on a short-term basis.

# CHAPTER 6

# CASE STUDY OF VIETNAM

## 6.1. Introduction

In developing countries, microfinance programs are carried out by MFIs that have been sponsored by local governments, donors and international organisations because of poor participation by the private sector, especially local commercial banks.[165] The increasing number of MFIs contributing to the microfinance industry has led to a substantial increase in competition between them. Therefore, achieving higher efficiency and sustainability associated with operating at the most competitive size tends to offer MFIs more opportunities to have cheaper access to outside financing and to diversify their financing sources.

Due to the heterogeneity of characteristics, microfinance performance responds in different ways to changes in return to firm-specific and macroeconomic factors, as discussed in the previous chapter. This increases the need to carry out an empirical investigation of previous theoretical work that focuses on the particular case of Vietnam. This study determines the impact of financial structure on microfinance performance in Vietnam in an effort to compare the results of this country against a cross-section of others. It provides an overview of the correlation between financial structure and microfinance performance in Vietnam to help funders evaluate and determine financing and investment decisions.

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[165] See Hossain and Knight (2008), Hermes et al. (2008) and Bogan (2009).

There are a number of reasons for choosing Vietnam to carry out an investigation. First, to the best of the researcher's knowledge, there is no study available which investigates the correlation between financial structure and microfinance performance in the Vietnamese context by using the models proposed in the previous chapters. Second, Vietnam is one of the fastest growing developing economies which is classified as a poor country (USDA, 2010; AusAID, 2011; BBC News, 2011)[166]. Therefore, microfinance is playing an increasingly important role in poverty reduction in this country. Third, international investment is important to most economies and can be particularly vital for developing countries, including Vietnam, which are seen as having significant potential for investment.

This chapter is divided into two sections. The first section presents a country profile of Vietnam, including key events and facts about poverty reduction and microfinance that provide the best evidence for the explanations of the empirical investigations. The second section presents the effect of financial structure on microfinance performance, with particular regard to Vietnam.

## 6.2. Vietnam Country Profile

### 6.2.1. Poverty Reduction – The Picture in Brief

Vietnam became unified in 1975 as a one-party Communist state after nearly three decades of war and has struggled to find its feet. During most of the 1990s, GDP growth averaged 7.9% per year, higher than the 5.5% growth average for East Asia and the Pacific region (excluding China), or the 5.6% growth for South Asia (ADB, 2003). The basic elements of market forces and private enterprises were introduced in the late

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[166] The annual growth of GDP is around 7.5%, while in other developing countries it is around 6% per year (Soubbotina and Sheram, 2000).

1980s and the stock exchange was opened in 2000. However, the country has struggled to restrain its trade and budget deficits. The inflation rate began to increase in 2008, reached double digits at the beginning of 2010, approached 20% by the end of 2011 and decreased slightly in 2012. Food prices have risen unabated over the years.

**Table 6.1 Poverty Reduction: Vietnam vs. Other Asian Countries**

| Country | Period | %-Point Reduction Per Year | Average Growth of Per Capita GDP (%) |
|---|---|---|---|
| **Vietnam** | 1993-1998 | -4.1 | 6.8 |
| **Other Asian Countries** | | | |
| **East Asia and Pacific** | 1993-1998 | -2.0 | 5.6 |
| **Bangladesh** | 1992-1996 | -1.7 | 2.8 |
| **Cambodia** | 1994-1997 | -1.0 | 2.6 |
| **China** | 1993-1998 | -2.5 | 10.4 |
| **India** | 1992-1997 | -1.4 | 3.8 |
| **Philippines** | 1994-1997 | -1.3 | 1.9 |
| **Indonesia** | 1990-1996 | -2.1 | 6.4 |
| **Thailand** | 1992-1996 | -1.0 | 7.2 |

Source: ADB (2003).

The series of reforms from the centrally-planned to the socialist market-oriented economy paved the way for the country's spectacular growth in the 1990s and had impressive impacts on poverty reduction. Poverty was halved between 1993 and 2002, from 58% to 29%, and stood at around 20% of the total population[167] in 2004.[168] This

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[167] The Vietnamese population in 2010 was around 87 million people (GSO, 2011).

indicator has continued to decline to around 15% due to job creations in the private sector and reforms in agriculture. It has been estimated that one-third of the total population are still poor (equivalent to 29 million people). Table 6.1 shows that poverty in Vietnam fell by an average of 4.1% per year. In contrast, in the East Asia and the Pacific regions it fell by only 2% per year. Consistent with the results from the cross-country regressions of Dollar and Kraay (2001), economic growth has been the key determinant of poverty reduction in Vietnam.

In addition, around 90% of the poor are currently living in rural areas[169] and 45% of these were below the poverty line (Le et al., 2011). A large proportion of them are not absolutely poor, but are clustered around the poverty line (Sunderlin and Huynh, 2005). There appears to be a large potential market for profitable MFIs. Consistent with Navajas et al. (2000) and Adjei and Arun (2009), the poor need to be assisted to escape from poverty permanently by accessing financial providers. Therefore, microfinance is playing an increasingly important role in Vietnam as an effective tool for poverty reduction. It has been one of the most powerful instruments during the past few years (Ngo and Nguyen, 2007). In fact, it is still a new concept in Vietnam and has gained much attention since 2005[170] due to the contributions of Muhammad Yunus[171] in Bangladesh with Grameen Bank.

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[168] See BWTP (2004), Lopez (2005), Sunderlin and Huynh (2005) and CIA (2011).

[169] According to the General Statistics Office of Vietnam, around 70% of the total population were living in rural areas in 2009 (Vietnam Online, 2011).

[170] Source: International Year of Microcredit (2005).

[171] See Grameen Bank (2011).

### 6.2.2. Microfinance

Microfinance in Vietnam was developed from rural finance (the difference between microfinance and rural finance was discussed in the previous chapter) and has a strong link with the local financial system. Therefore, this section is divided into three parts, the financial system, rural finance and microfinance, in order to investigate the stages of development and degree of financial integration.

#### 6.2.2.1. Financial System

**Table 6.2 The Vietnamese Financial System**

| Financial Institutions | Number | Charter Status |
|---|---|---|
| State-owned commercial banks | 5* | State-owned |
| State-owned policy banks | 1 | State –owned, non profit |
| Joint-stock commercial banks | 35 | Joint-stock |
| Branches of foreign banks | 50 | Branches of foreign bank |
| Joint-venture banks | 4 | Joint-venture |
| Foreign banks | 5 | 100% foreign-owned |
| Financing companies | 18 | Financing |
| Financial leasing companies | 12 | Leasing |
| Representative offices of foreign banks | 49 | Representative |
| People's Credit Fund (PCF) | 915 | Credit union |
| **Total** | **1,094** | |
| **MFIs (excluding VBSP)** | **18** | Credit Institution |

*\* Three100% state-owned banks restructured and converted to joint-stock commercial banks.*

Source: SBV (2009 and 2012).

The financial system in Vietnam was reorganised in 1990 from a state-owned bank system to a commercial one to allow for the entry of the private sector under the supervision of the Central Bank (see table 6.2). This system has come a long way in recent years but is still underdeveloped due to a weak legal framework, the absence of international systematic accounting and a lack of financial disclosure, basic banking technology and skilled staff. State-owned commercial banks dominate and take the lead in the financial market, with total assets and loans outstanding accounting for 70% of the total assets and credits of all financial providers (VTO, 2008; SBV, 2009 and 2011). Other commercial banks account for 20% of total assets and 15% of the total credit market. Therefore, all commercial banks account for around 85% of the total credit market. Foreign banks (including 100% foreign banks and branches of foreign banks) mainly serve foreign investment firms and account for about 10% of the total credit market.

According to SBV (2012), the Vietnam Bank for Social Policies (VBSP) is the only one among 1,094 financial institutions which provides microfinance to the poor, while the People's Credit Fund (PCFs) and the Vietnam Bank for Agriculture and Rural Development (VBARD) have traditional banking activities in rural areas (rural finance). In addition, MFIs are not mentioned as a part of the financial system, although they are currently licensed and have operated in the same way as other financial institutions under the same regulations and supervision. This result suggests that local commercial banks in Vietnam are the main financial providers. Consistent with Ugur (2006) and Delfiner and Peron (2007), they have a greater effect on microfinance performance and funding than other financial institutions due to the restrictions of legal status and operational structure. However, each financial provider has its advantages and disadvantages when providing microfinance to the poor (see Appendix 6.1).

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### 6.2.2.2. Rural Finance

Rural finance refers to traditional banking activities for bankable people in rural areas for agricultural and rural development. In the early 1990s, rural finance was seen as the operations of traditional credit cooperatives and the Vietnam Bank for Agriculture and Rural Development (VBARD) in rural areas, where around 90% of the poor live.[172] In the past few years, rural finance activities have been carried out by VBARD and PCFs, which focus on traditional banking activities, while VBSP focuses purely on microfinance in rural areas.[173]

First, traditional credit cooperatives were established in 1956 by the State Bank of Vietnam (SBV) but were managed by local People's Committees (Putzeys, 2002; BWTP, 2004). The term "cooperative" refers to commercial cooperation, not mutual self-help. Loans were taken out of business and became non-performing. Most credit cooperatives collapsed due to a lack of reserve assets and deposits insurance and were no longer automatically refinanced by SBV (Putzeys, 2002; Kovsted et al., 2003). This collapse led to the establishment of new small private enterprises (PCFs) in 1993, which had a major negative effect on belief in the financial system (SBV, 2012). A profound mistrust led depositors to withdraw money and buy gold and hard currency to keep at home.[174] PCFs operate as credit cooperatives in economically active regions and better off areas and do not target the poor. They use a credit union methodology to provide loans to their members, who have invested a certain sum of money in buying shares (i.e. they have enough funds available to invest). Therefore they are often bankable people (Nghiem et al., 2006; Ngo and Nguyen, 2007).

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[172] See Putzeys (2002), Quach, Mullineux and Murinde (2003) and BWTP (2004).

[173] This finding is consistent with the results from interviews carried out by Ngo (2012).

[174] See Oh (2000), Putzeys (2002), BWTP (2004) and Lensink et al. (2008).

Second, VBARD was established in 1988 as a special state-owned bank designed to target agriculture and rural areas. VBARD became the biggest financial provider in rural areas, with an extensive network around the country. This commercial bank had two separate divisions: traditional banking and microfinance. VBARD provides traditional banking activities to people in rural areas, like other local commercial banks as a profit business. On the other hand, VBARD provided subsidised rural credit to the poor through individual lending and joint-liability groups based on cooperation with mass organisations (such as the Women's Union and Farmers' Union) until the Vietnam Bank for Social Policies (VBSP) was established in 1995 (Ngo and Nguyen, 2007; SBV, 2009). VBSP was established as a non-profit state-owned bank to focus on poverty reduction and was called by its first name, Vietnam Bank of the Poor (VBP), which was developed from a part of VBARD.

During its early days, even if VBARD did not directly target the poor, it was estimated that 47% of its clients were poor. This indicator suggests that there was a trade-off between traditional banking and microfinance activities in rural areas at VBARD. This may point to the fact that VBARD transferred microfinance to VBSP in 2003 in order to focus on wealthier borrowers with traditional banking. Consistent with surveys carried out by Ngo and Nguyen in 2007, VBSP tends to compete with VBARD and PCFs to provide larger loans to wealthier borrowers, perhaps because their borrowers tend to require larger amounts of money to meet their financial needs when they become successful and wealthier.

From the point of view of rural finance, microfinance is considered as a part of rural finance in rural areas. However, microfinance focuses on the poor who are near-bankable and non-bankable people and is different from rural finance, which conducts

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traditional banking activities and focuses on bankable people.[175] There have been several studies which have mistakenly used the term rural finance instead of microfinance.[176] This misconception leads to an analysis of rural finance providers as microfinance providers and also leads to biased conclusions.

### 6.2.2.3. Microfinance

**Table 6.3 Microfinance Providers in Vietnam.**

| Providers | In Theory | In Practice |
|---|---|---|
| Formal | Formal financial providers | VSPB |
| Semi-Formal | MFIs | MFIs: 17 NGOs, 1 NBFI |
| Informal | Relatives and moneylenders | Relatives and moneylenders |
| **Total** | 19 MFIs (excluding informal providers) | |

Sources: SBV (2009) and MIX Market (2011).

