Repayment performance in Microfinance: a theoretical analysis

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Abstract

Offering financial services to the unprivileged is a complex task and past attempts have been rather unsuccessful. One commendable effort that has sprung from the failures of commercial banks is microfinance and thanks to innovative ideas microfinance institutions have managed to cope with many of the challenges previously experienced by the formal bank sector in the 1970’s through the 90’s.

The “new” approach has successfully managed to overcome obstacles such as lack of collateral and information asymmetry. By using joint-liability schemes and by requiring frequent installments microfinance institutions have managed to reduce their risk exposure and by outsourcing the screening process to the borrowers they have dealt with the lack of information on their clients.

The purpose of this thesis is to investigate what microfinance institutions do that make them more suitable for delivering financial services to the poor. We will look at the supply driven efforts carried out in the past and see how they differ from the demand driven approach taken today.

We will evaluate some of the most common mechanisms of microfinance and assess their potential contribution to achieving the high repayment rates that many of these institutions obtain today.

The main finding is that group lending subject to social sanctions should improve the repayment rate. Other mechanisms that may enhance the performance are the use of dynamic incentives and regular repayment schedules. The effect of targeting women and social programs on repayment rates are ambiguous although their empowerment effect is notable.

By joining forces with NGOs, local authorities and the commercial financial sector microfinance has emerged as a viable poverty reduction tool alongside traditional aid.

Keywords: microfinance, group lending, social programs, repayment schedules, dynamic incentives, information asymmetry
Acronyms

BRAC – Bangladesh Rural advancement committee, MFI institution with rural focus
BRI – Bank Rakyat Indonesia
FOCCAS – Foundation for Credit and Community Assistance, NGO in Uganda targeting women
MFI – microfinance institution
NGO – nongovernmental organization
SEWA – Shri Mahila Sahakari Bank, cooperative under the Reserve Bank of India
SWAWS – Sharada’s Women’s association for weaker sections, MFI in India based on the Grameen bank model
UWESO – Uganda women’s effort to save the orphans, NGO MFI which targets poor women
WWF – Working Women’s Forum
# Table of Contents

1. Introduction ............................................................................................................................ 5  
   1.1 Thesis disposition ............................................................................................................. 6  
2. History and challenges ........................................................................................................... 7  
   2.1 Literature review ............................................................................................................. 7  
   2.2 Past attempts by commercial banks in developing countries ......................................... 8  
   2.3 Market imperfections and difficulties faced by financial institutions ......................... 9  
      2.3.1 Adverse selection .................................................................................................... 11  
      2.3.2 Moral Hazards ......................................................................................................... 12  
   2.4. Subsidies ....................................................................................................................... 12  
   2.5 Delimitation .................................................................................................................... 13  
   2.6 Methodology .................................................................................................................. 14  
3. Common models of microfinance ........................................................................................ 15  
4. Mechanism through which MFIs overcome market imperfections and risk .................... 16  
   4.1 Group lending ................................................................................................................. 17  
   4.2 Peer selection .................................................................................................................. 22  
   4.3 Peer monitoring .............................................................................................................. 23  
   4.4 Dynamic incentives ........................................................................................................ 24  
   4.5 Financial risk .................................................................................................................. 25  
   4.6 Regular repayment schedules ....................................................................................... 27  
   4.7 Collateral substitutes ...................................................................................................... 28  
   4.8 Social programs and training ....................................................................................... 29  
   4.9 Targeting women .......................................................................................................... 31  
5 Conclusions ........................................................................................................................... 32
1. Introduction

In 2000 the United Nations set up the “Millennium development goals” striving to make the world a better place. One of these eight goals was to reduce poverty by half by the year 2015. A promising tool for this is microfinance, which has evolved into a global phenomenon and gained supporters across the globe. Much of the international attention on microfinance today is a result of the work by Nobel peace price laureate Dr Mohammed Yunus and his Grameen bank in Bangladesh.

The combined effort of different organizations, companies and groups has laid the foundation for modern microfinance with new projects starting on a regular basis helping millions of people around the world. Microfinance has carved out a niche to help poor people in especially rural areas to overcome poverty and to take part in the society on a more extensive level. In order to evaluate microfinance a definition is needed to outline the different activities that the microfinance industry embraces. By using the definition of the Asian Development Bank (Conroy, 2003) microfinance is “the provision of a broad range of financial services such as deposits, loans, payment services, and insurance to poor and low income households and their micro enterprises”.

The microfinance industry has been able to show successful results in terms of repayment rates as many microfinance institutions (MFIs) present strong repayment performance. This may be regarded as a bit peculiar since a typical “client” would tend to have poor or no credit history, low income, little education and no sizeable collateral. As such, the people within the target group for these services, in particular loans, would not be considered as an ideal client in the formal financial sector. In many ways MFIs face the same challenges as the commercial bank sector when offering financial services to marginalized people in developing countries – higher risk, lower margins, agency costs and clients being dispersed over a wide geographical area with modest infrastructure, with increasing transaction costs as a result.

Recent history has shown that the difficulties facing banks operating in poor, rural areas have been hard to overcome; many formal credit institutions have failed in their attempts to provide financial services to the poor in a sustainable way. Interesting to note is that where the formal bank sector failed in the recent past microfinance is thriving today. The question that comes in mind is: What do microfinance institutions do differently compared to their peers that leads to the high degree of success, measured in terms of high repayment rates that they attain today?

The purpose of this paper is thus to investigate the mechanisms through which microfinance manages information and risk to obtain higher repayment rates as compared to the formal bank sector.
The major findings of this thesis can be summarized as follows: a program design based on a group model reduces the financial risk and shifts the monitoring costs to the borrowers, through which MFIs can address the problem with lack of information on their prospective borrowers. This is further enhanced by the use of joint-liability, dynamic incentives and social sanctions that induce the borrowers to not only monitor their group members but also support them (although social sanctions have a more punitive nature). ¹

The targeting of women is important from a gender equality perspective but the link to high repayment rates is less clear. Both collateral substitutes and regular repayment schedules serve as insurance for the lender, which reduces overall risk and should have a positive effect on the repayment performance.

One can also argue that one of the major differences between the efforts carried out in the past by the formal bank sector and the approach by MFIs is to offer services beyond a mere financial nature. Social programs constitute an important contribution and help to establish a closer relationship between lender and borrower.

1.1 Thesis disposition

The first chapter will outline the background and the purpose of this thesis along with a brief discussion about why this topic is of interest. A definition of microfinance will be decided upon and the major findings of this thesis will be introduced.

Chapter two will present the research literature used for this thesis and its relevance to the topic. We will give a historical description of the attempts made by the formal bank sector and possible reasons to why it was unsuccessful. We will direct attention to the challenges and obstacles that any financial institution would have to address when trying to offer financial services to the poor and elaborate on the most prevailing ones in more detail.

The use of subsidies is a controversial issue in microfinance especially with the track record of the formal bank sector fresh in mind. We intend to give a short summary on how it was used in the past and how the view has changed among scholars today.

As microfinance is a wide subject to immerse in chapter two will cover the delimitation of this thesis as well as the methodology deployed to answer the purpose.

¹ Please see appendix 1 for a summary
The most common models for setting up a MFI are discussed in chapter three. We present the various structures and look at the differences along with possible implications. The purpose of this chapter is to show that MFIs can come in many shapes and forms.

Chapter four discusses how and why different microfinance innovations can overcome some of the problems presented in chapter two. We will analyze these mechanisms and evaluate their pros and cons and their significance to the purpose of this paper.

The final chapter summarizes the conclusions drawn upon the findings and analysis from the previous chapter, along with suggestions for future research and general reflections on the topic.

2. History and challenges

2.1 Literature review

Morduch and Armendariz (2005) present an overview of microfinance, covering most of the mechanisms and issues concerning this type of financial services. Morduch (1999) outlines many of the concepts and terms used in microfinance and investigate the use of microfinance to reduce poverty. Sharma and Zeller's (1996) experiences from Bangladesh look at payment performance and bring up the element of diversification along with a description on how microfinance has progressed over time. Both the article by Morduch and the study by Sharma and Zeller present information about the historical background of the early attempts by the formal bank sector. Zeller's (1998) study in Madagascar presents interesting results on how the repayment rate is affected by social cohesion, program design and risk-pooling.

By the work of Besley and Coate (1995) we get an insight of the role of group lending in improving repayment rates and more specifically the impact of social sanctions on repayment performance. Kugler and Oppes (2005) discuss group formation and whether group heterogeneity or homogeneity is preferable.


Hossain (1988) evaluates Grameen bank in 1984/1985 and presents some findings that postulate the idea that women are more reliable in terms of repayment than men. Rahman (1990) adds a dimension to Hossain’s study by presenting interesting circumstances during the research period.

