The past and future of innovations in microfinance

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SECTION 1: INTRODUCTION

The microfinance industry carries every sign of an innovation in its take-off phase. The characteristic aspects of the microfinance innovation were developed in the 1970-1980's, thirty years later the industry experiences a phenomenal growth rate, and it has diffused to most developing countries in the world. This review chapter looks at microfinance as an entrepreneurial activity in its own right, contributing to the development of small and medium-sized firms in developing countries. We trace the innovations in microfinance, for instance group lending, loans to women, and their financing, and we ask whether the business model implied is sustainable once diffusion has gone far, competition enters, and customers enter higher income levels.

In 1999 Jonathan Morduch wrote "The promise of microfinance was founded on innovation: new management structures, new contracts, and new attitudes". He ends his survey calling for a second wave of innovation (Morduch, 1999). In this chapter we provide an update on the microfinance innovation, viewing the microfinance innovation as the discovery of a new

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market of poor people for financial services as well as new ways to address the financing needs in the new market.

A common denominator for the microfinance innovations is that they solve asymmetric information and cost problems associated with serving poor customers with little or no collateral. Thus, microfinance gives poor people and small businesses access to financial services. Most providers of microfinance have a double objective, to serve the poor and to do so in a financially sustainable way. Choice of market and technology constitute the defining features of microfinance. The market choice is poor people and small businesses in developing countries, often further specified as people in semi-urban and rural districts and women. The technology is small loans on short duration without formal collateral, and often involves a group loan, that is, a loan where the group members are jointly liable for repayment.

An organizational entity offering financial services to poor people and small businesses in developing countries is commonly called a microfinance institution (MFI). We will use the term "microbank" in this chapter, as it connotes the size of the institution (most often small), the type of services provided (banking services), and the size of the loans it is granting (most often small).

Innovation is used differently in the literature. Schumpeter (1934) defines the concept as "Innovation is the commercial application of invention for the first time." Thus, innovation is differentiated from invention (an addition to the stock of knowledge in society) on the one hand and from diffusion (the widespread adaptation of the innovation) on the other. Microfinance has reached the diffusion stage at this time of writing. From humble beginnings the industry is rapidly changing and several microbanks, for instance the Peace Prize winner Grameen Bank (and M. Yunus) are in the process of downplaying salient features of the original business model, such as the group loan (Dowla and Barua, 2006). Others transform

into ordinary banks. Thus, we ask the question whether the various original innovative elements of microfinance stand the chance of survival as diffusion of services accelerates.

The rest of the chapter is organized as follows. Section 2 gives an overview of microfinance, its history, characteristics and diffusion today, and impact. Section 3 explains what is meant by innovation and why innovation was needed in order to serve poor customer with financial services. Section 4 identifies the most important elements of microfinance innovation and reviews related relevant microfinance literature. Section 5 studies whether the innovative elements stand the chance of future survival using a simple model for operational expenses and defaults. Section 6 concludes and gives perspectives for further research.

SECTION 2: INTRODUCTION TO MICROFINANCE

In this section we give some stylised facts about the microfinance industry. Our survey deals mainly with the industry today and its future prospects. But microfinance is also an active research field where important theoretical and empirical contributions have been made. We build upon this literature in the following. Table 1 provides a brief overview of major microfinance research published in reputed peer reviewed journals.

Table 1

Some of these contributions will be revisited later in this survey. However, the field has progressed too far for an exhaustive review. Nevertheless, an important observation is the fact that most microfinance research is found in development and to some degree economics journals (Mersland. 2009a). Only to a minor degree has microfinance research penetrated mainstream finance and management journals.

Microfinance characteristics

The diversity among microbanks is striking. This section reports main characteristics in the data material collected by Mersland, we call it the Mersland data for short. In his database, financial and general data for this study were collected from 379 microbanks operating in 73 different countries worldwide. The data have been extracted from rating assessment reports gathered by specialized rating agencies supported by the Rating Fund of CGAP (www.ratingfund2.org). At each rating up to six years of data were obtained and the ratings were performed during the period 2001–2008.

No dataset is perfectly representative of the microfinance field. In particular, our dataset contains relatively few of the megasized microbanks and it does not cover the virtually endless number of small savings and credit cooperatives. The former are rated by such agencies as Moody's and Standard & Poor's, while the latter are not rated. Nevertheless, Mersland (2009a) reports that the microbank characteristics in his data are quite similar to other publically available data as for example the larger Mixmarket (www.mixmarket.org). The advantage of the Mersland data is that it is collected by a third party (the rating agencies) and has richer information.