Poverty reduction programs in Vietnam started in the 1990s, but attention was paid to microfinance, which was isolated from rural finance and has been officially applied in some rural areas since 1999. Therefore, there are a large number of poor people without access to finance since local commercial banks do not provide loans to them without collateral and future cash flows. A poor track record in terms of applying microfinance by the private sector suggests that local government has acted as regulator and main active microfinance provider via non-profit state-owned bank (VBSP) (Ngo and Nguyen, 2007). Consistent with BWTP (2004) and MIX Market (2011), the gross loan portfolio of VBSP is between 90% and 95% of the total loan portfolio provided to

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[175] See Seibel (2005), MFI and World Bank (2005) and Ngo and Nguyen (2007).

[176] See Dao (1998), Putzey (2002), BWTP (2004), Quach (2005), Nghiem et al. (2006) and APEC-TATF (2011).

the poor. This also suggests that MFIs in Vietnam are non-profit, have low operational self-sufficient and depend on VBSP, which has a large scale of operation and an operational structure like local commercial banks.

In theory, financial providers can be potential microfinance providers, such as local commercial banks and rural finance providers traditionally classified as formal financial providers in the microfinance system.[177] There is potential competition in the microfinance industry if MFIs upscale and local commercial banks downscale in providing loans to the poor. This study once again points out the potential disadvantage of the upscaling of MFIs in Vietnam.

Presently, there are around 19 microfinance programs registered with SBV to be non-profit MFIs (see table 6.3). Funds for microfinance include 90% from local funds and 10% from international funds. This may point to the fact that local commercial banks and other financial providers have low motivation and limited investment funds for non-profit programs. In a steadily expanding sector such as microfinance, 10% of total funds are from international sources, which seems very small and so can translate into significant opportunities for foreign investors. Consistent with Hsu (2007), there is a large investment gap for local and international funders in commercial microfinance in Vietnam.

We found that there is some misunderstanding and incorrect explanations in several studies, in particular with regard to Vietnam, which leads to biased and limited conclusions. Therefore, correction is required based on a comprehensive review of microfinance activities and MFIs in Vietnam. First, microfinance activities in VBARD were totally transferred to VBSP during the period 1995 to 2003 and VBARD currently

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[177] See Meyer and Nagarajan (1992 and 2000) and ADB (2009 and 2011).

operates like other commercial banks which operate traditional banking in rural areas. However, VBARD is still mentioned as one of the main microfinance providers in some recent studies, such as APEC TATF (2011).[178] Second, there was no rural bank (called rural shareholding bank) at the end of 2007 based on the records of SBV due to the mergers and acquisitions in the banking system (SBV, 2011). However, the rural bank is still mentioned as a current financial institution in some studies, such as Haq, Hoque and Pathan (2008). Third, PCFs are credit institutions working in commercial rural finance by providing loans only to their members, who are considered as bankable people since they must have a certain amount of money to buy shares to be owners (SBV, 2011). Their interest rates were 3.5% above the interest rate ceiling set for local commercial banks (WB, 2009). This indicates that PCFs are not microfinance providers but are still mentioned as such in many studies.[179]

### 6.2.3. Outline of the Success of and Challenges to Microfinance in Vietnam

This section is mainly based on the annual reports of SBV, VBSP and the data collected from MIX Market, as well as the results from the survey carried out by Ngo and Nguyen in 2007 in Vietnam. The survey determined the financial demands of the poor and their possibility of accessing microfinance and evaluated the impact of microfinance services and rural financial services provided to the poor by financial institutions in rural areas. This survey was sponsored by CARE International in Vietnam under the community resilience to natural disasters project. However, we also

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[178] See BWTP (2004), Quach (2005), Nghiem et al. (2006), Haq et al. (2008), WB (2009) and APEC-TATF (2011).

[179] See BWTP (2004), Quach (2005), Nghiem et al. (2006), Thapa (2007) and APEC-TATF (2011).

checked and updated the results of the survey in 2007 before using them in this study by conducting personal interviews in 2012. The participants in the personal interviews were the directors and staff of VBSP and VBARD who participated in the focus group and training workshop in 2007.

### 6.2.3.1. Success

The rapid expansion of local commercial banks in rural areas was followed by the establishment of VBSP in 2003 to help to improve rural finance activities (VBSP, 2009). An increasing number of people have been reached by the formal financial system, with reasonable interest rates that reduce the negative impact from the operations of moneylenders. Moreover, Decree No.28/2005 also encourages and controls microfinance activities by requiring any organisation that has microfinance activities to apply for a license from 2007 (SBV, 2009 and 2011). This means that all microfinance programs must convert to licensed MFIs; if not, they are considered as illegal businesses. Among the 19 licensed MFIs mentioned above, several are operating as a small part of the projects carried out by NGOs and international organisations for a specified period of time (only for a maximum of one or tow years), apart from VBSP, CEP, TYM and Binh Minh CDC. This result indicates that there exist many programs and organisations which do not have a license from SBV to provide microfinance.

Microfinance in Vietnam is carried out by 19 non-profit MFIs with different legal statuses (one microfinance bank, 17 NGOs and one NBFI). Total outstanding loans were US$ 4 billion, with 7.8 million borrowers at the end of 2009 (MIX Market, 2011). VBSP accounted for around 90% of the total loan portfolio and 18 MFIs accounted for around 10% of the total. In 2009, the total outstanding loans of VBSP were VND 72,660 billion (equivalent to around US$ 3.5 billion) for 7.5 million borrowers, an

increase of 38.4% compared to 2008. Operational self-sufficiency was around 76.24% (lower than the required level of 100%). Capital on the total assets ratio was 22.25%, and the debt to equity ratio was 3.4, while ROA was negative, at -1.84%. This suggests that VBSP may be focusing on the breadth of outreach (social mission) and needs to improve its financial performance to become viable.

**Table 6.4 Funders, Networks and Service Providers in Vietnam**

|  | **Organisation** |
|---|---|
| **Funders** | CORDAID, Habitat for Humanity, MicroCredit Enterprises, Oikocredit, Oxfam, Rabobank Foundation, and SBFIC. |
| **Networks** | BWTP, CASHPOR, Habitat for Humanity International, M7 Group, Save the Children, and VMFWG |
| **Service Providers** | CORDAID, Habitat for Humanity, Kiva, Planet Rating and SBFIC. |

Source: MIX Market (2011).

There are several donors and funding agencies which support microfinance. According to a report by MIX Market (2010), there are 18 MFIs by seven funders, five networks and five service providers in Vietnam (see table 6.4 and Appendix 6.2). The total outstanding loans were US$ 0.4 billion, with 0.3 million borrowers. Operational self-sufficiency was 138% (higher than the minimum level of 100%). The capital to total assets ratio was 45.74%, and the debt to equity ratio was 1.61, while ROA was 4.4%. This suggests that NGOs and NBFIs may have a more efficient performance than VBSP due to their operational structure. In addition, there are around 50 programs mostly carried out by NGOs which have microfinance activities as a small part of their

projects. Therefore, they are not counted as MFIs. These MFIs are not allowed to mobilise savings due to the legal restrictions in banking and finance.

MFIs in Vietnam are public owned (by local governments) and semi-public owned (by international subsidy funds), without participation from the private sector (such as local commercial banks). They offer loans to the poor at low interest rates[180] (output) based on soft loans and subsidy funds (input) from local government and international donors (see table 6.4). These MFIs run by international donors are small NGOs or subsidised programs (such as the subsidised child care program, the rural clean water and sanitation programs and the community resilience to natural disasters projects), which are not legally licensed to provide microfinance (i.e. they need a license to provide loans) and to collect savings from the public (excluding VBSP).

As discussed in the previous chapter, savings currently do not provide a sufficient volume of funding for the lending activities of MFIs.[181] Therefore, they have problems in obtaining more investment funds in order to expand their strong growth due to funding constraints. Based on the experiences of MFIs around the world (De Schrevel, 2005; Hermes and Lensink, 2007), debts and savings tend to be the ideal funds for MFIs in Vietnam. Nevertheless, debts at the market price will increase expenses and also have a negative effect on the efficiency ratio. In the case of providing loans to MFIs, local

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[180] Compared to the market interest rates of local commercial banks in 2011/2012 with an average of 18% per year, the current interest rates at VBSP are around 8% per year. This is decided by the State's preferential policies for the poor and shows the efforts of the state budget to allocate public funds for microfinance programs (Ngo, 2012). This finding is consistent with the findings from the survey of 2007 carried out by Ngo and Nguyen on behalf of Care International in Vietnam.

[181] The findings of Ngo and Nguyen (2007) and Ngo (2012) are totally consistent with the findings of Wisniwski (1999) and Branch and Klaehn (2002).

commercial banks provide these indirectly to the poor, who tend to prefer them to MFIs because of their current advantages[182] (Isern and Porteous, 2005).

### 6.2.3.2. Challenges

Microfinance has shown tremendous growth in terms of efficiency over the past few years. The main objective of microfinance is to satisfy the unmet financial demand of the poor on a much larger scale for poverty reduction. Therefore, much progress has been made in the last few decades, but several remaining issues need to be addressed. In Vietnam, some main challenges are faced by MFIs.

First, during its early days, microfinance was mainly driven by local government and NGOs. During the last few years, new entrants have established various microfinance investment funds in order to finance MFIs. Therefore, the lack of legal and regulatory frameworks for microfinance has become one of the main factors that discourages the inflow of large amounts of international funds to microfinance in Vietnam. This challenge is consistent with the suggestions of King (2008).

Second, MFIs tend to lack the funds to increase outreach since none of them are profitable and are not allowed to mobilise savings, apart from VBSP. In addition, there was a drop-off in business investment and a sudden reversal of international capital flows after the global financial crisis of 2007/2008. This problem requires MFIs to access long-term debts and develop attractive products in order to mobilize savings and reduce the cost of capital. Furthermore, MFIs also need to apply new technologies to

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[182] Compared to MFIs, banks likely have several advantages over non-bank, micro-lending NGOs such as a large network of branches and financial services, well-established internal controls and administrative and accounting systems, own sources of funds (deposit and equity capital), and etc. These advantages tend to give banks a special edge over MFIs in providing microfinance services (Baydas et al., 1997).

lower transactions costs in order to become efficient and improve customer satisfaction and become viable.

Third, the availability of grants and soft loans from local government and international organisations tends to deter MFIs from pursuing more commercial debts and savings mobilisation which would help them lower the cost of capital and also increase outreach.

Fourth, MFIs need to become profitable in order to be viable and to expand outreach. However, few MFIs have the management capacity to successfully manage a commercial financial intermediary, since they began as NGOs with a social mission through the provision of loans to the poor. Therefore, MFIs need to improve management capacity to develop commercial microfinance.

## 6.3. Impact of Financial Structure on Microfinance Performance in Vietnam

### 6.3.1 Research Objectives

This chapter aims to investigate the impact of financial structure on microfinance performance in Vietnam to help funders evaluate and determine financing decisions. This objective has been explored by addressing the same research question posed in Chapter 4: how does financial structure in terms of financial leverage affect the sustainability and profitability of MFIs in Vietnam? It is, therefore, hypothesised that financial leverage can help MFIs have higher sustainability and profitability. To accomplish the above objectives, we perform a regression model RM4.1 in chapter 4 by adding country dummy and creating interaction with other variables to test whether Vietnam differs significantly from the rest of the world.

Microfinance in Vietnam is a very young industry since it became established in the 10 years from 1999 (see table 6.5). The data were collected from MIX Market and SBV, as reported by all MFIs in Vietnam. This limitation tends to lead to limited conclusions from the analysis. However, the results of this study fill a gap in the extant literature by providing the impact of financial structure on microfinance performance in the Vietnamese context.

**Table 6.5 Research Population for the period 1999 to 2010**

| Regulated Status | 100% | | | | |
|---|---|---|---|---|---|
| Profit Status | Profit | | Non-Profit | | |
| Number of MFIs | 0 (0%) | | 19 (0%) | | |
| Total MFIs | 19 MFIs (82 Observations) | | | | |
| Number of MFIs | 1 | 0 | 1 | 17 | 0 |
| % | 5.26% | 0% | 5.26% | 89.48% | 0% |
| Charter Type | Bank | Credit Union | NBFI | NGO | Rural Bank |

Source: MIX Market (2011).

**6.3.2 Empirical Results**

Table 6.6 shows the results from our basic specification using OSS and ROA as the sustainability and profitability measures. We find that financial leverage affects microfinance performance in Vietnam in the anticipated way. It follows the theoretical predictions and other findings from the literature. The effect of funding on performance in the case of Vietnam is positive (i.e. MFIs in Vietnam may take on more debt to increase sustainability and profitability by creating greater revenue than costs).