2.2 Past attempts by commercial banks in developing countries

The dominant institutions in the formal financial sector are the commercial banks that express difficulties when dealing with financial services to the poor because of the absence of collateral, no [reliable] credit history and with loan request below banks’ minimum levels (Conroy, 2003). Even though there have been attempts by the formal bank sector to meet the needs of the poor they have a weak track record and many of these attempts have been failures.

Morduch (1999) cites the work by Adams, Graham and von Pischke who claims that subsidized credit was a keystone for many developing countries in the 1950’s as a poverty reduction effort but all these attempts were disappointments with repayment rates less than 50 percent. To induce the formal banks to offer financial services to the poor governments backed them up with different kinds of subsidies that would compensate for potential losses but many times this gave rise to misuse and corruption, inevitably leading to a collapse (Morduch & Armendariz, 2005).

The case of Bangladesh in the 1970’s and 1980’s is a good example of how and why the attempts of the formal bank sector to offer financial services in rural areas have been unsuccessful in more detail. The approach taken by the government of Bangladesh was to replicate the urban-based bank sector in the rural areas, despite an awareness of the fact that the organizational structure should be adjusted to suit the rural sector. This meant that loans continued to be strictly collateral-based; the structure of the bank provided few incentives for managers to screen borrowers for credit worthiness, to evaluate loans objectively and to ensure that the terms and conditions of the contracts were fulfilled.

The bank managers also found it unattractive to deal with large transactions costs as a result of small loans (compared to lower transaction costs for servicing few but large borrowers in the urban area). In addition to the unchanged banking structure the availability of subsidized capital from the central bank also encouraged inefficiency. Besides the structure of the bank there were external factors that lead to the failures of the transition of urban-based banking to the rural sector. One of these factors was that the banks had nearly no possibilities of seizing collateral.
when a borrower could not repay her loan; legal methods to liquidate collateral in the rural areas were impossible to enforce (Sharma & Zeller, 1996).

Political intervention in terms of frequent announcements of loan amnesty and large interest cuts further created incentives to default; hope of a future loan amnesty program even affected creditworthy borrowers not to repay their loans. This created a short-term association between borrower and lender that further narrowed incentives to repay loans (Sharma & Zeller, 1996).

The consequences of these exogenous factors and the flawed organizational structure of the banks can be illustrated by the low repayment rates of that time. Sharma and Zeller (1996) refer to Khalily and Meyer when speaking of repayment rates as low as 51 percent during 1981-82 to lower than 19 percent during 1992-93.

The failures of commercial banking in under-developed areas have given rise to the innovative lending institutions that MFIs are; at the same time when formal banks were failing in the rural sector microfinance was starting to see the daylight in Bangladesh. In the late 1970’s Grameen Bank and BRAC had already started their implementation of microfinance programs for the poor in rural Bangladesh and by the end of the 1980’s a number of institutions like Grameen bank and BRAC had already come a long way in proving that financing to the poor could be done successfully (Sharma & Zeller, 1996). In comparison to the figures that the formal bank sector had from the early 80’s to the early 90’s Grameen bank demonstrated a steady repayment level above 95 percent under the same period (Grameen info, 2001).

These microfinance institutions have some features that distinguish them from traditional commercial banks. These features include, among others, the use of group lending, the focus on women as a target group, offering very small loans, no demand for traditional collateral and the use of frequent repayment installments.

Besides offering financial services, MFIs often have some form of social programs where the borrowers are offered reading-classes, classes in enterprising, health information and so on.

2.3 Market imperfections and difficulties faced by financial institutions

Most industries suffer from some market imperfections and market failures, which can cause inefficiency and difficulties for the economic agents concerned. Information asymmetry and agency problems are often referred to in modern economic theory as common problems faced by economic agents acting on a certain market. These market imperfections have proven to be hard to overcome in developing countries, and as mentioned earlier, attempts of improving the financial sector in poor regions have in the past been unsuccessful.
The failure of traditional commercial banking has given rise to new ideas on how to improve the situation of the poor, where microfinance has become an increasingly popular means to fulfill this goal. The reason to why microfinance has grown to be a leading attempt to reduce poverty might be that this type of organization, and the way that they operate, is better designed to face those difficulties that make it hard for formal credit institutions to operate in very poor regions (Morduch & Armendariz, 2005).

Beside market failures there are certain specific risks that will be faced by both traditional commercial banks and by microfinance institutions operating in village economies. Many of the poor today are to be found in rural areas where agriculture is the main occupation. Agriculture per se is a risky business since there are a lot of exogenous variables that determine the outcome. The risks include weather conditions, pests and volatile prices (Chua et al, 2000). For instance, a draught could set back an entire village (or region) and as a result jeopardize the possibility of repaying a loan.

Since it is perceived to be high risk and low profitability (or profitable at all) due to high transaction costs on issuing small loans the commercial financial sector has shown little interest in rural banking in terms of reaching out to the most needy. Some commercial banks are present in the rural area but the focus is not on the poor as they tend to target clients that offer limited risk. An example from central Asia shows that farmers growing tobacco can receive loans from the formal financial sector if they are backed up by tobacco companies (in this case US giant Philip Morris) (Kim et al, 2004).

But, as Kim et al (2004) explain, the rural poor are not only being excluded out of pure business reasons but also because of prejudices from the society. It may also be that they lack experience from making an appropriate risk appraisal of the sector, leading to the notion that it is risky or at least not attractive. As Buchenau and Meyer (2007) describe when looking at ProCredit in El Salvador it is crucial that loan officers have experience in agriculture in order to make a suitable risk assessment of the client (i.e. understand production risk, possible return, client capability etc).

As being raised in the paper by Campion (2001), in order to become successful in rural banking it is important to understand issues such as crop cycles and seasonal patterns. This is somewhat echoed by Morduch (1999) who argues that addressing seasonality is one of the biggest challenges for reaching out to the most needy in rural areas.

For obvious reasons, both the commercial financial sector and MFI face the same risks associated with agriculture as an industry but where the commercial sector has chosen to step back MFIs has its strongest presence. MFIs are as vulnerable as commercial banks when it comes
to exogenous risks such as bad weather but they have found ways to secure high repayment rates by taking the borrowers’ prerequisites into consideration when designing the lending structure instead of relying on traditional collateral.

2.3.1 Adverse selection

Adverse selection is a consequence of market imperfections in the form of information asymmetry between economic agents. In lending, information asymmetry rises from the fact that banks do not have sufficient information regarding the riskiness of the clients’ investment projects. This will induce them to set an interest rate at a high level to compensate for the risk of not knowing which investor that is “risky” and which that is “safe”. The high interest rate will drive the safe investors out of the credit market, and the ones left will be the most risky investors (Morduch & Armendariz, 2005).

Morduch (1999) illustrates how this happens with the following example: consider two individuals, one risky and one safe, who need to borrow one unit of capital each to make an investment. The risky type will have a lower probability of earning a profit than the safe investor, but her profits will be higher than the safe investor’s in the case of success. Due to information asymmetry, the bank will not be able to observe the different characteristics of the investors but only know the fraction of safe and risky investors in the market. On the other hand, investors will have this information on each other.

The opportunity cost of making the investment is the wage income \( m \), that the borrowers will earn if they do not undertake the investment and decide to work instead. The probability of success for the risky type and the safe type is denoted \( p_r \) and \( p_s \) respectively, and their returns are \( R_r \) and \( R_s \). Failure means that their returns will be zero. For simplicity it is assumed that the expected net return is the same for both types: \( p_r R_r = p_s R_s = R^* \).

Since none of the investors have any collateral to put up the bank will not be repaid if the borrowers do not manage to earn a profit on their investment projects.

The bank is considered to operate in a competitive market and must set an interest rate high enough to cover its per unit of capital cost, \( \rho \) (i.e. the bank will break even which is the best it can do in a competitive market). In equilibrium the interest rate will therefore be set so that \( r p^\wedge = \rho \), where \( p^\wedge \) is the average probability of success and \( r \) is the interest rate. Since all investors face the same interest rates, safe investors will have lower expected net returns than risky types \( (R^*-r p_s < R^*-r p_r) \) and the safe types will only enter the credit market if their expected net return

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\(^2\) The projects of both types are assumed to be socially profitable in the sense that expected returns minus the cost of capital, \( \rho \), are larger than the wage income: \( R^* - \rho > m \).
exceeds the wage income \( m \), i.e. if \( R^* - rP_i > m \). If \( R^* - rP_i < m \) the safe investors will stay out of the credit market and the ones left might only be the risky types. The interest rate will in equilibrium then rise to \( rP_i = \rho \), and hence the risky types drive the safe types out of the credit market.

2.3.2 Moral Hazards

The theory of moral hazards refers to the possibility of a person being less concerned about negative consequences of undertaking a risk as a result of having some form of insurance. The problem may arise when individuals or institutions do not alone bear the full risk of a transaction and therefore will not act as carefully as they would if that was the case. This, in turn, may jeopardize the returns of the transaction, i.e. the investment- or project return.