To begin with, microbanks are very differently incorporated. In the Mersland data 29.5% of the microbanks are shareholder owned, 51.4% are NGOs, and 15.3% are cooperatives. Only 28.5% are regulated. Most microbanks only extend loans to their clients, in fact, only 37.2% accept deposits. This means that intermediation is little developed in the industry, and that most microbanks do not have access to relatively stable and low-priced funding.

Table 2 shows other characteristics of microbanks in our data.

Table 2

The average loan is USD 759, and the median even lower at USD 354, reflecting the "micro" in microfinance. Mersland and Strøm (2010a) even find that the average loan size is maintained. Thus, the microbanks stay true to their mission of serving the poor.

The financial numbers mirror the institutional diversity among microbanks shown earlier. It turns out that the median microbank serves less than 5,000 borrowers, but the largest has nearly 400,000. The small size of the typical microfinance institution is reflected in the Daley-Harris Microcredit Summit Report (2009) where 3,166 of the 3,552 microbanks reporting their data serve less than 10,000 clients. But some few microbanks are big. Compartamos in Mexico surpassed 1 million clients in 2008. Daley-Harris (2009) reports that 88.2% of the poorest microcredit clients are served by 76 microbanks. When size differences are on such a level, the business reality must be very different for the large and the small microbank.

The equity fraction shows that microbanks in general are well capitalized. The fraction is equity on total assets, of which the loan portfolio constitutes the largest part. We also note that the subsidy fraction, measured as the amount of subsidized debt on total assets, is fairly low, in fact, less than 10.0% of total assets using the median value. 118 (34.6%) of the 341 microbanks have no subsidized debt and 37 (10.9%) have more than 90.0% of subsidized debt of all debts. Thus, most of the subsidies are concentrated in the hands of a few microbanks. The picture is similar for donations. 120 (34.3%) of 350 microbanks have received no donations and 42.9% have received 10.0% or less of their reported equity during their history.

Notice that the portfolio yield is nearly 40%. This proxies the lending rate on average. We also see that operational expenses are 29.0% of the portfolio, and that 6.6% of the portfolio is more than 30 days overdue and at risk. Together operational costs and risk provisions eat up almost the full portfolio yield and leaves little to pay for funding costs. Thus, even if most microbanks are subsidized through loans or grants the average annual return on assets (ROA)

is low, 0,5% in our data. The portfolio yield should also be compared to the yield moneylenders charge easily reaching 200 per cent per annum and above. The high operational costs for the small loans given for a short duration and repaid in regularly scheduled instalments explain the high interest rates charged (Jain and Mansuri, 2003).

The diffusion of microfinance

Until the early 1990s, most of the new microfinance initiatives were driven by donor-funded non-governmental organizations (NGO) concentrating upon providing credit to entrepreneurial poor people, often women. But from small beginnings the microfinance sector has changed. Microfinance has grown in scope, as it includes all types of financial services, not only credit; and in the kinds of actors, no longer the preserve of NGOs only. Today micro-savings, micro-insurance and systems for money transfer are becoming available for the poor throughout the world. Moreover, most international banks are now involved in one way or another in microfinance and more than 100 international funds are investing in microbanks (Reille et al., 2009).

The growth in microfinance is indisputable. The table 3 below shows the (nominal) growth in the total loan portfolio of all microbanks listed on the MixMarket.[3] We may as well have used other figures, such as the number of loans, and the picture would largely be the same.

Table 3

The development of microfinance has the traits of an industry in its takeoff phase, that is, a phase with strong, persistent growth over several years. The strong growth must reflect an answer to an underlying demand. This is evidence in itself that microfinance is "working", or

[3] www.mixmarket.org is a web-page connecting demand and supply for microfinance investments as well as a global microfinance information platform.

that it has a positive impact. Poor people are offered the opportunity to store their savings in a safe place, to smooth consumption etc. Microfinance brings the basic utility of finance (Green et al., 2005) to poor people. Thus, the sector seems rapidly to approach a status as a normal business.

The growth persists even in the year of financial crisis, 2008, and picks up its old speed in 2009. The growth is even more impressive when we compare it to Western banks. The sample of Western banks consists of countries with records for all years in the USA and Europe. Even though the years after 2000 saw a rapid expansion of credit instruments outside the banks' balance sheets, the difference is remarkable. Furthermore, the number of microbanks in the second rightmost column indicates that a consolidation is under way in the industry. In fact, the average loan portfolio among the microbanks is more than two times the size as of 2007. Such consolidation is normal during a crisis, and it shows that the total amount lent to poor people expands even when the number of microbanks contracts.