## Table 6.6 Impact of financial leverage on sustainability in Vietnam

| | Cross-Country | Vietnam | Cross-Country | Vietnam |
|---|---|---|---|---|
| **Variables** | **RM4.1 (lnOSS)** | **lnOSS** | **RM4.1 (ROA)** | **ROA** |
| **Lag 1 lnOSS** | 0.5946*** (0.0481) | 0.1655*** (0.0366) | 0.4972*** (0.1237) | 0.4275*** (0.0740) |
| **DTE** | -0.0379*** (0.0001) | -0.0467* (0.0363) | -0.1554* (0.0796) | -0.0084* (0.0120) |
| **lnGLP** | 0.0356*** (0.0151) | 0.0147* (0.0246) | 0.0348*** (0.0547) | 0.0176** (0.0083) |
| **Pwomen** | -0.1771 (0.1161) | -0.4011 (0.1025) | -0.1899 (0.1295) | -0.0687 (0.0366) |
| **Regulated** | -0.0074 (0.0551) | -0.0302 (0.0422) | -0.2432 (0.1829) | -0.0001 (0.0075) |
| **Profit** | 0.1199 (0.1161) | 0.1247* (0.1007) | 0.2028 (0.3999) | 0.0032 (0.0140) |
| **Micro Bank** | -0.0963* (0.0909) | -0.0036 (0.0299) | -0.0799 (0.2980) | -0.0144* (0.0124) |
| **Credit Union** | 0.0387 (0.1527) | 0.0817 (0.0878) | 0.1216 (0.6628) | 0.0207 (0.0184) |
| **NGO** | 0.0072 (0.1407) | 0.0934 (0.0171) | -0.0336 (0.4255) | 0.0110 (0.0210) |
| **NBFI** | -0.1081** (0.0955) | -0.0454 (0.0486) | -0.0107* (0.2795) | -0.0177* (0.0131) |
| **Inflation** | 0.0009 (0.0025) | 0.0004 (0.0103) | 0.0110 (0.0110) | 0.0009 (0.0031) |
| **lnGNI** | -0.0566* (0.0448) | -0.1822* (0.1299) | -0.1813* (0.0562) | -0.0175* (0.0541) |
| **Before crisis** | 0.0973*** (0.1721) | 0.0273* (0.0282) | 0.2732* (0.1733) | 0.0103* (0.0087) |
| **Vietnam** | | -1.0956* (0.6026) | | -0.2829* (0.3245) |
| **DTEvietnam** | | 0.0490* (0.0352) | | 0.0082* (0.0122) |
| **lnGLPvietnam** | | 0.0289* (0.0173) | | 0.0130* (0.0069) |
| **Pwomenvietnam** | | -0.3354*** (0.0823) | | -0.0495* (0.0274) |
| **Inflationvietnam** | | 0.0035 (0.0080) | | 0.0003 (0.0022) |
| **lnGNIvietnam** | | 0.1843* (0.1039) | | 0.0004* (0.0452) |
| **Observations** | 425 | 412 | 425 | 304 |
| **AR (1)**[a] | -2.62*** | -2.48*** | -2.56*** | -2.53*** |
| **AR (2)**[b] | 0.51 | 0.97 | 0.83 | 0.96 |
| **Wald Test** | 367.70*** | 362.39*** | 352.43*** | 470.81*** |
| **Sargan Test**[c] | 247.60 (p-value=0.601) | 232.64 (p-value=0.723) | 198.65 (p-value=0.842) | 198.65 (p-value=0.842) |

Note: ***, **, and * are statistically significant at the levels of 1%, 5% and 10%, respectively.

The value of the standard error is in parentheses.

[a] Arellano-Bond test for AR (1) in first differences.

[b] Arellano-Bond test for AR (2) in first differences.

[c] Sargan test for overidentifying restrictions in system GMM for the dynamic estimation model.

The results show that there were negative impacts of the financial structure on the profitability and sustainability of MFIs in Vietnam. The funding sources and the operational structures are the key factors creating the difference between Vietnam and other countries. Other findings based on this result are that: (i) there was no commercial microfinance and participation of the private sector; (ii) microfinance programs carried out by local government had lower efficiency than those of international donors and (iii) there were around 90% of local public funds and 10% of international funds. This means there were significant investment opportunities for local and foreign investors.

The most obvious finding to emerge from this study is that most MFIs in Vietnam are regulated but remain heavily dependent on grants and subsidies, as well as local government, which is an unsustainable practice. However, taking on more low cost debts tends to help MFIs achieve greater revenue than costs. In particular, cross-border and hard currency debts from international investors often appear cheaper than other local commercial debts because of lower nominal interest rates. This means that international funds may have longer tenures, be cheaper and often require less collateral than local debts for a number of reasons. First, foreign funders are more familiar with risks in the microfinance sector. Second, social motivation tends to lead them to accept terms that are below the levels that would maximise profits. Third, they have also started competing against each other more, which may result in them offering lower interest rates. Therefore, many MFIs base debt financing decisions primarily on price (cost of capital) in order to obtain the lowest cost funding. International funds play an important role as a core funding strategy, as well as deposit mobilisation. Consistent with Hsu (2007), there is a large gap for local and international investors in commercial microfinance in Vietnam, since only 10 % of total funds are from international sources.

Therefore, a drop-off in business investment or a sudden reversal of international capital flows may have a negative effect on microfinance in Vietnam.

However, the findings of the previous chapters suggest that there exist some thresholds and if financial leverage goes beyond these, the relationship between it and microfinance performance reverses. This tell us that, as financial leverage increases, the level of sustainability and profitability increases at first due to the low cost of capital , but then it turns negative beyond the threshold. Therefore, MFIs need to operate at the most suitable size.

The evidence from this study suggests that providing loans to women tends to result in MFIs in Vietnam having lower sustainability and profitability. This is consistent with the findings of Cull et al (2007). Women ask for loans that are smaller than those of their male counterparts. This suggests that there is mission drift via average loan size and the proportion of women served. Therefore, the crowding out of poor clients is rooted in subsidy uncertainty, which leads to the trade-off between maximising utility by serving the poor and lending to more profitable wealthier clients in order to build up precautionary savings in the fear that subsidies could dry up. This is the main reason why VSPB tends to offer loans to wealthier clients and VBARD has changed its focus to wealthier clients instead of the poor, as discussed previously.

We also find that sustainability and profitability are negatively related in Vietnam (significant at the level of 5%). This may point to the fact that MFIs focus on lending to the poor due to their social mission or the requirements of sponsors. In fact, all MFIs in Vietnam are non-profit with different legal statuses, while MFIs across the world are 61% non-profit and 39% profit. Consistent with De Sousa-Shields (2004), MFIs in Vietnam focus on the breadth of outreach and on the poorest people. In addition, all

MFIs are forced to register to obtain licenses to provide microfinance to the poor under Decree No.28/2005 (SBV, 2009 and 2011). Therefore, they need to have the same operational structure as other financial institutions under old and new Laws on Credit Institutions[183] (SBV, 2011). This may have a negative impact on the performance of MFIs in Vietnam. VBSP has commercial operation structure like credit unions or commercial banks (i.e. they have an operational structure like profitable MFIs) but operate as non-profit MFIs based on subsidy funds and grants. This finding is totally consistent with the prediction of pecking order theory in several studies (Harris and Raviv, 1991; Rajan and Zingales, 1995; Booth et al., 2001), which suggests that external funds (debts and equity) increase costs and may lower profits when non-profit institutions try to increase productivity and reduce costs instead of increasing profit.

Gross loan portfolio (GLP, log) was found to be positively related to sustainability and profitability. This result is consistent with the finding of the cross-country analysis discussed in chapter 4. As explained above, all MFIs in Vietnam rely heavily on subsidy funds and grants from local government and NGOs and focus greatly on social vision or the breadth of outreach (De Sousa-Shields, 2004). Therefore, larger numbers of active borrowers are always the main target. This means that the efficiency of non-profit MFIs is evaluated by the indicators of outreach (the breadth) instead of cost per borrower or cost per loan when evaluating profit MFIs. Outreach also becomes more important than the other indicators representing the performance of MFIs. The results also suggest that MFIs can expand their scale of operation in order to achieve financial mission (higher

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[183] The Law on Credit Institutions (the New Law) was approved on 16 June 2010 and became effective on 1 January 2011.

sustainability and profitability) and social mission. MFIs need to find new funding sources and take on more subsidy funds and soft loans in order to achieve their targets.

**6.4. Conclusion**

Microfinance has been established in Vietnam 14 years ago, but it is still a new concept due to the lack of participation by the private sector. Local government (local funds) and NGOs (international funds) currently play important roles in providing loans to the poor for poverty reduction through non-profit programs. The interesting finding of this study is that there is a large gap for local and international investors in commercial microfinance. In addition, findings from the previous chapter show that the global financial crisis of 2007/2008 had a negative impact on microfinance performance. This low degree of financial integration suggests that MFIs in Vietnam have been less affected from the global financial crisis than others. Therefore, a drop-off in business investment or a sudden reversal of international capital flows may have a negative impact on funding in Vietnam in the long term.

The relationship between financial structure and microfinance performance was mainly affected by the characteristics of MFIs. Therefore, the possible explanations for the impact of financial structure on microfinance performance are relevant to the context of regulatory and profit status. In non-profit institutions, decreasing costs (input) are the key solution for improving efficiency while profit (output) is not the main objective. Another new and interesting finding is that non-profit MFIs tend to use the number of active borrowers as the main indicator to evaluate their efficiency which is also investigated by evaluating and determining financing and investment decisions. The results follow the theoretical predictions for the impact of financial leverage on performance and Vietnam differs only slightly from the rest of the world.

# CHAPTER 7

# CONCLUSIONS

This chapter is the concluding chapter of the thesis and provides a summary of the main findings based on the results of each chapter. These findings are presented to show how they meet the objectives and answer the research questions posed at the beginning of the thesis. Based on the findings, some limitations are outlined and proposals made for further research.

This study aims to provide an in-depth analysis of the impact of financial structure on microfinance performance with the heterogeneity of MFI characteristics by using a cross-country analysis and case study of Vietnam. It gives possible explanations that are mainly relevant in the context of firm-specific characteristics, such as scale of operation, profit and legal status. Based on this analysis and explanation, funders can determine financing decisions or take corrective actions when needed based on the correlation between financial leverage and the key performance indicators of MFIs. To achieve this aim, comprehensive reviews of microfinance and funding, as well as empirical investigations into the impact of financial structure and scale of operation on microfinance performance, have been conducted, with data taken from MIX Market, MFIs and the Central Bank of Vietnam. The study employed system GMM on the same data set in order to answer the empirical questions which are clearly defined at the beginning of this study and also in each chapter.

In the context of the microfinance industry, this study contributes to the literature on the links between financial leverage, scale of operation and microfinance performance in several ways.

First, the study has investigated the impact of financial structure on the most common performance indicators for microfinance with the heterogeneity of MFI characteristics due to the limitations of the extant literature on the effect of financial structure on microfinance performance. Previous studies have tended to focus on the link between financial structure and one aspect of the performance of MFIs. Therefore, their explanations and conclusions are fairly limited.

Second, this study introduces new evidence and possible explanations from an explicit perspective that might be relevant in the context of scale of operation, profit status, regulated status and legal status. Previous studies have tended to use lending method, share of lending to women, age and savings as independent variables in order to explain the impact of financial structure on microfinance performance.

Third, in the context of the microfinance industry, this study carries out further empirical investigation to analyse the impact of scale of operation and its interaction with financial structure on the performance of MFIs.

Fourth, this study conducts an empirical investigation into the relationship between financial structure and microfinance performance in the Vietnamese context in order to test whether Vietnam differs significantly from the rest of the world.

Fifth, this study employed system GMM (Blundell and Bond, 1998), which is a new methodology, currently in use in the empirical investigation of financial performance in banking and finance.

**7.1. How does financial structure in terms of financial leverage affect the different aspects of microfinance performance?**

This study has found that in general financial leverage affects microfinance performance in Vietnam in the anticipated way, following the theoretical predictions and other findings from the literature. The real effects of funding on performance in theory can be positive or negative due to their contribution to financial revenue (i.e. MFIs may take on more debt to increase profitability by creating greater revenue than costs). It depends on the differences in the characteristics of MFIs that contribute to the impact of financial structure on performance in various ways. Any funding source has associated costs that increase financial expenses and have negative effects on net income. Therefore, MFIs need to earn enough revenue to cover their total costs based on using commercial funds to provide subsidised loans to the poor.

Profitable and regulated MFIs who take on considerably more commercial funds (including borrowings and savings) are therefore liable to have more revenue than expenses and to have higher sustainability, efficiency and outreach. This encourages the transformation process of MFIs from simply achieving their social mission to becoming profitable and regulated businesses in order to be self-sufficient and remain viable. Profitable MFIs are cost efficient since they pay more attention to many purposes of loans and to provide sufficient loans sizes to appropriate borrowers. On the contrary, regulated MFIs have been found to be less efficient and to have many disadvantages from being regulated, such as cost increases from licensing fees, savings mobilisation, capital requirements, control of interest rates, networks and administration. The cost of compliance, as well as the cost of savings mobilisation and regulation, is very high. These disadvantages may cause an increase in expenses and result in revenue which is

lower than expenses. Therefore, MFIs need to achieve a significant scale of operation and degree of sustainability before becoming regulated and profitable.