When it comes to lending, moral hazards refer to situations where lenders cannot observe borrowers actions or even the realization of project returns, and generally the problem can be separated into two types: ex ante moral hazard and ex post moral hazard.

Ex ante moral hazard includes the actions or efforts taken by the borrower, which are unobservable to the lender, that are taking place after the loan has been granted and paid out, but before the returns of the investment or project have been realized. The idea is that these actions may affect the probability of profitable returns on the investment being made. When a borrower has obtained a loan she can either make an effort and take actions that will lead to positive returns and thereby make a profit, or she can choose not to devote time and effort at all and may or may not make a profit depending on the outcome. This is of importance since the loan will remain unpaid and the bank will make a loss if the borrower does not put in any effort and the outcome is no positive returns on the project.

Ex post moral hazard refers to problems that arise after the borrower has received the loan, made the investment and after the project or investment returns have been realized. Even if the returns are positive, the borrower has the possibility to “take the money and run” due to the fact that the lender does not know how large the borrower’s profits are. In other words, the borrower can report a loss although the investment has been successful and keep the profit without repaying the loan (and by doing so she might face sanctions from the lender as a result of the default) (Morduch & Armendariz, 2005).

2.4. Subsidies

It is necessary to discuss the role of subsidies since they played a major part in the failure of the formal financial sector’s endeavors and since subsidies are an integral part of the MFIs’ business today. It is important to remember that subsidies come in many shapes and forms; Chua et al
(2000) discuss a case in Thailand where the government offered favorable interest rates from the Central bank and/or less (even exemptions) requirements for capital ratios (minimum reserves). Conroy (2003) points out that the private sector can also provide various subsidies (from donors). For MFIs a common indirect subsidy is “soft loans” which means that a donor/bank offers the MFI a loan with an interest rate [much] lower than the going market rate, and that the rate may be flat for a long period of time (decades) (Morduch & Armendariz, 2005). As such, when talking about subsidies it is important to keep in mind what kind of subsidy that is being discussed, its “source” and what it is used for.

The biggest difference between how subsidies were used in the past by the formal financial sector compared to its usage today within the MFIs is who the beneficiary is. In the past when the interest rate was subsidized the beneficiary was the borrower and as has been shown this had a negative effect on repayment incentives. If operational costs are subsidized, which is suggested among many scholars today, the MFIs are the recipients. As the borrowers are no longer the recipients there is no incentive to default caused by subsidies. However, Campion (2002) claims that direct subsidies are one of the major obstacles to [commercial] microfinance. Her argument is that continuation of subsidization by donors prevents MFIs to look for other types of funding such as mobilizing savings or the use of commercial debt. Campion (2002) echoes the view of Kim et al (2004) who state that direct subsidies (i.e. subsidies that can be used for lending) lead to market distortion. Nevertheless, Campion (2002) gives some merit to the use of subsidies to fund initial activities (pilot tests) and research. Thus, her conclusion is that donor subsidies should be focused on “capacity-building support”. She is supported by Conroy (2003) who concludes that subsidies should be used for start-up costs and not to be used for carrying the organization. Morduch and Armendariz (2005) somewhat support the idea by arguing that the “strategy has some appeal”.

2.5 Delimitation

There are many facets of microfinance and to look into each and every one of them is beyond the scope of this paper. The objective is to evaluate mechanisms that are frequently discussed in microfinance. As Morduch and Armendariz (2005) argue, in broad scope, microfinance can be looked upon from three major angles; 1) how it can be used to deal with risk and information asymmetry, 2) whether microfinance can give a better insight to the dynamics of markets in developing economies and 3) how microfinance can be used to reduce poverty. The angle focusing on microfinance and its relation to market dynamics would require a macro-based view, taking into consideration politics, legislation and budget allocation/priorities and this is not the
intention of this paper. Assessing whether microfinance can serve as a poverty reduction tool is a complex task since it is difficult to evaluate the actual effects of “empowerment issues” (e.g. improving literacy, dealing with gender inequality). Our main focus will be on how microfinance can deal with risk and information to obtain high repayment rates which will implicitly address poverty-reduction issues. Group lending offer possible means to this and as Morduch and Armendariz state it is one of the most celebrated aspects of microfinance and thus a considerable part of this thesis will be devoted to group lending, how it is constructed and what it has to offer in terms of serving as an information asymmetry problem solver.

Other basic elements that Morduch and Armendariz put in focus are the targeting of women and frequent repayment schedules which along with dynamic incentives, collateral substitutes and social programs will be the main components of microfinance that we will look into.

Besides lending microfinance institutions provide financial services such as saving possibilities and insurance products. Although these services will be mentioned in this paper we will not immerse in these topics, but focus on lending.

There are also differences between microfinance in an urban and a rural setting (notably population density) and comparisons between these are the topic in a number of research papers. We will not look at these differences in this paper and these differences will not affect the major scope of our analysis.

2.6 Methodology

The principal approach used for this paper is an investigation of the research literature with analytical evaluation of the main theoretical models of microfinance. The analysis is further supported by empirical studies related to the research objective. The theoretical and empirical literature is analyzed together to formalize the conclusions of the study.

Since much of the literature is subject to cross-references it could be argued that there is an intrinsic selection bias and that the literature thereby does not represent an objective view of microfinance. But as the suggested literature and readings have been discussed with supervisor Ranjula Bali Swain, assistant professor at Uppsala University, and is to be considered as the main literature on the topic we feel that it is representative for this thesis. We have also tried to present conflicting views when possible and leave it to the reader to decide which side that presents the most convincing arguments.
3. Common models of microfinance

This section will outline different models of microfinance institutions and their most prevalent attributes as there are a wide variety of approaches towards setting up a MFI.

**Grameen Bank model**

One of the most common models is simply called ”The Grameen model” and as the name indicates it is a replication of the now famous model initiated by Dr Yunus in Bangladesh. Groups are formed on a voluntary basis and the groups consist of five members. The basic setup involves joint-liability, where all members in the group are treated as being in default if any other member in the same group fails to meet her payment obligation (Besley & Coate, 1995), and dynamic incentives which means that the borrower [or the group] is cut off from future borrowing if she fails to meet her payment installments and where bigger loans are granted over time if the previous one has been paid back in an orderly manner (Morduch, 1999). These conditions make it paramount to choose suitable group members. Repayments are made in public, which further enhance the motive to pay installments accordingly in order not to loose face (Morduch & Armendariz, 2005). A salient feature of the Grameen model (which also happens to be prevalent among MFIs in general) is the focus on women (Conroy, 2003).

**Village Banks**

A Village bank consists of two building blocks, the external account and the internal account. The external account represents capital provided by an external source that is lent to the members of the “bank”. The internal account is made up entirely by the savings of the group members, which can also be lent to other group members. The number of members is between 30-50 and the loans are being repaid on a weekly basis. The objective is that the “bank” will be self-sufficient, i.e. not dependent on the external account for funding (usually within a timeframe of three years).

Hence, the main difference between the Grameen model and the Village bank is the accumulation of capital in order to become autonomous from the initial source [any external] for funding. The Village bank model is common in Latin America and Africa (Conroy, 2003). Similarities to the Grameen bank model is that joint-liability applies and that no collateral is needed. With the overall objective of becoming self-sufficient savings constitutes a vital part of the Village bank structure. One well-known example of a Village bank as mentioned by McIntosh et al (2003) is FINCA, which operates in Uganda. The Village bank model (or modifications of it) is also used by NGOs, one of the more noteworthy is Pro Mujer who supports women in Bolivia.
which uses the savings as a basis for insurance, i.e. the savings are used to pay off the loan in times of hardship (Chua et al, 2006).

Credit Unions
A credit union is a financial cooperative (non-profit) owned and controlled by its members with the objective of issuing loans and collect savings. A credit union can provide some training to support the members. At a fee a credit union may be able to offer insurance against idiosyncratic risks (e.g. household specific) (Chua et al, 2006). Credit groups have been rather successful in Asia but in other parts of the world the results have been poorer (Conroy, 2003). There are also regional differences; in the case of Africa East Africa demonstrates moderately poor results whilst West Africa is more promising (Sherief & Sharief, 2007).
Due to the structure of a credit union (only providing financial services to members) the outreach is fairly limited which is further constrained by the low capital growth. Kim et al (2004) add the perspective that credit unions are savings-driven while many other MFIs are credit driven and also acknowledge that the members usually share a common bond, e.g. profession.