But in addition to the thousands of microbanks there are millions of ROSCAs, savings and credit cooperatives and similar types of self-help banking organizations. Most of these operate below any public or donor radar and estimating their numbers is impossible. Likewise, the millions of moneylenders cannot be counted. It is also increasingly difficult to keep track of microfinance initiatives being carried out by regular commercial banks. As several operators of microfinance have proved their success, an increasing number of commercial banks are downscaling and start offering small loans to lower-end markets. In Ecuador, for example, more than 10 percent of the total loan portfolios held by commercial regulated banks are microcredit (Super Intendancy of Banks, www.superban.gov.ec, accessed October 2009). Furthermore, to distinguish between smaller consumer loans and microcredit is a statistical challenge in its own right. In Brazil, for example, several observers note that the limited outreach of microfinance services may be due to the high outreach of consumer loans and

credit cards among poor people from ordinary banks. Thus, microfinance is expanding in both volume and in kinds, and increasingly the boundaries to ordinary banking are blurring.

Thanks to the many savings and credit cooperatives, savings banks, postal banks and some public banks as many as 500 million poor people are expected to have a savings account (Christen *et al.* 2004). The Microcredit Summit (www.microcreditsummit.org) reports having reached the milestone of 100 million poor borrowers and is now projecting 175 million by the end of 2015.

The impact of microfinance

We have noted how microfinance has induced a great increase in poor people's access to financial services. In our view, this better access to such a basic utility improves poor people's situation. However, it is notoriously hard to disentangle the effect that financial services play apart from, say, the general economic growth in the area at the individual household level. Serious endogeneity problems complicate identification of causal impacts of improved access to credit, and it is often difficult to measure effects during an economically meaningful time span. The debate over microfinance's merits in this regard turns into a methodological debate. Few rigorous impact studies are undertaken (Morduch, 2000).

The Levine (2005) comprehensive survey of the relationship between finance and growth shows beneficial effects in country, regional, and longitudinal comparisons. He reports that a growing body of evidence using different methodologies and data sets find that financial development, whether it is based on banks or financial markets, has a powerful impact upon economic growth. Levine also reports that with higher financial development comes lower income inequality (see also Beck et al., 2004). He puts these beneficial effects down to five functions that the financial system provides, such as the reduction of information asymmetries

in screening and monitoring borrowers, the pooling of savings and reallocations of funds, and the facilitation of trade and commerce. Microfinance may be seen as a way to extend financial services to formerly unbanked people, thus deepening the financial system in the country by removing the frictions that prevent poorer segments of the society their access to financial services. Providing access to microfinance, and at the same time letting the customers pay for the services, has therefore been seen as a promising tool for poverty alleviation (Morduch, 1999).

Recently, however, Dichter and Harper (2007), for example, have questioned whether access to *credit* actually brings the benefits to the poor. Early studies at the micro level have generally been able to trace a positive link between access to credit and economic development at the family level in terms of labour supply, schooling, household expenditure, and assets (e.g. Hulme and Mosley, 1996; Pitt and Khandker, 1998; Khandker, 2005). The Pitt and Khandker and Khandker studies find that the strongest effects are for loans to women and the very poor. Generally, in such studies the problem is to establish causality due to omitted variables (not included variables explain the effects), non-random samples, self-selection of households, and household attrition (i.e. only successful household continue in the programme). In a re-examination of the Pitt and Khandker and Khandker data applying more advanced statistical techniques Roodman and Morduch (2009) cannot confirm their findings, in particular the favourable result for women borrowers and the very poor. Specifically, reverse or omitted-variable causation is driving the results, leading them to conclude that "30 years into the microfinance movement we have little solid evidence that it improves the lives of clients in measurable ways".

Yet more hope resides in the random sampling technique (Coleman, 1999; Banerjee et al., 2009; Zinman and Karlan, 2009; Karlan and Zinman, 2010) to allow for identification of impact. Borrowers are randomly granted a loan, and then effects for borrowers and rejects are

compared. Care is taken to ensure that loan applicants do not have alternative credit opportunities. In the Banerjee et al. (2009) study a microbank in India randomly selected new slum areas where to establish branches. After 15 to 18 months the authors find increased business activities and outcomes in the selected areas. However, the authors find no impact on consumption or health and education. Zinman and Karlan (2009) find similar results in a randomly selected sample of microenterprises in the Philippines. Profits rise, but mostly due to reduction in the number of employees. In one microbank in South Africa Karlan and Zinman (2010) find that access for marginally creditworthy loan applicants to consumer credit (at a 200% annual percentage rate) improves economic self-sufficiency in terms of employment and income, food consumption, and a subjective measure of well-being relative to the control group twelve months after the "treatment". The loans were profitable. Thus, the findings in studies using random samples do not give solid evidence that borrowers benefit from microfinance, but they do not deny such effects.