The results suggest that the impact of financial structure on microfinance performance is mainly relevant in the context of scale of operation, profit status, regulated status and legal status. The differences in legal status tend to contribute to the impact of financial structure on performance in various ways. However, the results follow the theoretical predictions for profitable and regulated MFIs. Therefore, this study moves beyond the explanations currently in use in the empirical literature in the context of lending methodology, age and gender and introduces new evidence and explanations for the effect of financial structure on the performance of MFIs.

## 7.2. Is there any trade-off between the financial and social performance of MFIs?

The significant impacts of financial leverage on operational self-sufficiency and gross loan portfolio indicate that there is a positive relationship between sustainability and outreach in some MFIs. The results suggest that MFIs may take on more debts to achieve a positive impact on sustainability and to have the ability to expand their outreach. This may point to the fact that MFIs can expand their outreach to achieve sustainability based on the advantages of economies of scale. MFIs need to convert from credit-only NGOs into regulated MFIs in order to provide other financial services to their clients. Consistent with the previous findings, this convertion allows MFIs to take on more debts, especially savings, as well as to offer a greater basket of products and services. However, it is a lengthy process and requires a great deal of resources; for example costs are high and a large number of resources are required to change the organisational structure.  In addition, there is also a risk of broken brand promise if brand expectations are not reached across subsidiaries. Due to the causal relationship

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between the sustainability and outreach, sustainable MFIs tend to serve the large majority of borrowers, since on average, sustainable MFIs are much larger than unsustainable ones. This suggests that we should weight the results by number of borrowers or gross loan portfolio. It would make no sense to give each of the hundreds of tiny MFIs the same weight as one large one. Furthermore, most of the investors who identify themselves as socially responsible will not apply a negative screen or accept a lower return and higher risks than any other commercial investors. Clearly, government MFIs tend to be unsustainable and will continue to be so. However, the proposition that microfinance can be a perfectly viable business in most settings has been demonstrated very compellingly by now.

In addition, there is a threshold that makes the relationship between variables reverse if it goes beyond that point. Clearly, the results also provide strong evidence that there is an optimal mix of efficiency in terms of sustainability and outreach. Furthermore, the results tend to vary with the heterogeneity of MFI characteristics. This also provides us with evidence of a trade-off between sustainability and outreach beyond this threshold. However, the positive and significant relationship between loan portfolio size and outreach suggests that MFI managers need to focus on increasing the level of thresholds in order to achieve a higher level of operational self-sufficiency and a wider outreach.

**7.3. Is there any trade-off between the depth and breadth of outreach?**

The findings suggest that MFIs need to expand their operations in order to reach a larger number of active borrowers and to provide larger loans to them (i.e. in the case of wealthier borrowers who have been lifted out of poverty). The results point to a very interesting issue concerning the trade-off between the depth and breadth of outreach.

There is a possible trade-off between this due to funding constraints. However, in the case of expanding scale of operation, successful MFIs adapt their mission and practices in line the changes in their clients, which is associated with upscaling in microfinance and the ability to provide larger loans to borrowers. It is common sense for larger MFIs to have the ability to provide larger loans to them and reach larger numbers of borrowers. Therefore, the result is not "trade-off" as the term is generally understood instead a trade-off between the wealthier and poorer clients instead.

Consistent with Hamilton et al. (2008), Rosenberg (2009) and economies of scale, large MFIs achieve higher efficiency by expanding their breadth of outreach (number of active borrowers). The findings of this study seem to be inconsistent with the conclusions of Hermes et al. (2011), who evaluated the trade-off between the outreach and efficiency of MFIs between 2000 and 2010 by using average loan balance as a proxy for outreach and cost per borrower as a proxy for efficiency, concluding that there was a negative correlation, as had been found in previous studies. However, the reality is that the conclusions of the two studies are totally consistent. The negative correlation found in Hermes et al. (2011) was between efficiency and depth of outreach, while a positive relationship between efficiency and the breadth of outreach was found in this study. Therefore, this study has contributed additional evidence to the existing literature that there is a significant positive relationship between efficiency and breadth of outreach.

**7.4. How does scale of operation, together with financial leverage, affect microfinance performance (social and financial performance)?**

The number of MFIs increased rapidly during the period 1995 to 2011 (MIX Market, 2011). Several MFIs improved their efficiency, became self-sufficient and played an increasingly important role as financial intermediaries in local economies for poverty reduction (Djeudja and Heidhues, 2005; Hossain and Knight, 2008; United Nations, 2011). Therefore, understanding the differences between large and small MFIs is necessary in order to choose the most suitable size for operations with regard to being regulated, profitable, self-sufficient and viable.

One of the key findings of this study is that larger MFIs achieve higher efficiency, profitability, sustainability and outreach (breadth and depth) than smaller ones. They also have a higher financial leverage by taking on more debts to create greater revenues than expenses and have suffered less impact than medium and small MFIs from the global financial crisis of 2007/2008. Therefore, this study sheds new light on the important role of scale of operation and calls for mergers and acquisitions between small MFIs. It also calls for the restructuring and strengthening of the microfinance sector after the drop-off in business investment and the sudden reversal of international capital flows due to the global financial crisis. This would enable MFIs to access long-term debts and to mobilise deposits in order to become efficient and viable.

**7.5. How did the global financial crisis of 2007/2008 effect microfinance performance?**

Macroeconomic factors tend have an impact on financial institutions in a number of ways, including MFIs. This study has considered the effects of the global financial crisis of 2007/2008 on microfinance performance. A global financial meltdown will

affect the livelihoods of almost everyone and every business in an increasingly inter-connected economy. The global financial crisis of 2007/2008 caused the decline and failure of many key businesses and a slowdown in several economies due to tightened credit, which is associated with a decline in GDP growth, falling housing prices and a drop-off in business investment (Baily and Elliott, 2009; Te Velde, 2009). This suggests that the global financial crisis of 2007/2008 had a significant negative impact on stock markets worldwide. As part of the financial market, the global financial crisis has also tended to impact negatively on the microfinance sector. Consistent with Te Velde (2008), the United Nations (2009) and CGAP, (2011b), MFIs have had to slow down the growth of gross loan portfolios after a decade of exceptional expansion. However, the results of this study show that the global financial crisis of 2007/2008 has had a relatively small effect on microfinance performance because of the low level of self-sufficiency, as well as the low degree of financial integration.

This finding points to the fact that MFIs rely heavily on subsidised funds and grants that are fully committed by local governments and international organisations. Therefore, a drop-off in business investment or a sudden reversal of international capital flows may have less impact on a short-term than on a long-term basis. It is suggested that an empirical investigation be carried out over a longer period after the global financial crisis to evaluate its effects.

Consistent with the global financial crisis, the negative impact of high inflation and GNI per capita on microfinance follows the theoretical predictions for macroeconomic factors. In the case of high inflation, borrowers have problems with the repayment of loans due to increasing prices and the cost of living (without an increase in wages), as well as MFI expenses. Therefore, MFIs tend to consider reducing costs for

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borrowers to help them solve their financial problems and repay their loans. The results may point to the fact that MFIs work with borrowers in order to solve financial problems. On the other hand, when poor households achieve a higher income (GNI per capital) and are lifted out of poverty, they prefer to deal with local commercial banks for larger loans to meet their financial demands and to enjoy the commercial banks' advantages. The results point out many important issues, such as the downscaling of local commercial banks and the upscaling of MFIs in microfinance, the trade-off between the wealthier and poorer MFI clients and the development of successful MFIs by adapting their mission and practices with the changes in their clients.

## 7.6 Other findings.

First, another interesting finding is that regulated MFIs have higher sustainability and lower efficiency due to the presence of cost of compliance and cost increases. This finding contributes additional empirical evidence to the advantages and disadvantages of being regulated. The advantage of being regulated is that MFIs can attract more investment funds from the private sector (including savings mobilisation), which leads to an optimal mix of financing at a low capital cost. On the other hand, there is a cost increase from licensing fees, savings mobilisation, capital requirements, control of interest rates and other costs related to networks and administration. These disadvantages may be the main barrier which prevents small MFIs from becoming regulated, which may explain why MFIs are still relying heavily on subsidised funds and grants from local governments and international organisations. This result also indicates the demand to be regulated in order to be mobilise savings, which is an important low-cost fund for lending in banking and microfinance. In addition, MFIs also improve themselves by high performance to achieve a sufficient volume of savings.

Therefore, this study has established that there is a strong correlation between profit and regulated status.

Second, consistent with Cull et al. (2007), Hermes et al. (2011) and the diseconomies of scale theory, cost per borrower (loan cost) tends to increase with average loan balance (loan size). Over time, loan size tends to creep up, partly because as borrowers become successful and wealthier they want larger loans, as mentioned and discussed in the previous findings. This finding has contributed additional evidence to the literature concerning loan size and loan cost; that is, the average cost per dollar lent (cost per loan) is lower for larger loans, while the average cost per borrower is higher. The results point to the fact that providing larger loans may increase loan costs, perhaps because there is an increase in monitoring, refinancing costs and other non-financial operating expenses. In light of this argument, it is not completely accurate to say that smaller loans have higher costs. Therefore, this study suggests using cost per loan and also cost per borrower to compare the costs of different loan sizes.

Third, due to the heterogeneity of characteristics, microfinance performance responds in different ways to changes in return to firm-specific factors and macroeconomic factors. The results of the case study of Vietnam and the cross-country analysis are slightly different, for a number of reasons which are relevant in the context of scale of operation, as well as the profit status, operational structure and regulation and supervision in the local economy.

- All MFIs in Vietnam are non-profit with different legal statuses, while MFIs in other countries are 61% non-profit and 39% profit. This suggests that MFIs may provide loans to the poor at very low interest rates due to their

social mission or the requirements of sponsors and that the legal status has not little effect on their operations.

- MFIs in Vietnam depend heavily on subsidy funds from the government (VSBP), and international grants from donors (INGOs), explicitly as equity or the opportunity cost of extra equity (such as technical assistance, training and equipment) (Schreiner, 2000). This is the key difference in the objectives between MFIs in Vietnam and in other countries (including the NGO and non-profit sample). Consistent with De Sousa-Shields (2004), they focus on the breadth of outreach and on the poorest people.

Fourth, in non-profit institutions, decreasing costs (input) is the key solution for improving efficiency when profit (output) is not the main objective. Therefore, non-profit MFIs tend to use the number of active borrowers as the main indicator to evaluate their efficiency, which is also considered by funders when evaluating and determining financing and investment decisions. This finding points to the dangers of using and explaining performance indicators, with particular regard to the efficiency of MFIs.

Fifth, MFIs in Vietnam also rely heavily on the international investments of donors and international organisations as well as local government. The results also suggest that international funds play an important role in achieving more efficient performance in poverty reduction in Vietnam. Consistent with Hsu (2007), there is a large gap for local and international investors in commercial microfinance in Vietnam, since only 10 % of total funds are from international sources. Therefore, a drop-off in business investment or a sudden reversal of international capital flows may have a positive impact on microfinance funding in Vietnam.

Sixth, a new and interesting finding is that there is some misunderstanding and incorrect explanations in several studies, in particular with regard to Vietnam, which leads to biased and limited conclusions. Therefore, correction is required based on a comprehensive review of microfinance activities and MFIs in Vietnam. First, microfinance activities in VBARD were totally transferred to VBSP during the period 1995 to 2003 and VBARD currently operates in the same way as other commercial banks which operate traditional banking in rural areas. However, VBARD is still mentioned as one of the main microfinance providers in some recent studies, such as APEC TATF (2011).[184] Second, there were no rural banks (called rural shareholding banks) at the end of 2007 based on the records of SBV because of the mergers and acquisitions in the banking system.[185] However, the rural bank is still mentioned as a current financial institution in some studies, such as Haq, Hoque and Pathan (2008). Third, PCFs are credit institutions dealing with commercial rural finance by providing loans only to their members, who are considered as bankable people since they must have money to buy the required shares to be members (SBV, 2011). Their interest rates were 3.5% above the interest rate ceiling set for local commercial banks (World Bank, 2009). This indicates that PCFs are not microfinance providers but are still mentioned as such in many studies.[186]

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[184] See BWTP (2004), Quach (2005), Nghiem, Coelli and Rao (2006), Haq, Hoque and Pathan (2008), World Bank (2009) and APEC TATF (2011).