Self-help Groups (SHG)
Self-help groups are popular in India due to the fact that they are easy to set up within the legal framework in the country (Krishnan, 2006). A SHG uses the savings of the members (usually about 20 members) as the basis for lending (Conroy, 2003). However, the SHG can also turn to external sources for funding in order to increase the capital base. It is common for SHG:s to be linked to NGOs where the NGOs can support the SHG by serving as an intermediary to a wide range of other social functions – health related, education related etc or by helping the SHG to bring in external capital (Krishnan, 2006). SHG:s set their own interest rates based on the members’ decision on what an appropriate rate should be. Some light is shed on the fact that due to its rather “loose” structure SHG:s are harder to assess in terms of outreach and performance evaluation (Conroy, 2003).

4. Mechanism through which MFIs overcome market imperfections and risk
The lending structure used by microfinance programs gives rise to a number of mechanisms that help manage information and risk in a way that may lead to higher repayment rates as compared to traditional banks in underdeveloped areas. One of the major features of microfinance is group lending where the concept of joint-liability helps mitigate problems caused by adverse selection
and moral hazard. It is suggested that this is a result of peer monitoring, peer selection and diversification of financial risk.

Other important mechanisms besides group lending are the use of dynamic incentives, collateral substitutes, and regular repayment schedules, the targeting of women and social programs, which according to theory plays a significant role in contributing to a high repayment rate (Morduch & Armendariz, 2005).

**4.1 Group lending**

In microfinance many organizations use group lending to a great extent since it is believed that the interdependence between borrowers created by group lending contributes significantly in obtaining high repayment rates. The attributes of group lending, for instance joint liability, is said to mitigate problems created by adverse selection and moral hazards through mechanisms such as peer selection and peer monitoring. The lender can get the benefit of monitoring and screening and still avoid the transaction costs for this by the mechanisms arising from the use of group lending (Morduch & Armendariz 2005).

Besides the benefits resulting from the structure of group lending it is also indicated that using the borrowers’ social assets can create possibilities of further enhancing the performance of group lending. This is done partly by letting the group impose so called *social sanctions* on defaulting fellow group members. Besley and Coate (1995) especially argue for the latter in a study that looks into the borrowers’ willingness to pay.

**Repayment game and social sanctions**

Besley and Coate (1995) construct a model to compare the repayment performance between group lending and individual lending, with and without the use of social sanctions. For simplicity the group only consists of two members who each need a loan of one unit of capital to be able to make an (individual) investment project. Furthermore, the liability is on a jointly basis, whereas the loan is not. Moreover, the returns of the projects are independent of each other and the loan reaches only over one period where repayment is due at the end of that period. Either the loan is fully repaid, or it is not repaid at all. The total amount that is to be repaid to the bank is $2r$. The investment or project returns for the two borrowers are denoted $\theta_1$ and $\theta_2$ for borrower 1 and 2 respectively.

The bank will impose penalties of $p(\theta_1)$ and $p(\theta_2)$ if the loan is not repaid. In addition to the monetary sanction that the bank will impose, Besley and Coate also mention the possibility of the delinquent borrower being “hassled by the bank” (Besley & Coate, 1995, p. 4).
The question of interest here is whether group lending can increase repayment rates compared to if the loans are granted individually. As mentioned earlier, group lending induces interdependence between the borrowers by joint liability. In this model, if one of the borrowers is not able to meet her payment obligation, the other borrower can step in and repay the full loan herself. If the first borrower knows this, she might not have any incentives to pay her part of the loan (Besley & Coate, 1995).

This implies that the borrowers would have to take each others loan amount into consideration and look at the possible returns. For instance, if one borrower asks for a loan of $100 and the other one ask for $1000 the former cannot expect to be able to cover for her group member even if her project is successful (unless her project could generate an abnormally large return, which is unlikely).

To answer the question if group lending can increase repayment rates, Besley and Coate model the so-called repayment game, which this type of lending gives rise to. Consider the extensive-form game given in Figure 1. The assumptions preceding this game is that return realization has taken place (returns are denoted by $\theta_1$ and $\theta_2$) and is assumed to be common knowledge: the issue of interest is ex post moral hazard. The game is “played” in two stages, in the first stage the two borrowers simultaneously decide whether to repay their share, which is $r$ (play $c$, i.e. contribute) or not (play $n$, i.e. not contribute). If both borrowers decide to repay their share the loan is fully repaid and the payoffs will be $\theta_1 - r$ and $\theta_2 - r$ respectively. If both borrowers decide not to pay their share, the loan remains unpaid and the bank will impose penalties and the borrowers will end up with payoffs $\theta_1 - p(\theta_1)$ and $\theta_2 - p(\theta_2)$.

A more complicated case is when one of the borrowers in the first stage of the game has chosen not to pay her part of the loan and the other borrower has chosen to pay. In the second stage the latter has to decide whether to pay the full loan herself (play $R$) or not (play $D$), i.e. to pay or to default. For instance, if the first borrower chooses to contribute with her share (play $c$) when her fellow group member chooses not to (play $n$) in the first stage they will end up with payoffs $\theta_1 - 2r$ and $\theta_2$. Or alternatively, if she decides not to repay the loan (play $D$) the payoffs will be $\theta_1 - p(\theta_1)$ and $\theta_2 - p(\theta_2)$.
Solving the game and determining the equilibriums allows one to distinguish repayment incentives under group lending and Besley and Coate (1995) especially focus on the different outcomes as the project returns $\theta_1$ and $\theta_2$ vary. These equilibriums are stated to be that under group lending the loan will be repaid if at least one of the borrowers earn a return greater than $\Phi(2r)$; if only one of the borrowers have a return this large she will repay the entire loan herself and the other borrower will hence free-ride on her fellow group member’s project return. If they both earn a profit of $\Phi(r)$ the loan will also be repaid (the outcome in equilibrium are \{(c, R), n\} and \{(n, (c, R))\}). Besley and Coate find this result somewhat surprising since if both borrowers earn enough to independently repay the entire loan, both borrowers can rely on the other party to repay the full loan leaving incentives not to contribute with her share. Furthermore the loan may be repaid if both borrowers have returns between $\Phi(r)$ and $\Phi(2r)$; both borrowers will only be willing to repay their share if the other borrower does and none of the borrowers are willing to repay the whole loan. Otherwise, the loan will not be repaid.

By using the result of the repayment game illustrated above, Besley and Coate (1995) investigate repayment performance under group lending as compared to individual lending. After calculating the repayment rates under group lending and individual lending they come to the conclusion that
the repayment performance under group lending relative to that under individual lending will depend on how large the project returns are.\(^3\)

However, in the case of default the only sanctions that exist are those imposed by the bank and these sanctions may be hard to enforce even if the legislation exist.

Can group-lending be adjusted to overcome the consequences of the game described above and further enhance the performance of group lending? Besley and Coate (1995) argue that repayment rates under group lending can be improved by also imposing social sanctions.

People living in small villages are dependent on good relationships with their neighbors and the idea is to use the borrowers’ social collateral to give them better incentives to not impose costs on their lending partner. The social penalties of not being able to repay your share can be in the form of bad reputation and lost of trust among fellow group members. The consequence may be that the delinquent borrower will find it difficult to find partners that would be willing to co-sign for future loans.

In their study, Besley and Coate (1995) show that group lending will lead to higher repayment rates than individual lending if these social sanctions are hard enough.

The repayment game described above, and its results, implies that the occurrence of social sanctions can alone improve repayment rates in group lending. By this it can be argued that groups should be formed to contain social ties and relations between borrowers since these are stated to be prerequisites for the use of social sanctions (Cassar, Crowley & Wydick, 2007).

Although in practice, groups are not formed exogenously but voluntarily, this could yet be accomplished by forming groups in small communities where social relations among individuals are likely to exist.

However, the argument that social relations are of great importance in obtaining high repayment rates falls short in the light of research made on the importance of social ties in improving the performance of group lending. On a survey of an ACCION international affiliate in Guatemala Wydick, as cited by Morduch (1999) shows that social ties per se has little impact on repayment rates; there are no results suggesting that one should form a group with friends, in terms of reliability. Further support to this result is given by Zeller (1998) who concludes that neither physical- nor social assets contribute significantly to improving repayment rates in group lending.

He instead finds that diversification resulting from heterogeneity in investment projects within the group is more important in securing a high performance in group lending.

Social ties, relations and trust among individuals are often being referred to as social capital, which has received increasing attention among researchers the past few years. There seem to be

\(^3\) For complete calculations, please see appendix 2.
conflicting results in whether the existence of social capital is a great contributor to high repayment rates or not. Cassar et al (2007) refer to the study of Ahlin and Townsend who found that strong social ties between group members were negatively correlated with the repayment ability of the group. However, Ahlin and Townsend argue that there exists some forms of social capital that promotes social sanctions and these can be useful in group lending, whereas social capital that in some way obstruct the use of social sanctions can lead to negative effects on repayment rates. Cassar et al (2007) point out Wydick’s results from Guatemala which showed that social sanctions lose credibility if there are strong social ties between the group members, which can be related to the kind of social capital inhibiting social sanctions that Ahlin and Townsend mention.