The debate has turned into a methodology debate arguing for and against different statistical approaches to use in the measuring of impact (Bauchet and Dalal, 2009; Rosenberg, 2010). In addition, what seems to come out of the debate is a more realistic view on microfinance as an anti-poverty tool. More focus on savings and less on credit is another lesson. Giving poor people access to credit is not a panacea in the fight against poverty. Microfinance should to a larger extent be considered a risk mitigation tool and a mean to smooth consumption rather that an instrument to rapidly increase poor people's income. Maybe also the effects are very difficult to measure at the individual household level, since the external effects of easier trading and more productive investments that result from a deeper financial market are more visible at the community level.

The origins of microfinance

The microfinance innovation is recent. The Nobel Peace Prize winner Mohammad Yunus, who started issuing small loans to poor women from his own pocket in 1976, is, together with his Grameen Bank in Bangladesh, the best known among the pioneers (Yunus, 1998). Others, however, preceded Mr Yunus, including a student organization in Brazil that later became Accion International (www.accion.org) and David Bussau and Al Whittaker who in 1971 started issuing small loans to generate jobs. Their initiative became Opportunity International, one of today's biggest international microfinance networks (www.opportunity.org).

Few innovations, if any, come out of nothing. The new microfinance initiatives in the 1970s were born as a response to the frustrated development resulting from subsidised rural credit in the 1950s and 1960s. Over several years international donors and national governments invested billions of dollars in cheap credit to farmers. The results were disappointing. Corruption flourished, repayment of the loans was low and the overall development effect was negligible. In fact, Hulme and Mosley (1996b) report default rates of 50 per cent in state-owned rural financial institutions in the 1980s.

The new innovative microfinance loan contracts aligned poor people's need for access to credit and lenders' need to get loans repaid. In designing the new contract the pioneers borrowed heavily from traditional informal financial systems like the Rotating Savings and Credit Associations (ROSCAs) (Adams and Fitchett, 1992). Loans were small, short time, and backed by informal or group collateral. In addition, repayment capacity was normally calculated based on existing income streams and not projected income from new investments. The prime target for microcredit was therefore (and continues to be) entrepreneurial poor people. Reaching the poorest segments, those with no or less entrepreneurial activities, or reaching the wage earners continue to be a major challenge in microfinance (Helms 2006).

Providing banking services to poor people has a long history. Moneylenders offering their services to the poor have always been around and continue being important providers of timely, though often very costly, loans. Moreover, for hundreds of years people of modest means have come together to organize savings clubs and small credit schemes, in the literature often referred to as ROSCAs. Household participation above 50% is not uncommon in African villages (Bouman 1995). In these schemes the members regularly, often weekly or monthly, pool their savings or contributions and rotate these as grants or loans among members. The groups normally consist of 10 to 30 members and are organized by the members, either collectively, or by one or a few of those predominantly involved. Despite the outreach of more formal types of microfinance the ROSCAs continue to be popular (Allen, 2006). The ROSCA's dependence on internal funding (savings), grassroots leadership and inexpensive operating model making outreach to very remote areas feasible have recently attracted considerable donor attention (Allen, 2006; Mersland, 2007). In one of the efforts CARE, together with partners, aims to mobilize 30 million Africans into savings and credit groups similar to ROSCAs (Microfinance Focus, September 18, 2009).

Also other historical pro-poor banking systems developed hundreds of years ago continue to be important banking organisations throughout the world (Hollis and Sweetman, 1998). The savings banks, initiated more than 200 years ago, and the savings and credit cooperatives initiated 150 years ago were organized to help poor people escape poverty (Horne 1947; Teck 1968). Similar to microfinance today, savings and credit were introduced as a self-help means to avoid poverty and to improve poor people's living conditions (Mersland, forthcoming). Savings banks and savings and credit cooperatives maintain their popularity throughout the world and, beside the ROSCAs, they are today the most important providers of savings services for poor families (Christen *et al.*, 2004). Microfinance is not new in world history, it is an innovation rather than an invention, a rediscovery of features used in earlier schemes.