[185] Source: SBV (2011).

[186] See BWTP (2004), Quach (2005), Nghiem, Coelli and Rao (2006), Thapa (2007) and APEC TATF (2011).

**7.7. Research limitations**

This study has certain research limitations and some of these limitations can be seen as recommendations for further research.

▪ **Limitations of the data**: Annual data are self-reported from local microfinance programs to MIX Market. The lack of comparable accounting standards used for MFIs creates limitations for a cross-country analysis. A large number of MFIs do not provide up to date data to MIX Market creates data selection bias. Microfinance is considered as a young industry since is has been set up in developing countries (including Vietnam) within the past 10 to 15 years. Therefore, the unequal and limited periods of establishment of MFIs make any sample size small and it is impossible to establish a good data set. Any conclusions from the proceeding analysis will therefore be somewhat limited. This has been the nature of MFI analysis: limited data followed by limited conclusions.

▪ **Limitations of a case study**: A case study is a study conducted by using an individual sample involving only a single country (Vietnam); therefore, the conclusions may be not representative for the whole population due to insufficient information, which can lead to inappropriate results. This means the effects of financial structure on microfinance performance in a case study of Vietnam may be not representative of microfinance programs around the world.

▪ **Limitations of correlations**: Correlation is the research conducted to demonstrate the relationships between variables. This study involved MFI data submitted to MIX Market, and the relationship between the variables was only investigated in some situations (by charter type, profit status and firm size). Thus, it is

uncertain whether the findings can be generalised to other MFIs (who do not submit data) or other situations.

- The lack of wide empirical evidences concerning the relationship between financial structure and microfinance performance or the lack of empirical evidences concerning the relationship between local banks and large international banks could be a limitation of this thesis.

- The global financial crisis started in 2007/2008 and ended in 2009; therefore, its effects on MFIs during the period 2007-2009 are not clear and need to be investigated over a longer period.

## 7.8. Recommendations for further research

From the findings presented above, the following recommendations are made.

- The same study should be conducted on local commercial banks to establish the differences between them and MFIs. This research would provide a comparison of the impact of financial structure on the performance of different financial institutions.

- The effect of mergers and acquisitions on the existence of MFIs should be investigated in order to provide an idea of future MFI developments.
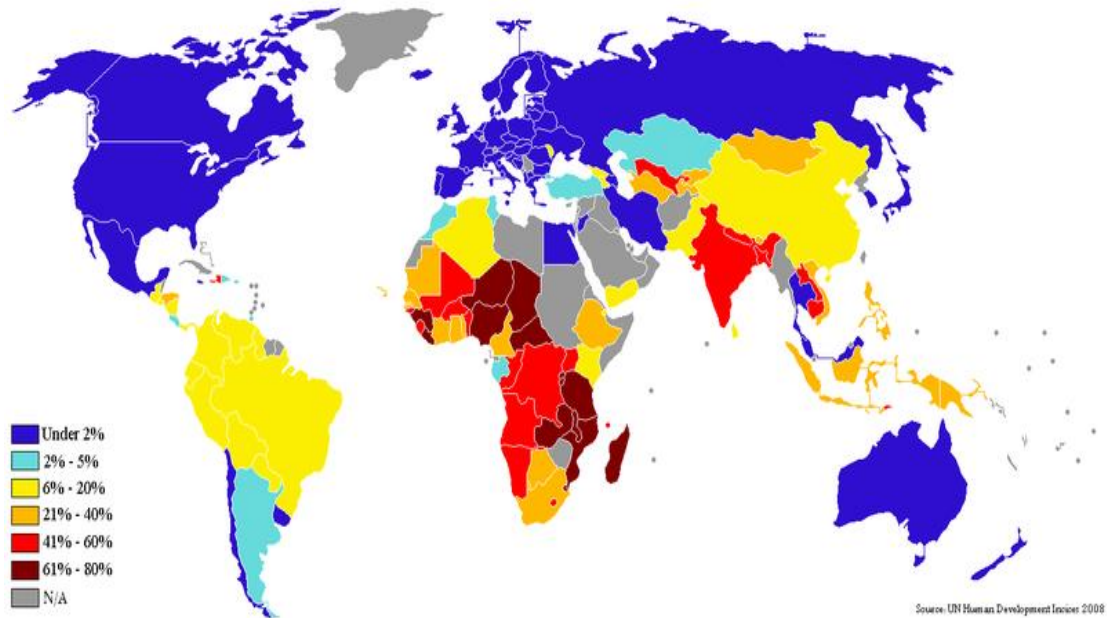
- An empirical study should be conducted to examine the impact of local and international banks on microfinance. This research would clarify the roles of local and international banks in the development of microfinance.
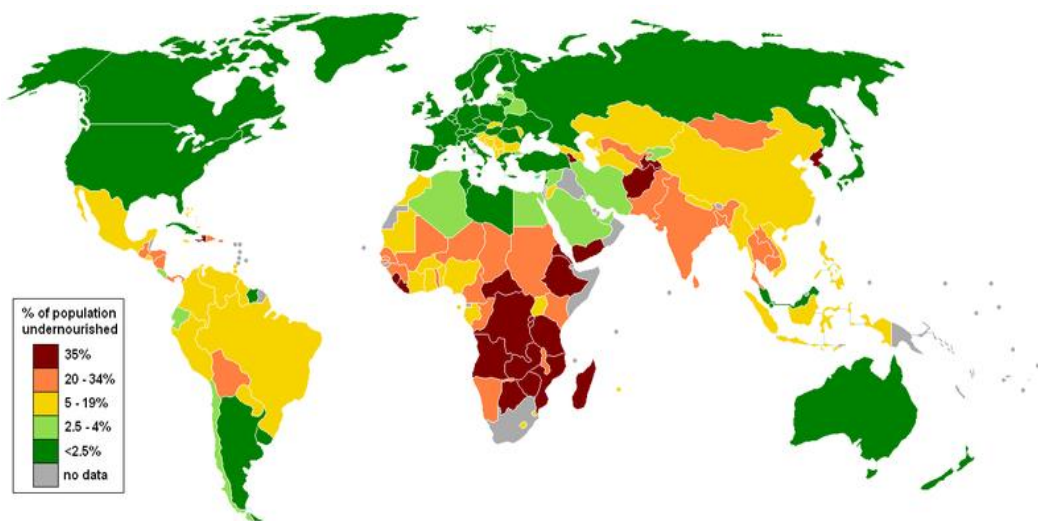
# APPENDICES

# APPENDIX 2.1

## POVERTY AROUND THE WORLD

**Panel A: Percentage of the world's population living on less than $1 per day in 2007-2008**
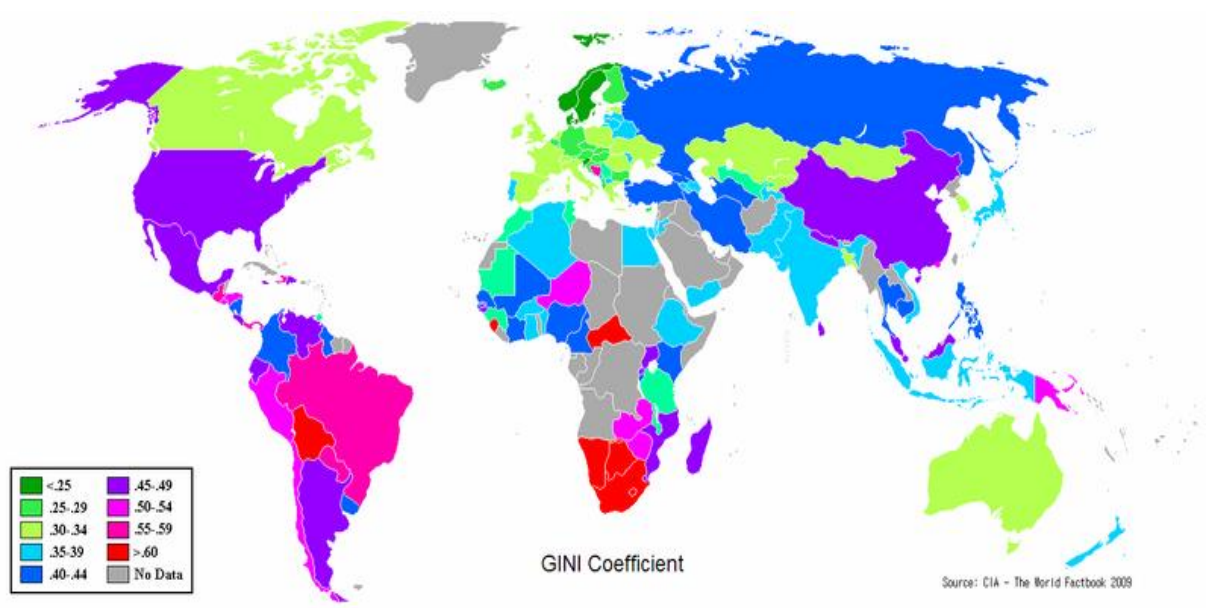


Source: United Nations (2008).

**Panel B: Percentage of the world's population suffering from hunger in 2006**



Source: United Nations (2006).

**Panel C: Gini Coefficient – A Measure of Income Inequality**



Source: CIA (2009).

**Panel D: Countries based on World Bank Income Group in 2006**
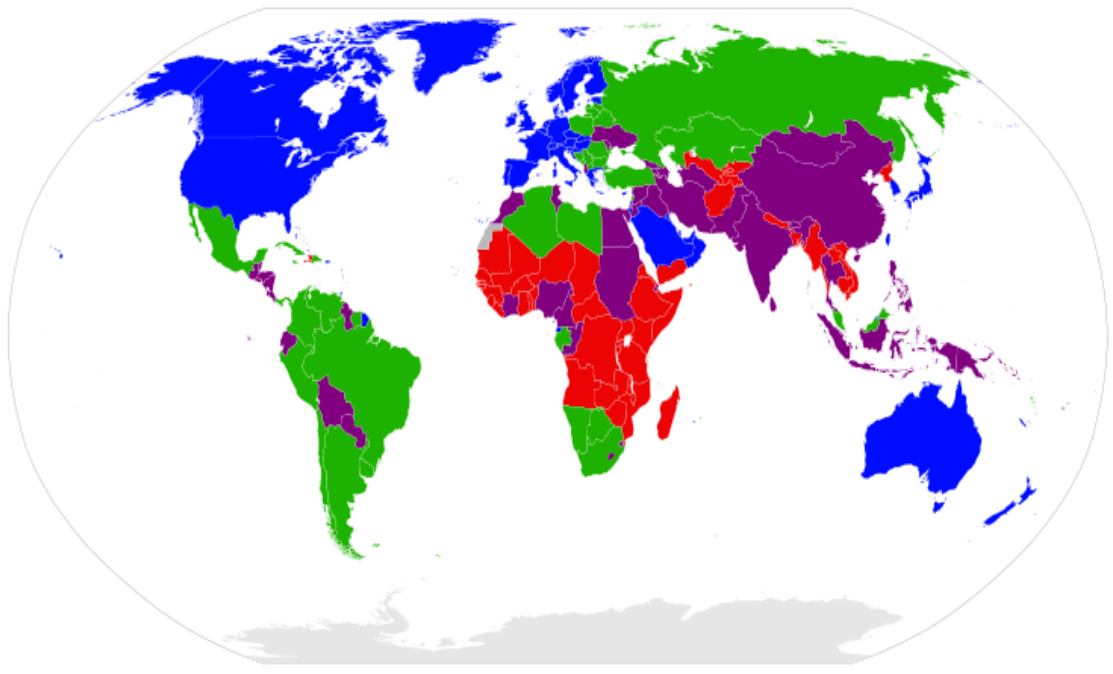


High income  Upper-middle income  Lower-middle income  Low income

Source: World Bank (2006).

**Panel E: Percentage of the world's population in poverty from 1981 to 2009**
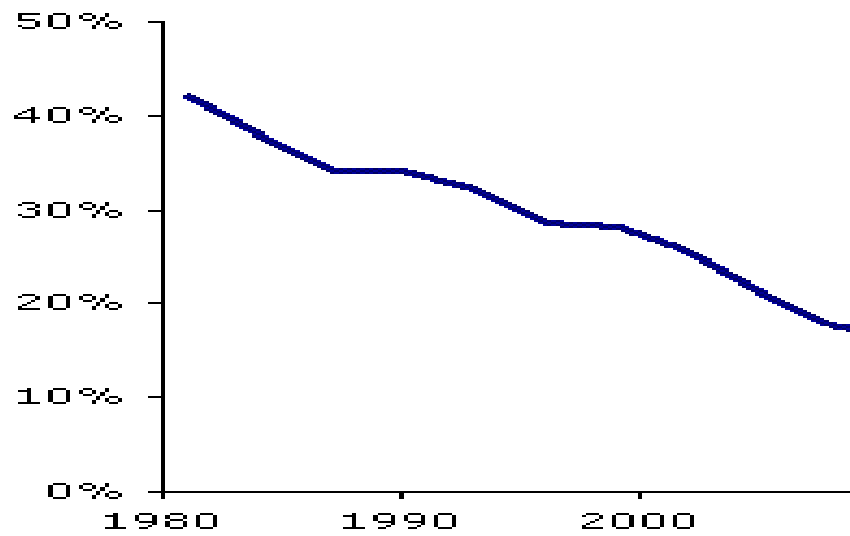


Source: World Bank (2009).