Although the effect of social capital on group performance is unclear, it should not be concluded that the concept of social sanctions is of minor importance in obtaining high repayment rates; but it is not stipulated that the existence of social capital is a necessary condition for the potential use of social sanctions.

Moreover, it is interesting to note that social sanctions are to include physical retribution and one could question the moral stand taken by MFIs since this must be widely known (Morduch, 1999). The social sanctions that MFIs can impose on their borrowers are restricted within the legal framework, whereas the available sanctions within the group can be in the form of a more questionable nature such as physical retribution. By delegating the responsibility of imposing penalties to fellow group members MFIs can benefit from questionable methods without having to do it themselves.

As Morduch and Armendariz (2005) mention the discussion on group lending is nearly exclusively from the lenders’ perspective, where the issue of interest is how to increase repayment rates. There is little discussion on how group lending mechanisms, such as peer pressure and social sanctions affect the lives of individuals. Morduch and Armendariz (2005) bring up Montgomery’s critical view of BRAC in Bangladesh where he points out that the strong pressure on borrowers to repay their loan may lead to exclusion of clients who fails to repay due to problems out of their control. Furthermore, Montgomery gives examples of harsh methods of obtaining contract compliance where borrowers are forced to give up personal belongings and household tools (Morduch & Armendariz, 2005).

In the light of this information it is clear that in the quest of striving for high repayment rates there are consequences (as a result of social sanctions) that concern individual borrowers’ life situation. These potential consequences should not be overlooked since the final goal of microfinance should be to improve the lives of the poor. It is therefore insufficient to assume
that solely improvements in repayment rates will lead to improving the overall situation for the individual.

4.2 Peer selection

As mentioned in section 2.2.1, adverse selection may drive safe investors out of the credit market, leaving only risky investors and as a result inflicting larger costs on the credit institutions. Studies have shown that group lending can bring back the safe investors to the market since it is said to provide incentives for similar investors to form groups. If this happens cross-subsidization, which means that lower risk clients subsidize higher risk clients, becomes impossible. As Godquin (2004) explains cross-subsidization is a result of the inability for a lender to charge different interest rates to different individuals based on their default probability. Zeller argues (1998) if risky investors team with safe investor this could post an incentive for group members to take on riskier projects since the burden is shared with the other group members (a moral hazard situation) and thus, in the extreme case group loans as opposed to individual loans could increase the overall risk if all group members reasoned in the same way.

As Morduch (1999) mentions, referring to Ghatak, it has been shown that the matching process that group lending gives rise to can be contributing in obtaining higher repayment rates and allowing the bank to set lower interest rates. How can group lending overcome the problem of adverse selection and thereby improve repayment rates? Returning to the model described in section 2.2.1 to illustrate adverse selection, consider that the two individuals in the model voluntarily formed the group and that the investments are made individually but the liability is on a jointly basis.

The probability of success is still \( p_r \) and \( p_s \) for the risky and safe type respectively, and they have a net return of \( R_r \) and \( R_s \) (also assuming that \( p_r R_r = p_s R_s = R^* \)). Furthermore, the borrowers pay nothing if their projects fail and an amount \( r^* \) if they succeed. In addition to this, the borrower pays an amount \( c^* \) if the other group member fails her project: \( c^* \) is hence a consequence of the joint liability feature of group lending. The model is then used to compare expected net returns to investigate how groups will be formed; will they be homogeneous or will they consist of both a safe and a risky investor? The expected net return of a safe type grouped with a risky type is \( R^* - p_r (r^* + (1-p_r)c^*) \).

Since the probability of project failure is lower for the safe types compared to the risky, the safe types will always be the preferred partners. Teaming with a risky type means undertaking a risk which the safe type wants to be compensated for (the risky type can buy “insurance” from the safe investor).
The question is whether the risky type will be willing to pay what the safe type demands, and hence if both will have an incentive for making this cross-subsidization to take place? Calculations by Morduch (1999) show that a safe type will require a transfer of at least \( p_s(p_s - p_r)c^* \) to agree to group with a risky type. Morduch moves on with the example stating that the risky borrowers’ expected net gain from teaming with a safe type is \( p_r(p_s - p_r)c^* \). But the probability of success for the risky type is smaller than the probability of success for the safe type \( (p_r < p_s) \), which means that the expected net gain of cross-subsidization for the risky investor is smaller than the expected losses for the safe investor. Hence, it seems as there are no incentives for risky and safe types to form a team together and group lending therefore leads to that groups will consist of similar types of borrowers. With the preceding discussion in mind (e.g. risky teamed with risky, safe teamed with safe) cross-subsidization should in theory never take place since a risky borrower would “never” be in the same group as a safe borrower. In reality risky and safe are not discrete characteristics but continuous. Thus, risky and safe are only relative measures as opposed to absolute, and cross-subsidization could therefore take place.

The question that comes in mind is how this will help bring the safe investors back into the credit market? By using Ghatak’s example Morduch (1999) shows that the group-lending model induces a possibility for the banks to charge different effective fees to risky and safe clients even though in the contracts all borrowers are demanded to pay the same nominal amounts of \( r^* \) and \( c^* \). This result comes from the fact that risky types will form groups with other risky types and safe types together with other safe types.

Therefore there will be a difference in expected net returns between “safe” and “risky” groups where the main difference is that a successful risky type is more likely to have to pay the joint liability fee \( c^* \) than a successful safe type. If the bank sets \( r^* \) and \( c^* \) to appropriate levels group lending will lead to a possibility to price discriminate that is not possible in individual lending cases. By price discriminating safe types can be brought back into the market, repayment rates will improve and the bank will be able to set lower interest rates.

### 4.3 Peer monitoring

Group lending may also have the advantage of inducing borrowers to avoid risks that will lead to negative consequences for the banks’ profitability. As mentioned earlier, since the banks have imperfect information on borrowers’ characteristics and the nature of their investments (risky or safe), moral hazard will be a concern.

But group lending can create mechanisms that give borrowers incentives to choose a safe investment project over a risky one. In addition to having information on each other that is not
available to the lender group members can enforce contracts between each other and together decide what kind of investment projects to undertake.

Looking at a modified model from the one in the preceding section, where the respective returns are used in the calculations instead of $R^*$, the borrowers’ choice is between the risky project and the safe. If the bank sets the joint liability fee, $c^*$, high enough borrowers will prefer to choose the safe project (resting on the assumption that $R_r < R_s$, which is questionable since even though $p_r < p_s$, it is also stated that $R_r > R_s$).

However, according to general financial theory high investment returns are correlated with high risk, and for this reason safe and risky must be measured on a relative scale in this context since the safe project must be risky enough to generate a return large enough to cover $c^*$.

The main point of peer monitoring is that by using the possibility of neighbors and group members to monitor each other group lending can lead to overcoming, or at least mitigating problems arising from market imperfections such as moral hazard. Morduch (1999) points at the conclusion made by Wydick who found that improvements in repayment rates are associated with variables that proxy for the ability to monitor and enforce group relationships, such as knowledge of the weekly sales of fellow members in their group.

### 4.4 Dynamic incentives

Another mechanism postulated to contribute to the repayment performance is the use of dynamic incentives. Dynamic incentives consist of one threat and one opportunity: the threat of being cut off from future loans and the opportunity of borrowing increasingly larger amounts. The design encourages a long-term relationship between borrower and lender, quite opposite to the experience in the past where the perceived short-term association to the bank lowered the repayment incentive. The use of dynamic incentives can help the MFIs to overcome some information problems and improve the efficiency. Both the “threat” and the “opportunity” induce the borrowers to choose their fellow group members carefully. As such dynamic incentives are closely related to both peer selection and peer monitoring.

Dynamic incentives are applicable on both group lending and individual-based lending and it is important to remember that dynamic incentives have been used within the formal bank sector throughout history, although the term is more related to microfinance. Morduch (1999) also states that the incentives can be enhanced further if the borrowers can anticipate increasingly larger loans with time (if they manage to fulfill their payment obligations). Note that this is a possibility, not a necessity since some borrowers do not have a need for larger loans.
He also mentions that dynamic incentives will work better in areas where the mobility is lower, i.e., in rural areas. If alternative credit options are fewer and mobility lower it might be that ex post moral hazard will be of a smaller concern; it will be more difficult for the borrower to “take the money and run” if she lives in a rural area. A study by Mark Wenner (1995) on 25 village banks in Costa Rica lends support to this. He finds that delinquency rates are higher in better off areas; if borrowers have access to alternative credit options they are likely to value the programs less and this will drive up the delinquency rates. Also, microfinance is mostly targeted to women whose mobility is generally lower than men in developing countries and hence the use of dynamic incentives might be heightened by the fact that mostly women are granted loans.

4.5 Financial risk

As have been mentioned the risks associated with rural banking are the same regardless whether the lender is a MFI or a commercial bank. By the end of the day, despite the social mission, the MFIs’ funds still need to be managed and allocated in a proper way. A word of caution, many of the available means to reduce risk that are brought up in this section are not MFI ”specific”, the formal bank sector could also take advantage of various diversification possibilities when trying to optimize the loan portfolio structure. For instance, and as has been shown, the use of group lending offers some means to reduce the risk exposure and bundling loans is possible for a commercial bank as well.

But from a strict financial perspective one of the main contributing factors to reduce risk is to understand the importance of diversification – this applies to MFIs, groups that co-sign for loans and individual households. This is a crucial component to recognize the value of in order to develop a sound risk management approach which is essential for MFIs in order to be able to work as financial intermediaries (Campion, 2002). This is further supported by the Centre of Microfinance who states that “for successful MFIs risk management is part of the daily business” (Krishnan, 2006, p. 27).

As Zeller (1998) acknowledge group based loans offer the opportunity to take advantage of economies of risk by selecting peers whose projects are negatively correlated with ones own [expected] return from whatever income-generating activity one has chosen and thus serve to reduce risk.

By its very nature group loans possess a major advantage in terms of diversification compared to individual loans. As Zeller (1998) points out, the possibilities for diversification within a household are modest in scope whereas the group pools the activities of many households. Zeller continues by saying that diversification possibilities increase (as would be expected) with the
group size and the heterogeneity of group characteristics (in terms of social, human and physical capital).

This could pose an interesting paradox since groups, according to theory, are formed by members that share risk preferences and thus are of a homogeneous nature rather than heterogeneous (Kugler & Oppes 2005). But, the difference is that the homogeneous nature relates to risk preferences while heterogeneity is about profession. As Sharma and Zeller (1996) found in a study carried out in Bangladesh, diversity in the loan portfolio [among groups] greatly affects the repayment and states that a good “mix” of income generating activities is a “desirable” group attribute.

But then one could argue that individual lending would provide an even wider scope for diversification in the loan portfolio since each and every client would help lowering the overall risk (in line with the basic argument in favor for diversification). This reasoning however fails to address two issues of utter most importance. The first one being that the group-lending model described here is subject to joint-liability. Thus, there is an “insurance” aspect that is lost when doing individual lending. Second, group lending lowers the cost which is crucial to any organization but in particular to MFIs operating with small margins.

The main cost saving feature, as has been discussed in the preceding section, is that the screening and monitoring process of borrowers is “outsourced” to the group. In fact the process may even be enhanced since it is plausible to assume that the group members have more readily available information at hand than the lender, leading to a win-win situation.

To sum up, for the MFI the risk is greatly reduced by group lending since it offers means to diversify the asset base. The fact that MFIs usually promote group-lending thus “includes” this risk-reduction feature. But as have been stated in the beginning of the section, group lending is no secret and a commercial bank could easily copy the method. In fact, group lending is preferable over individual lending (excluding lack of collateral) since small loans means higher costs, more administration etc.

But MFIs can offer additional support for the borrowers that greatly improve the repayment rate (lowers the risk of default) such as training to improve the business understanding and other social programs that contribute to the likelihood of success. For the commercial sector such activities may not be of interest since it means extra costs (especially start up) on top of already low margins (Sharma & Zeller, 1996). In simple terms, a lot effort for a target group with low priority.

At the same time banks may feel that if they fail to meet targets (break-even etc) they may want to bail out, whereas MFI can stay put thanks to subsidies. But instead of pulling out the solution
for the commercial bank sector has been to co-operate with MFIs where the bank’s role is to
provide funding, an example being Dutch banking group ABN Amro operations in India
(Ghosal, 2005).

4.6 Regular repayment schedules

Microfinance institutions use regular repayment schedules where repayment starts only a few
weeks after the loan has been disbursed, and then occur on a weekly or monthly basis. These
regular repayment schedules help to screen out prospective delinquent borrowers at an early stage
and also provide group members with early warnings of potential future problems. It is also a
way for the banks to get hold of the cash flow before it is consumed. In addition, since the
repayment process begins at such an early stage the investments have not yet given a return. This
implies that the borrowers need an additional income source to be able to secure the weekly or
monthly repayments that are required. From the lenders’ perspective this provides repayment
assurance to some extent. From the borrowers’ perspective by its very nature early repayments
require a steady cash flow and since the cash flow is seasonal in agriculture this may exclude
potential borrowers from the market (Morduch & Armendariz, 2005). As was mentioned in
section 2.2 several scholars voice this concern and MFIs will need to balance their insurance
aspect with the cash flow cycle.

In practice, due to the low opportunity cost for women in developing countries (as a result of
doing household chores) the household should encourage the woman to take up the investment
project. The reason being that assuming that the male has another occupation he would have to
cut back on that in order to devote time to the investment project, which in turn would lead to a
lower income whilst waiting for the investment “to bear fruit”. At the same time he would have
to use his other source of income (i.e. his main occupation) to pay for the early installments. But
if the woman would take up the investment project the household would still have the income
from the husband, which could be used to pay off the early installments.

In short, the household would not suffer a loss in income (excluding the early installments)
during the investment period (although the household chores may suffer). A numerical example:
Assume that a household consists of two people, a wife and her husband. The wife’s main
occupation is taking care of household chores. The husband has a job that gives him the salary w.
If he takes up the loan he will have to devote his time between his investment project and his
regular job. Since he can work less due to the time constraint his salary is now only 80 percent,
i.e. 0,8w. The early installments (before the investment has generated any return) will have to be

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4 For a discussion on low opportunity costs for women in developing countries see for instance Hossain 1988
deducted from this amount. If we instead assume that the wife takes up the investment project her husband can still work “fulltime” and thus earn a salary of w. The early installments would still have to be paid out of that amount but the difference now is that the household’s income is w instead of 0.8w.

Regular repayment schedules are an interesting feature of microfinance but unfortunately, as Morduch (1999) points out; little empirical research has been made to investigate its actual contribution to repayment performance.

### 4.7 Collateral substitutes

One feature that many microfinance institutions have in common is that they do not require their borrowers to put up any collateral in the form that traditional commercial banks do. But microfinance institutions often have some type of collateral substitutes. Morduch (1999) shows an example of a collateral substitute following the Grameen model: the borrowers are required to contribute 0.5 percent of every unit borrowed to a [Group] fund that will serve as insurance in case of default, death or other significant events.

The borrowers are also required to pay an additional 5 percent of the loan that is taken out as a tax on the group as a whole, which goes into a group fund account. The group members are allowed to use up to half of that fund, and the money is often used as zero-interest loans within the group. These funds were until October 1995 kept by the Grameen bank even when borrowers were leaving the bank. After 1995 the group upon leaving the bank can withdraw these funds, but only after the bank has deducted any amount that the group still owe. Morduch (1999) concludes that these funds or “forced savings” serve as collateral substitutes. As Hossain (1988) explains the effect of these forced savings is that the borrower will have to pay an extra interest rate on top of the initial interest rate. This effect can be illustrated by a simple calculation example: A borrower takes a loan of the amount X where 5 percent is deducted as a tax and an additional 0.5 percent as savings. This amount, 0.055*X, is subject to the same interest rate as the initial amount X. If we assume that the initial interest rate is 30 percent the MFIs will have an extra interest income of 0.055*X*1.3 = 7.15 percent.

The questionable element of this setup is that the “safety fund” is subject to the same interest rate as the actual loan, i.e. the interest rate that the borrower is paying on the forced saving is an interest rate that is risk adjusted when in fact the risk is considerably lower than that of the loan. Buchenau and Meyer (2007) point out that collateral can be items of subjective value with little or no market value and as such the interpretation of collateral substitutes can be rather loose. Interesting to note is that despite the fact that collateral can be in a non-conventional form the
risk of having a loan officer seize it if repayment cannot be met is threatening enough for some borrowers to withdraw from lending. Buchenau and Meyer state that ProCredit reports that 30 percent of the prospective borrowers choose not to ask for a loan after being informed of this consequence (and thus collateral substitutes such as personal belongings with limited market value serve as “normal” collateral). Collateral substitutes serve as a means to secure repayment since collateral, regardless of the form, by its very nature pose an incentive to repay the debt.

4.8 Social programs and training

As Zeller (1998) stresses a common thread among most NGO based credit organizations is to offer training/courses to their clients and hence they interact with their clients beyond just offering financial services. This is imperative in order to establish long term commitment and mutual trust, which is beneficial for both the lender and the borrower. The borrower may be less inclined to “take the money and run” if she feels that the lender is willing to help her improve her situation over the long term. At the same time, the lender may be less harsh [in times of difficulties] if they can see that the borrower is really committed to the task. The training covers a broad spectra of subjects ranging from business topics (e.g. entrepreneurial skills) to more family oriented issues such as health, education etc.