**Panel F: Percentage of the world's population living on less than $1 per day**
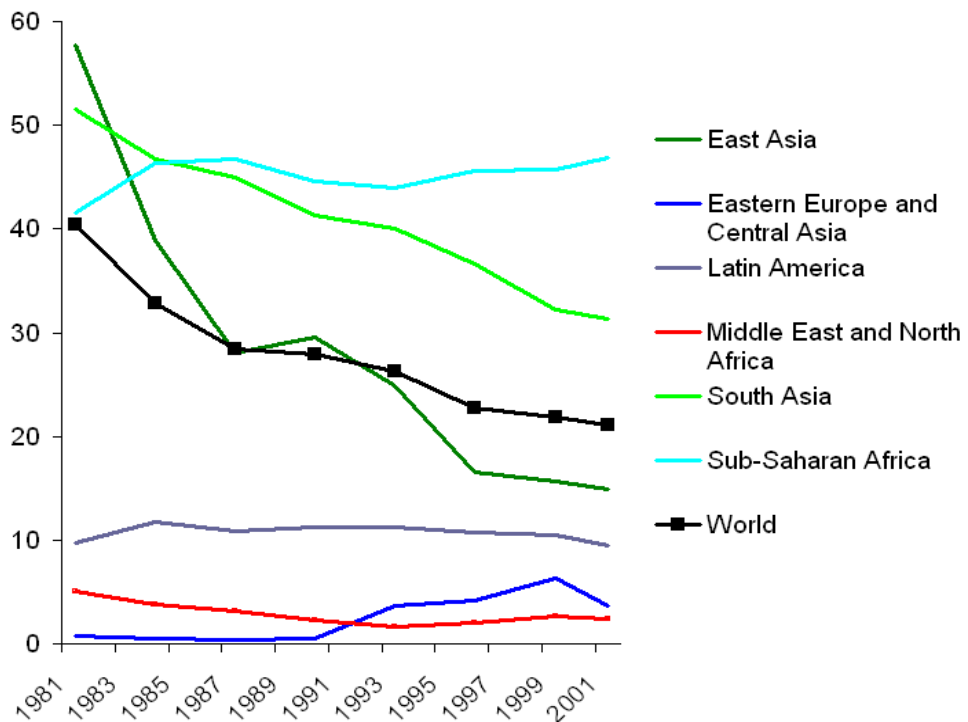


Source: United Nations (2008).

# APPENDIX 2.2

## SAVING UP AND SAVING DOWN

### Panel A:  Saving Up and Saving Down
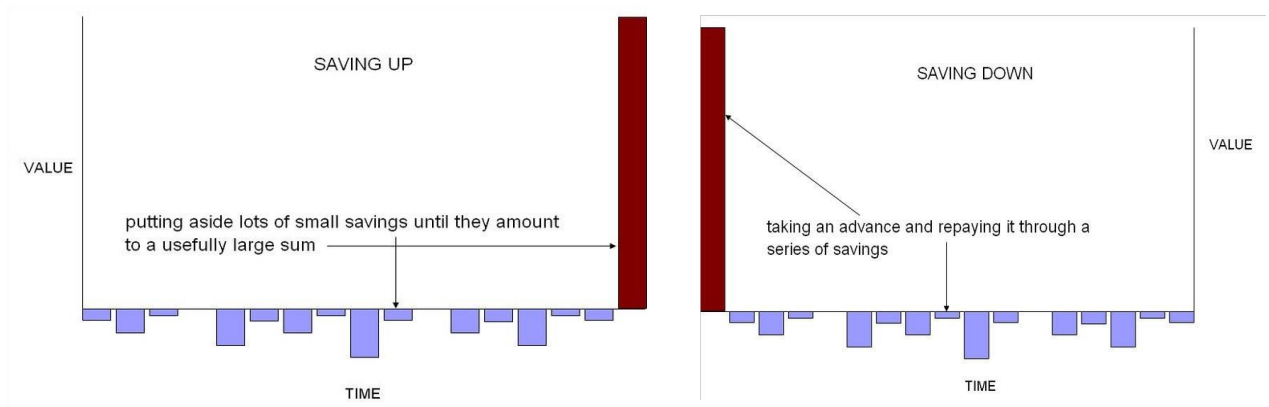


Source: Rutherford (2000).

### Panel B: Combination between Saving Up and Saving Down
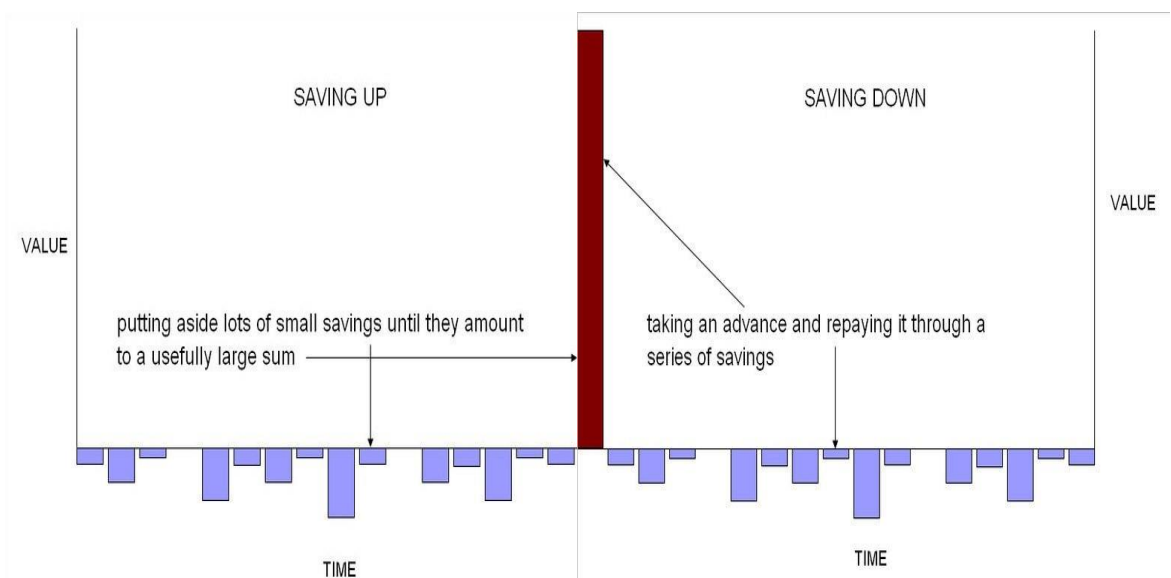


Source: Rutherford (2000)

# APPENDIX 2.3

## THE DEMAND FOR MICROFINANCE

**Panel A: Percentage of the poorest people who had access to microfinance in 2007**

| Region | Number of the poorest people | Percentage of the poorest people with access to microfinance |
|---|---|---|
| **Asia** | 123 million | 68.09% (83.7 million) |
| **Africa and Middle East** | 60.4 million | 6.9 % (11.4 million) |
| **Latin America and Caribbean** | 9.4 million | 20.2% (1.9 million) |
| **Eastern Europe and Central Asia** | 0.8 million | 28.8% (0.23 million) |

Source: Daley_Harris (2007, p.27)

**Panel B: Outreach Indicators by Region**

| | Number of Active Borrowers (million) | Average Loan Balance per Borrower (USD) | Number of Voluntary Savers (million) | Average Savings Balance per Savers (USD) |
|---|---|---|---|---|
| **Africa** | 21.974 | 228 | 27.082 | 105 |
| **Asia** | 32.915 | 195 | 18.374 | 39 |
| **Eastern European / Central Asia** | 6.040 | 590 | 0 | N/A |
| **Latin America** | 13.755 | 581 | 2.422 | 741 |
| **Middle East / North Africa** | 13.463 | 286 | 0 | N/A |

Source: MBB (2003).

**Panel C: Types of microfinance used by the poor**



**TYPES OF MICROFINANCE USED BY POOR PEOPLE**

Source: Brett Matthews, Mathwood Consulting Company.
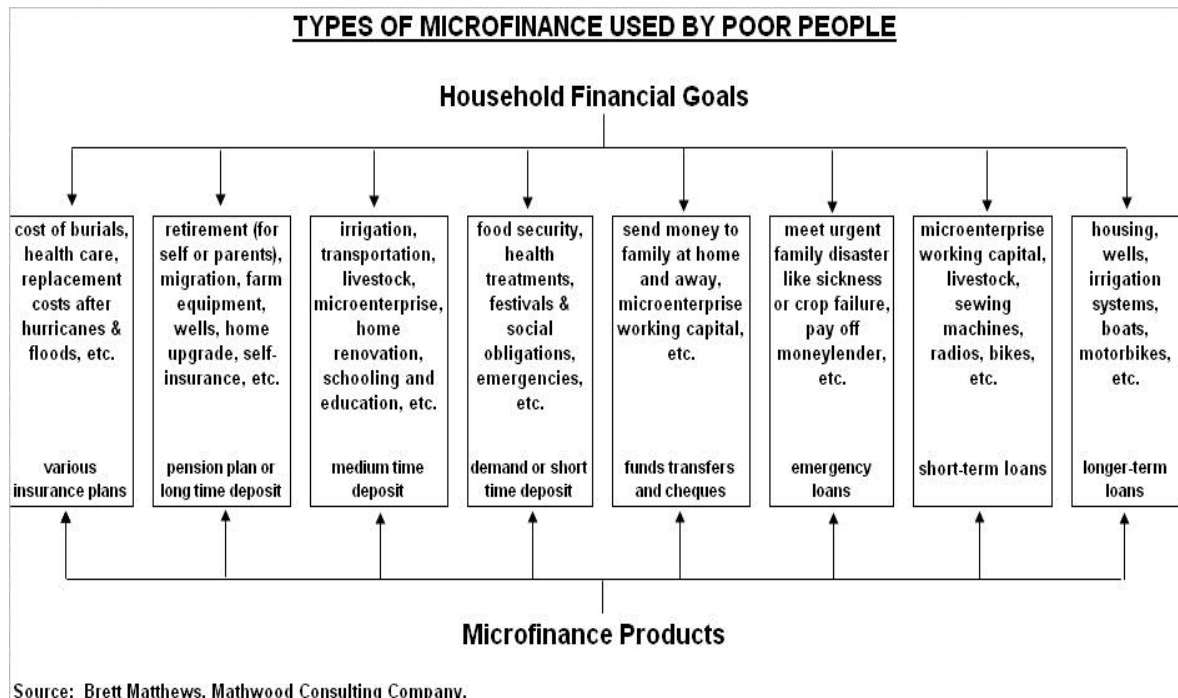
Source: Rutherford (2000)

193.6 million clients had access to microfinance services. Among them, 97.23 million were part of the poorest group. Approximately 90.1 percent of the poorest clients reported lived in Asia, a continent that was home to approximately 63.5 percent of the world's people living on less than US$1 a day. The growth from 7.6 million of the poorest at the end of 1997 to 92.9 million at the end of 2006 represents a growth of 1,123 percent during the nine year period.

In Asia, where almost 123 million of the poorest households have access to microfinance, around 83.7% of these are being reached. In Africa and the Middle East, only 6.9% of all poorest households have access to finance[1]. The percentage in Latin America and the Caribbean is 20.21%, while in Europe and Central Asia about 28.8% of the poorest have access to financial services. Tables 2.2 and 2.3 show the relationships between the poorest households in each region and the number of them within reach of microfinance in each region at the end 2006.

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[1]  See Daley-Harris (2007, p.27).