Furthermore these social activities/programs/workshops do not only strengthen the relationship between lender-borrower but also benefits both parties in many ways.

Social programs are being arranged by MFIs across the world and are more or less extensive. Examples from Africa are UWESO’s and FOCCAS’s efforts in Uganda, which offer training to clients in business development but also in more ”soft” issues such as self-awareness and nutrition (Seibel & Almeyda, 2002).

In Bangladesh BRAC offers training, technical and marketing assistance in combination with loans. However, many of the programs that BRAC offers are available to people not using their financial services as well. In South America, Pro Mujer in Bolivia, which was mentioned earlier, also provide additional support to the loan, such as management training and other forms of educational programs encouraging social empowerment (concerning issues such as health, family planning) (Chua et al, 2000).

SEWA in India initiated a program in 2000 to help their clients with financial planning which has proven to be beneficial for both SEWA and their clients as SEWA claims that it reduces risk and increase the likelihood of timely payments of the issued loans and the clients benefit from being able to run their businesses/projects more efficiently (Krishnan, 2006).
Another example from India is SWAWS that goes even further and help the clients to market their products. An important type of training that is offered by MFIs (which the banks may not be addressing properly) is to make sure that the borrowers really understand the terms and conditions of the lending procedure. Bangalore based MFI Ujjivan aims at the fact that many of the potential borrowers have little or no education and for that reason it is vital to make sure that the borrowers understand all concepts and terms (joint-liability, repayment frequency, interest rate, default, penalties for late payments etc). This is carried out by something called *Compulsory Group Training* (CGT) which is a six day program (one hour per day) followed by an examination to ensure that the rules and procedures of the loan issuing is clear to everyone in the group (Krishnan, 2006).

Indian based WWF provides training (many times in public spaces) to help their clients to develop new skills to be able to generate income in off-peak seasons. One example being teaching women in the fishing industry to marinate fish which enables them to have an income in low season periods. As WWF explains providing training is a crucial aspect when offering micro credits and the training goes beyond the mere financial field, covering issues such as male dominance (all of WWF’s clients are women), AIDS, class/caste structure, politics and other social issues (Krishnan, 2006).

The commercial bank sector has followed suit, although to a lesser extent. An example being branch offices from Indian Bank that have offered courses (for women) in driving two-wheelers, and various courses in business/finance along with advisory/counseling on water conservation and other business opportunities within agriculture. In most cases these courses have been organized together with NGOs and/or other community active groups (Krishnan, 2006). By following the example of Indian Bank commercial banks could initiate social programs to facilitate rural banking operations.

To assess the importance of these various activities is somewhat tricky although it should be clear that they contribute to the poverty alleviation. MFIs can find themselves in the middle of a network involving NGOs, commercial banks and government authorities and thus it is hard to evaluate the effect of these programs and their linkage to the success of MFIs.

It is plausible that training the clients in business issues such as management, marketing etc has a direct effect on e.g. repayment rate, profitability and so on but it is less clear what the effect of an improved self-confidence is or better family planning. However, Godquin (2004) points at a study by Khandker, Khalily and Khan which demonstrated that training had a positive effect on

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5 Established in 1907 to focus on domestic developing industries, Krishnan (2006) page 69
repayment performance. Her own study found that literacy was positively correlated with repayment rates and as such it seems that these efforts are worthwhile.

4.9 Targeting women

Mohammed Yunus’ Grameen bank focuses on creating opportunities for poor women; by 2002 over 95 percent of the bank’s clients were female. Initially, Grameen bank lent to both men and women keeping the lending groups and their microfinance centers segregated by sex. In the beginning of the 1980’s they started to shift their focus on women since they saw increasing repayment problems in male centers (Morduch & Armendariz, 2005).

There are several studies that point to the fact that women tend to be more reliable in terms of repaying their loan and why this may be the case is widely discussed. Morduch and Armendariz (2005) refer to Hulme who in Malawi finds that on-time repayments for women clients to be 92 percent versus 83 percent for men.

They also direct attention to Todd (1996 cited in Morduch & Armendariz 2005) who states that women tend to be more cautious than men and that men are more likely to have trouble sustaining a membership in the group for a longer period.

Results presented by Rahman (2001 cited in Morduch & Armendariz 2005) suggest that women tend to be more sensitive to verbal hostility of group members and bank employees when they have difficulties with repayment. Rahman further outlines that men are more likely to be more argumentative in this matter. Morduch and Armendariz (2005) also write about a manager of a Grameen bank replication in Indonesia who argued that women stay close to the home in greater extent than men, which makes it easier to find them when repayment problems arise. A study made by Hossain (1988) in Bangladesh finds that 81 percent of the women had no repayment problems versus 74 percent of the men.

However, the conclusion by Hossain (1988) should be carefully interpreted as it fails to address several vital circumstances during the research period. One of these circumstances is the fact that Bangladesh was struck by an abnormally large flooding that destroyed 1.5 million tons of food (Rahman, 1990). Clearly this must have put a lot of households in distress. Numbers by Hossain (1988) show that a higher percentage of male borrowers had taken up loans from non-institutional (i.e. informal) lenders before joining the program, and exceptionally higher during the year of the survey. No investigation has been made into whether the households who had a male borrower had been struck harder by the flooding than the households where a female had taken up the loan.
As Hossain acknowledge in the study interest rates of those informal sources tend to be remarkably higher than the going market rate and for that reason it is plausible to assume that the male borrowers were struggling with higher interest payments along with the interest payments arising from the Grameen loan. It could be argued that if this were the case, MFIs would still have an incentive to target women if these are known not to have additional loans. But this neglects the reasons (a long list of non-gender related issues come in mind, for instance sickness, marriage or even death) why male households had taken up other forms of loan prior to the Grameen loan (Hossain, 1988).

When looking at the figures from which Hossain draws his conclusion one can see that the distribution displays large variations that makes it hard to make such strong conclusions. Two interesting findings from Hossain’s study are that a) even though the female borrowers had less repayment problems than the male ones the total amount owned (by the ones that had repayment problems) were roughly the same (meaning that even though women had a higher repayment rate the actual money “loss”, if these would default later on, would be more or less the same) and b) a higher rate of women (2.2%) stated that their situation had “deteriorated” compared to men (1.4%) after joining Grameen bank (Hossain, 1988).

Even though some studies point at the fact that it may be reasonable for banks to focus on and lend to women (from a repayment rate perspective), there are conflicting evidence; BRI offer services to both men and women and still show repayment rates near 100 percent (Morduch & Armendariz, 2005). One of the programs (Malto) in Zeller’s (1998) study in Madagascar, which focuses solely on men, has a 100 percent repayment rate. Godquin’s (2004) study found no differences in repayment performance between female and male borrowers. The lesson learned from these studies is to bear in mind that the results (supporting a selection bias towards women) are far from universal and should be analyzed under great scrutiny.

5 Conclusions

The objective of this paper was to investigate some of the mechanisms that are prevalent within microfinance and see how these can cope with information problems and risk and thereby improve repayment rates. We have also looked at differences in loan configuration between the formal financial sector and MFIs to assess whether these differences are of any significance in terms of contributing to the success of MFIs.

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6 See table in Appendix 3 for a reproduction of Hossain’s figures
The common use of group lending in microfinance addresses agency problems such as adverse selection and moral hazard and with the help of joint liability and social sanctions repayment performance can be improved. However, from the perspective of the MFIs, relying on social sanctions may pose the question whether the MFIs have any moral responsibility since social sanctions can result in physical retribution and thus it could be argued that by subcontracting the enforcement of the loan contracts to the group members MFIs can comfortably sit back and enjoy high repayment rates without having to consider the different compliance methods in use, even if these are of a questionable nature.

One of the mistakes that the formal bank sector made during the early attempts was to use the same approach as they had used in the urban area, i.e. the collateral based method, with the effect that procedures for screening and evaluating projects were non-existent. If collateral is present there is no need for screening activities but since this is not the case in poor village economies this approach will fall short. This is something that group lending and its key feature joint liability has been able to handle with great success. Peer monitoring and peer selection serve as innate components to screen and evaluate both borrowers and projects, hence joint liability seems to be a significant contributor in improving repayment rates. In terms of financial risk group lending provide diversification opportunities as the group pools different activities and as Zeller found in his study in Madagascar, this is important for improving the repayment rate.

Dynamic incentives which are applicable for both group- and individual lending have several important functions: cost reducing since screening and monitoring activities are carried out by the borrowers and the possibility of being granted larger loans over time should serve as a strong motivation for a person with few credit alternatives to repay the loan. An even stronger motivation might be the threat of being cut off entirely. For this reason the use of dynamic incentives should be considered as a crucial element when offering financial services to the poor.

As a frequent and regular repayment schedule requires that the borrowers have a reliable source of income, without taking into account the investment project, an initial screening process takes place. For the MFIs frequent repayment schedules enable them to secure payments and by doing so ease their risk exposure, which should affect the repayment rate in a positive way. Regular repayment schedules may give rise to a trade-off as it is likely that the MFIs are not reaching out to the neediest since it is plausible that the ones living on the margin do not have a reliable income.
Throughout this thesis we have been looking at repayment rates as a success indicator. But the repayment rate alone is a static measurement and a high repayment rate does not necessarily demonstrate a successful MFI (although it is an important measurement to show donors and even more so, attract new ones).

A high repayment rate could be achieved by cutting down on the outreach, targeting wealthier clients and by only granting loans to extremely safe projects. Outreach is important to make sure that you are reaching the neediest but microfinance is not really designed to do that. For instance, if you are homeless it is unlikely that you will be granted a loan. If you cannot demonstrate a regular income it is also unlikely that you will be granted a loan (if you do not have a reliable income, how can you be able to meet the early payments?). So, regardless of what MFIs around the world write in their mission statements, microfinance is not designed to reach the poorest of the poor. But this may not pose a major problem since traditional aid is more appropriate for a homeless individual on the verge of starvation.

Moving on to collateral substitutes, forced savings per se is beneficial from both the borrower's and the lender’s perspective: the lender gets insurance and the borrower may be induced to save. However, in practice there are some questionable aspects of the Grameen structure since it is debatable if the borrower should have to pay the same interest rate on the savings as on the actual loan. It could be argued whether the borrower should have to pay any interest at all – in the best of worlds we would expect the borrower to receive interest on savings. But this is an intricate case since the savings are derived from a loan and hence the lender should not have to pay interest on the disbursed loan. Logic cannot be matched with fairness in this particular case.

Social programs deserve some merit even though it is hard to measure their impact since they tend to address many issues beyond the mere business aspect. Training clients in management and marketing should improve the likelihood of a positive outcome of the investment project and a positive outcome (i.e. a profit) is a prerequisite for obtaining repayment at all. Improving health awareness is important for the empowerment of the poor but its contribution to improving repayment rates is more of an implicit nature.

That many MFIs target women is important from a gender perspective since women in underdeveloped countries are often discriminated out of socio-religious reasons. Targeting women may reinforce their position and active participation in the society as well as within the household, and gender equality is an important element in a country’s development.

But arguing that the targeting of women and high repayment rates go hand in hand is not as clear as some scholars try to show. Conflicting evidence suggest that the results are far from universal
and unfortunately there are certain circumstances and prerequisites that have been omitted when some of the studies have been made which can have influenced the outcome. Some of the studies are overly simplified because even though they demonstrate a difference between male and female borrowers they fail to link the results to the actual repayment performance. This is unfortunate as the targeting of women is important from an empowerment perspective and these blatant attempts to promote women may backfire as a result of lower credibility. Rahman’s study suggests that women are more sensitive to verbal hostility and for that reason they would be more willing to repay the loan (to avoid confrontation with group members). This merely states that women (in this particular case) are more inclined to pay back but it does not say anything about how this is possible. As Zeller concluded, repayment performance is a combination of willingness and capacity. Would the fact that you are more sensitive to verbal hostility push you to greater lengths than someone who is not as sensitive? Since other “threats” (e.g. dynamic incentives which should be a more crucial threat to take into consideration than mean comments from your neighbor) are also present, would this be the one that singles out? Would it induce women to screen their projects better than men and thus imply that women can make a better risk appraisal than men? Clearly more research is needed on the actual linkage to repayment performance before this can be a consolidated notion.

To conclude, most of the available means used by MFIs are also available for the commercial banks to deploy. What the MFIs have managed to accomplish is to address the needs of the poor in a more effective way. The key to success has been to cooperate with NGOs and other support groups to develop a better understanding of the prevailing conditions in poor areas and thereafter tailor their financial services accordingly. Consequently the MFIs have taken a demand driven approach in comparison to the commercial sector, which used a supply driven approach. Rather than competing with MFIs the formal financial sector could provide capital to the MFIs and thus take a vertical stance in the value chain as opposed to a horizontal one. Microfinance has shown that it is possible (but not necessarily feasible) to deliver financial services to the poor and with the assistance of the formal bank sector microfinance can be a sustainable means to reduce poverty.

Although microfinance may serve as a poverty alleviation tool it would be interesting, if not necessary, to see a more accurate cost-benefit analysis in order to assess the opportunity cost. This leads us to the question of subsidies, our inclination is that the question is not about whether subsidies should be used or not, but rather how they are used and for what purpose. Lifting out subsidies would put a lot of MFIs in peril as they are operating with modest resources at hand. But, the subsidization of MFIs could also be used to fund other socially important
institutions such as schools, hospitals and infrastructure. Subsidies worth billions of dollars (US) are granted annually to MFIs and as a result the opportunity cost is substantial. Overall more empirical research is needed in order to further develop microfinance. It is not enough to take a demand driven approach, the approach must be tailored according to the prevailing circumstances and conditions in the area of interest. It is that simple. And yet so complex.
References


Godquin, M. 2004. Microfinance repayment performance in Bangladesh: How to improve the allocations of loans by MFIs. World Development, 32(11), 1909-1926


Zeller, M. 1998. Determinants of repayment performance in credit groups: The role of program design, intragroup risk pooling and social cohesion. Economic development and cultural change 46(3), 599-20
## Appendix 1

### Summary microfinance

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Via group loans</td>
<td>Others</td>
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<tr>
<td>Information related</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Adverse selection</td>
<td>Peer selection, social sanctions</td>
<td>dynamic incentives</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td>- Moral hazard</td>
<td>Peer monitoring, social sanctions</td>
<td>regular repayment schedules, collateral substitutes, dynamic incentives</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk</td>
<td></td>
<td></td>
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<tr>
<td>- Financial</td>
<td>Diversification</td>
<td>social programs, collateral substitutes, (focus on women)</td>
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<tr>
<td></td>
<td></td>
<td>Targeting women important from a gender perspective</td>
</tr>
<tr>
<td>- Idiosyncratic (e.g. agriculture)</td>
<td>“knowledge”, partly via group loans</td>
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</tbody>
</table>
Appendix 2

The repayment rate under individual lending is

\[ \Pi_I (r) \equiv 1 - F(\Phi(r)) \]  \hspace{1cm} (1)

The repayment rate under group lending and in the non-certain case (the case where the loan might be repaid) is

\[ \Pi_G (r) \equiv [1-F(\Phi(2r))][1+F(\Phi(2r))] + [F(\Phi(2r)) - F(\Phi(r))]^2 \]  \hspace{1cm} (2)

where the first term on the right hand side of the equation is the probability that at least one borrower earns a profit larger than \( \Phi(2r) \) and the second term is the probability of both borrowers earning a profit of between \( \Phi(r) \) and \( \Phi(2r) \). This repayment rate is to be compared to that under individual lending. (1) is subtracted from (2) which yields

\[ \Pi_G (r) - \Pi_I (r) = F(\Phi(r)) [1 - F(\Phi(2r))] - [F(\Phi(2r)) - F(\Phi(r))] F(\Phi(r)) \]  \hspace{1cm} (3)

where the first term on the right hand side of the equation is the probability of that one borrower will earn a profit larger than \( \Phi(2r) \) when the other borrower has a return smaller than \( \Phi(r) \). In this term, group lending is favoured since it would lead to a better repayment performance than individual lending in such a case: a return smaller than \( \Phi(r) \) under individual lending would mean default whereas under group lending default can be avoided if the other borrower has a return larger than \( \Phi(2r) \).

The second term is the probability of one borrower having a return between \( \Phi(r) \) and \( \Phi(2r) \) when the other borrower earns a profit smaller than \( \Phi(r) \). This term favours individual lending instead: a borrower with a return between \( \Phi(r) \) and \( \Phi(2r) \) will under individual lending repay the loan whereas under group lending repayment would not take place if the other borrower has a return smaller than \( \Phi(r) \).

### Appendix 3

<table>
<thead>
<tr>
<th></th>
<th>Male (%)</th>
<th>Female (%)</th>
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<tbody>
<tr>
<td>Overdue installments</td>
<td>25,6</td>
<td>18,7</td>
</tr>
<tr>
<td>1-2</td>
<td>11,6</td>
<td>5,7</td>
</tr>
<tr>
<td>3-5</td>
<td>5,4</td>
<td>5,2</td>
</tr>
<tr>
<td>6-9</td>
<td>4,1</td>
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<tr>
<td>10 or more</td>
<td>4,5</td>
<td>5,6</td>
</tr>
<tr>
<td>No overdue instalments</td>
<td>74,4</td>
<td>81,3</td>
</tr>
</tbody>
</table>

Table Reproduced from Mahabub Hossain 1988 "Credit for alleviation of rural poverty: The Grameen bank Bangladesh", page 52