# APPENDIX 2.4

## MICROFINANCE PROVIDERS

**Panel A: Popular Categories of Microfinance Providers**

```
                        ┌─────────────────────────┐
                        │  Supply of Microfinance │
                        └───────────┬─────────────┘
            ┌───────────────────────┼───────────────────────┐
   ┌────────┴────────┐    ┌─────────┴─────────┐    ┌─────────┴────────┐
   │ Formal Providers│    │Semi-formal Providers│  │ Informal Providers│
   └────────┬────────┘    └─────────┬─────────┘    └─────────┬────────┘
   ┌────────┴────────┐    ┌─────────┴─────────┐    ┌─────────┴────────┐
   │ Financial       │    │ Government programs;│  │ Financial        │
   │ activities of   │    │ mass organizations; │  │ assistance from  │
   │ formal          │    │ specialized funds;  │  │ family, friends, │
   │ financial       │    │ international        │  │ or moneylenders  │
   │ institutions    │    │ organizations       │  │                  │
   └─────────────────┘    └───────────────────┘    └──────────────────┘
```
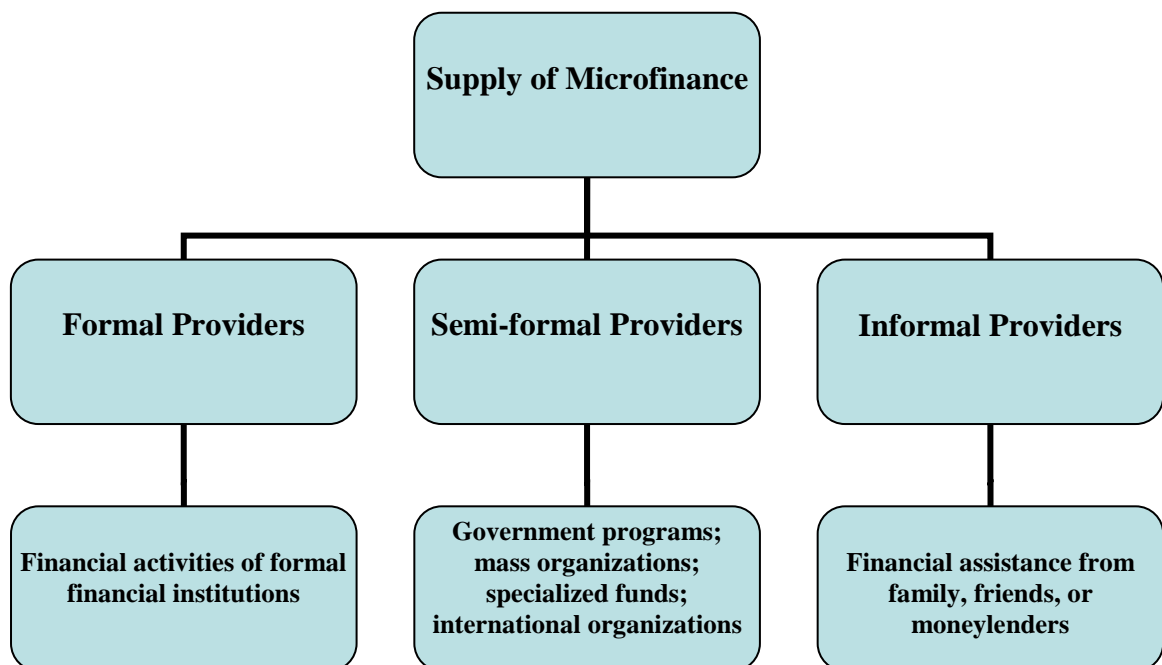
Source: ADB (2011).

**Panel B: Microfinance Providers based on Source of Funds**

| Microfinance Providers |
|---|

| Internal Providers (Local Providers) | External Providers (International Providers) |
|---|---|

**Internal Providers (Local Providers)**
- Formal financial institutions.
- Government.
- NGOs
- Informal providers.

**External Providers (International Providers)**
- International organizations.
- INGOs
- Large banks
- Other financial institutions.

| Non-profit programs | Profit programs | Profit programs | Non-profit programs |
|---|---|---|---|

**Commerical Microfinance**

**Profit programs**
- Commercial banks
- MFIs
- Informal funds

**Profit programs**
- Large banks
- INGOs
- Other financial institutions

**Non-profit programs**
- Government
- NGOs

**Non-profit programs**
- INGOs
- International organizations (WB, ADB)

# APPENDIX 2.5

## MFI CLASSIFICATION

**Panel A:  MFI Category based on Charter Type**
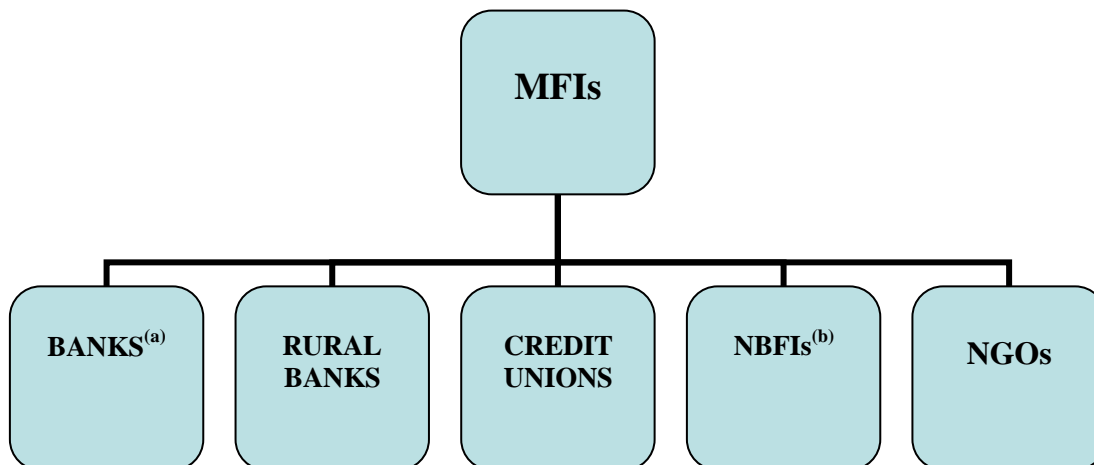


Note: (a) The term "banks" in this category means microbanks or microfinance banks that have functions and operate like local commercial banks in rural areas. In general, they are the same as rural banks or credit unions, but with different legal and charter status.

(b) NBFIs are Non- Bank Financial Institutions

Source: MIX Market (2011).

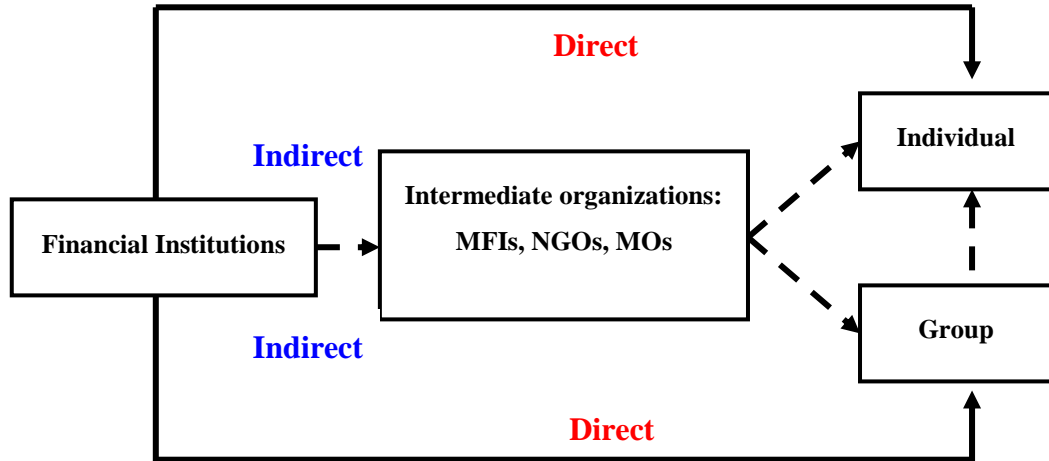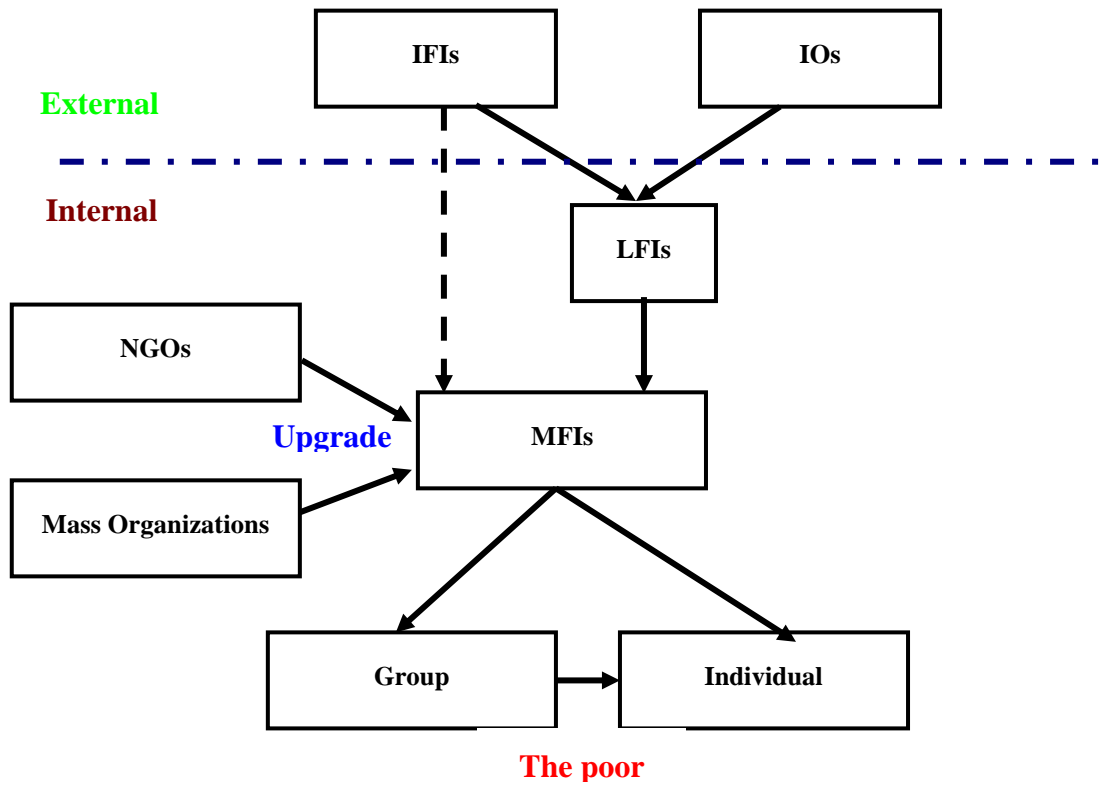**Panel B: MFI Category based on Profit Status**
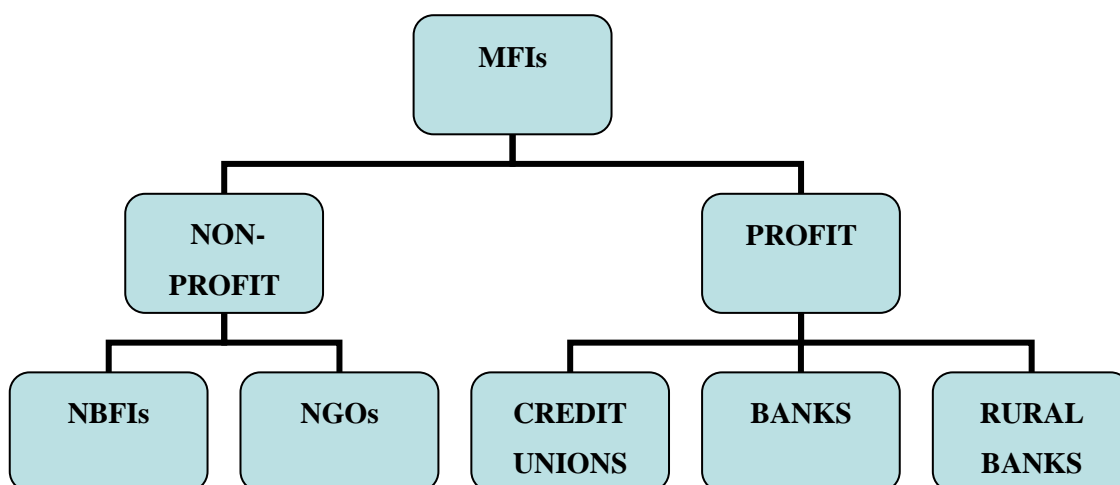


Source: MIX Market (2011).

# APPENDIX 2.6

## DOWNSCALING AND UPSCALING IN MICROFINANCE

**Panel A: Downscaling and Upscaling in Commercial Microfinance**



**Panel B:  Models of Upscaling in Commercial Microfinance**

# APPENDIX 5 PERFORMANCE OF MFIs BY SIZEs

**Panel A. Performance of Large MFIs (in USD)**

| Year | Total Assets | Loan Cost | Debt to Equity | Portfolio Size | Number of Borrowers | OSS | ROA | Loan Size | Total expense/ Assets |
|------|-------------|-----------|----------------|----------------|---------------------|------|-------|-----------|----------------------|
| 1996 | 41,859,866 | na | 5.46 | 33,108,466 | 11,251 | 1.496 | na | 1,557 | na |
| 1997 | 25,318,692 | 95.77 | 5.60 | 20,556,959 | 29,208 | 1.239 | 0.040 | 742 | 0.242 |
| 1998 | 35,980,706 | 129.59 | 4.13 | 30,817,853 | 37,120 | 1.219 | 0.042 | 748 | 0.245 |
| 1999 | 38,964,490 | 127.88 | 3.83 | 26,833,000 | 35,924 | 1.120 | 0.025 | 650 | 0.248 |
| 2000 | 45,104,563 | 123.59 | 4.46 | 36,821,001 | 39,588 | 1.165 | 0.029 | 646 | 0.221 |
| 2001 | 27,986,201 | 109.26 | 5.74 | 17,751,147 | 38,719 | 1.117 | 0.031 | 649 | 0.191 |
| 2002 | 30,174,555 | 100.08 | 4.31 | 17,914,538 | 35,452 | 1.237 | 0.033 | 675 | 0.181 |
| 2003 | 29,534,861 | 116.02 | 3.00 | 21,586,088 | 32,544 | 1.236 | 0.030 | 867 | 0.160 |
| 2004 | 34,860,811 | 127.37 | 4.28 | 26,452,051 | 39,038 | 1.226 | 0.031 | 975 | 0.167 |
| 2005 | 35,796,620 | 139.90 | 4.32 | 27,719,763 | 43,974 | 1.208 | 0.030 | 873 | 0.172 |
| 2006 | 40,195,331 | 148.78 | 4.49 | 27,689,499 | 41,873 | 1.222 | 0.032 | 991 | 0.172 |
| 2007 | 41,557,587 | 143.92 | 4.59 | 29,400,061 | 46,268 | 1.179 | 0.027 | 976 | 0.180 |
| 2008 | 44,560,855 | 159.57 | 4.34 | 31,917,238 | 45,770 | 1.153 | 0.023 | 964 | 0.194 |
| 2009 | 48,391,607 | 150.01 | 4.56 | 34,255,123 | 52,585 | 1.120 | 0.018 | 916 | 0.189 |

Source: MIX Market (2011)

**Panel B. Performance of Medium MFIs**

| Year | Total Assets | Loan Cost | Debt to Equity | Porfolio Size | Number of Borrowers | OSS | ROA | Loan Size | Total expense/ Assets |
|------|--------------|-----------|----------------|---------------|---------------------|-----|-----|-----------|----------------------|
| 1996 | 9,615,104 | na | 0.97 | 5,937,046 | 14,376 | 1.109 | na | 538 | na |
| 1997 | 11,610,516 | 111.82 | 1.13 | 6,862,494 | 6,961 | 1.064 | 0.015 | 1,563 | 0.221 |
| 1998 | 7,817,239 | 137.75 | 1.12 | 4,825,155 | 11,931 | 1.102 | 0.007 | 443 | 0.270 |
| 1999 | 5,463,802 | 78.72 | 1.35 | 4,332,607 | 15,742 | 1.098 | 0.015 | 368 | 0.245 |
| 2000 | 6,488,395 | 86.37 | 1.48 | 4,597,453 | 16,451 | 1.137 | 0.028 | 315 | 0.246 |
| 2001 | 6,430,428 | 78.76 | 1.46 | 4,555,204 | 11,688 | 1.101 | 0.023 | 454 | 0.219 |
| 2002 | 5,964,459 | 84.42 | 1.70 | 4,260,921 | 12,812 | 1.141 | 0.029 | 405 | 0.237 |
| 2003 | 6,358,352 | 89.73 | 2.52 | 4,288,356 | 11,914 | 1.121 | 0.026 | 450 | 0.216 |
| 2004 | 5,807,535 | 95.49 | 2.41 | 4,241,327 | 9,719 | 1.125 | 0.021 | 499 | 0.209 |
| 2005 | 5,954,813 | 101.43 | 2.87 | 4,382,171 | 9,943 | 1.121 | 0.022 | 470 | 0.206 |
| 2006 | 6,177,043 | 90.69 | 3.13 | 4,532,179 | 12,133 | 1.130 | 0.025 | 398 | 0.215 |
| 2007 | 6,123,311 | 105.96 | 3.03 | 4,438,306 | 10,280 | 1.128 | 0.021 | 518 | 0.211 |
| 2008 | 6,057,439 | 132.62 | 3.12 | 4,431,981 | 10,502 | 1.116 | 0.020 | 480 | 0.229 |
| 2009 | 6,672,857 | 126.82 | 2.52 | 4,764,448 | 10,521 | 1.081 | 0.015 | 451 | 0.228 |

Source: MIX Market (2011).

**Panel C. Performance of Small MFIs**

| Year | Total Assets | Loan Cost | Debt to Equity | Porfolio Size | Number of Borrowers | OSS | ROA | Loan Size | Total expense/ Assets |
|------|-------------|-----------|----------------|---------------|---------------------|-----|-----|-----------|----------------------|
| 1995 | 114,772 | na | -10.31 | 67,166 | 1,533 | 0.265 | na | 41 | na |
| 1996 | 1,673,167 | 24.01 | 0.63 | 1,096,003 | 4,116 | 1.131 | -0.079 | 177 | 0.235 |
| 1997 | 1,439,597 | 41.41 | 0.56 | 857,187 | 4,764 | 0.957 | 0.015 | 217 | 0.347 |
| 1998 | 1,257,053 | 74.06 | 0.65 | 941,233 | 3,448 | 0.959 | 0.001 | 170 | 0.364 |
| 1999 | 1,112,171 | 85.06 | 0.78 | 700,336 | 2,837 | 0.912 | -0.006 | 149 | 0.290 |
| 2000 | 971,428 | 82.89 | 0.87 | 648,437 | 2,832 | 0.936 | -0.001 | 197 | 0.305 |
| 2001 | 904,967 | 73.14 | 0.88 | 560,432 | 2,331 | 1.037 | 0.010 | 157 | 0.286 |
| 2002 | 810,382 | 72.78 | 1.17 | 501,510 | 2,567 | 1.014 | 0.007 | 137 | 0.256 |
| 2003 | 786,418 | 56.93 | 1.34 | 506,802 | 2,412 | 1.062 | 0.007 | 191 | 0.237 |
| 2004 | 810,219 | 63.35 | 1.69 | 561,737 | 2,564 | 1.070 | 0.018 | 157 | 0.245 |
| 2005 | 824,907 | 57.03 | 1.81 | 603,473 | 2,376 | 1.079 | 0.016 | 197 | 0.226 |
| 2006 | 939,037 | 76.15 | 1.75 | 654,786 | 2,125 | 1.082 | 0.017 | 262 | 0.245 |
| 2007 | 1,065,094 | 87.12 | 1.81 | 744,702 | 1,967 | 1.086 | 0.019 | 327 | 0.232 |
| 2008 | 1,103,245 | 119.28 | 1.74 | 800,304 | 1,616 | 1.100 | 0.019 | 369 | 0.270 |
| 2009 | 1,310,166.29 | 123.02 | 1.53 | 904,421 | 2,242 | 1.058 | 0.011 | 395 | 0.267 |

Source: MIX Market (2011).

# APPENDIX 6.1

**ADVANTANGES AND DISADVANTAGES OF FINANCIAL PROVIDERS**

| Organization | Advantages | Disadvantages |
|---|---|---|
| **Non-Profit** | | |
| **VBSP** | ▪ Focus on lending to the poor.<br>▪ Impressive outreach achieved in short time.<br>▪ Good relationships with local government and mass organizations. | ▪ Subsidized credit.<br>▪ No financial sustainability.<br>▪ Strong dependence on government (funds) and VBARD (staff, offices).<br>▪ Limit on savings mobilization.<br>▪ Not focused on near-bankable borrowers. |
| **MFIs** | ▪ Focus on sustainability.<br>▪ Targets are clearly identified.<br>▪ Market approach.<br>▪ Effective in reaching the poor | ▪ Limited funds.<br>▪ Depend on donors and borrowings.<br>▪ High associated costs due to not having their own networks.<br>▪ Do not have full license. |
| **Profit** | | |
| **Commerical Banks** | ▪ Wide range of branches, financial services and products.<br>▪ Market approach.<br>▪ Give loans to MFIs.<br>▪ Effective operations | ▪ Focused on commercial credit.<br>▪ Focused on urban credit. |
| **PCFs** | ▪ Market approach to credit services.<br>▪ Owned by members.<br>▪ Focus on local savings mobilization.<br>▪ Commune-based credit service. | ▪ Most loans are short-term.<br>▪ Initial growth is focused on richer areas and richer clients. |
| **VBARD** | ▪ Largest network<br>▪ Market approach | ▪ Do not target bottom of the poor pyramid.<br>▪ Focus on commercial credit. |
| **Money-lenders** | ▪ Convenient, simple and local.<br>▪ Market interest approach.<br>▪ Lenders know borrowers well.<br>▪ Good local savings mobilization.<br>▪ Independent operation. | ▪ High cost to the poor.<br>▪ Very poor are excluded.<br>▪ High interest rates.<br>▪ Small and short-term loans<br>▪ Isolated operation. |

Source: based on Dao (2002).

# APPENDIX 6.2

## MICROFINANCE PROGRAMS IN VIETNAM (in USD)

| MFI | Assets | CTA | Cost per loan | DTE | Deposits | GLP | NB | OSS | ROA | ROE |
|---|---|---|---|---|---|---|---|---|---|---|
| Binhminh CDC | 753,055.01 | 0.4486 | 35.9448 | 1.23 | 213,556.84 | 596,311.98 | 4,063 | 0.9891 | -0.0026 | -0.0051 |
| CEP | 29,816,369.78 | 0.347 | 19.565 | 1.88 | 9,371,889.57 | 28,297,376.98 | 134,141 | 1.6829 | 0.0975 | 0.29 |
| CEP BRVT | 1,327,367.83 | 0.4223 | NA | 1.37 | 364,671.92 | 1,080,726.67 | 8,000 | NA | NA | NA |
| Dariu | 1,286,822.94 | 0.8416 | 18.0797 | 0.19 | 181,215.38 | 1,196,776.55 | 10,841 | 1.3558 | 0.0651 | 0.0786 |
| Fund for Women's Development | NA | NA | NA | NA | 190,305.98 | 1,719,144.33 | 9,812 | NA | NA | NA |
| M7 Can Loc | 748,683.36 | 0.3854 | 12.3497 | 1.59 | 459,382.34 | 752,369.11 | 5,148 | 1.275 | 0.0327 | 0.0845 |
| M7 DB District | 215,664.67 | 0.6787 | 6.1892 | 0.47 | 69,298.28 | 209,129.70 | 3,344 | 1.8122 | 0.0787 | 0.1136 |
| M7 DBP City | 333,513.65 | 0.4651 | 11.6775 | 1.15 | 178,406.31 | 335,435.69 | 2,487 | 1.4501 | 0.0504 | 0.1054 |
| M7 Dong Trieu | 964,807.23 | 0.3329 | 11.2937 | 2 | 485,099.84 | 966,711.62 | 8,485 | 1.4068 | 0.0458 | 0.1268 |
| M7 Mai Son | 853,907.71 | 0.5005 | 9.5528 | 1 | 267,148.65 | 650,931.49 | 3,995 | 1.8735 | 0.0691 | 0.1312 |
| M7 Ninh Phuoc | 402,936.81 | 0.7745 | 15.6631 | 0.29 | 90,551.88 | 381,400.62 | 4,610 | 0.8555 | -0.0308 | -0.0411 |
| M7 Uong bi | 731,244.86 | 0.3878 | 20.2241 | 1.58 | 403,475.86 | 739,845.79 | 3,092 | 1.4606 | 0.0608 | 0.141 |
| TYM | 11,911,407.80 | 0.3781 | 14.4057 | 1.64 | 2,428,082.59 | 9,836,184.51 | 40,282 | 1.637 | 0.0795 | 0.227 |
| VBSP | 4,026,350,446.79 | 0.2225 | 35.4985 | 3.49 | 217,231,898.19 | 3,929,035,634.99 | 7,536,960 | 0.7624 | -0.0184 | -0.0746 |
| WU Ha Tinh | 2,844,224.48 | 0.1842 | NA | 4.43 | 313,637.10 | 2,681,343.08 | 23,400 | NA | NA | NA |

Source: MIX Market (2011).

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