SECTION 3: INNOVATION IN MICROFINANCE

Our view is that the microfinance business is an innovation. But what is an innovation, and are innovations needed to reach out to poor people and small businesses? In this section we first consider innovative contributions, and then look at asymmetric information problems in microfinance.

The nature of an innovation

An innovation is the first time use of an invention for commercial purposes (Schumpeter, 1934). Innovation is separated from invention on the one hand and from diffusion on the other. Invention is a new useful product or process not yet brought into commercial use. Diffusion simply means that the innovation is taken up in new places and new applications throughout the economy. From Schumpeter we inherit another useful distinction. This is the distinction between what we may call upsetting and extending innovation. The upsetting innovation is a completely new product or process and often has wide repercussions in the economy as a whole, as happened when a car and a mobile phone were developed, and when coal for machine propulsion was put to use for lack of wood during the Industrial Revolution[4]. The extending form of innovation is the product of routine development to improve the upsetting innovation, such as when a more energy efficient car engine is developed, or a pharmaceutical product is improved. Furthermore, the Schumpeterian definition is not only about product and process innovation, but also encompasses new organizational processes and the opening of new markets for inputs or outputs. We will keep to this understanding of innovation here, as it seems to be accepted by many authors (Kennedy and Thirlwall, 1972;

[4] We may think of this as the difference between a paradigm shift versus normal science in Kuhn's (1962) terminology. Christensen (1997) differentiates between disruptive and sustaining technology, which obviously comes close to our usage.

Baumol, 2001), although Kline and Rosenberg (1986) point out that the linear projection from invention to innovation to diffusion is a simplification.

Asymmetric information: Why microbank innovations are needed

A microbank is also a bank, thus, its relationships to customers and owners are fundamentally the same as for ordinary banks. Microfinance offers novel ways to cope with the fundamental problems in the lender-borrower relationship, and in order to be better able to understand the importance of the microbanks' innovations a short review of asymmetric information problems in the lender-borrower relationship is necessary.

The lender-borrower relationship contains several informational problems (Freixas and Rochet, 2008). Suppose the bank faces a new borrower. At this initial stage, the bank does not know the borrower's type. Focusing on the extremes, the borrower may be trustworthy or untrustworthy. This is an example of Akerlof's (1970) lemon's problem, that is, the *adverse selection* or the hidden information problem. If the bank knew in advance, it would supply a loan to the trustworthy and not to the untrustworthy. The bank needs a signal from a third party to screen the good risks from the bad. Now suppose the loan is given. At this interim stage, the bank may be unable, or unwilling due to high cost of monitoring, to ensure that the borrower exerts full effort to repay the loan. This is the *moral hazard* or the hidden action problem (Holmström, 1979). The problem is usually solved by setting up an incentive structure so that the borrower has an interest in repaying. A third, ex post stage is introduced if the bank finds it difficult to verify the report quality after the project is terminated. This is called the *costly state verification* problem (Townsend, 1979), and the usual remedy is to set up a contract in advance that specifies no disclosure of the project's success as long as the borrower fulfils his or hers obligations, but requires full verification through auditing if not.

Thus, the three main informational problems that the bank faces may be termed the screening, the repayment, and the auditing problem. As in all banking these are fundamental in microfinance, and we will see how the industry has found innovative solutions.

But the bank itself presents problems with information asymmetries (Barth et al., 2006; Morgan, 2002). Banks are socalled opaque institutions because it is difficult for outsiders to understand management's risk judgment in individual loan cases. The lack of transparency makes diffuse ownership problematic due to common free-rider behaviour, and with a concentrated ownership one cannot be sure if loans are priced fairly or given on "friendly" and even self-serving terms. We argue below that the microbank is an organizational innovation that partly overcomes this "monitoring of the monitor" problem.

We argue that microfinance is a form of upsetting technology. It comes replete with its own revolutionary character, Mohammad Yunus, who received the Nobel Peace Prize in 2006 for his efforts. Its central idea is twofold - "the poor can pay back", and, "provision of microfinance can be done in a financially sustainable manner". Around this idea a business model has been built and this is what constitutes the innovations we follow in this chapter. The innovations in microfinance may be summarized as

1. The targeting of poor customers.
2. The targeting of women.
3. New lending technologies.
4. New organizational solutions.
5. New sources of funding.

Not all the microbank's characteristics are innovations, for instance, it is hardly an innovation that a bank is unregulated. In this main section we are concerned with the microbank's

markets for output, loans, the seeming diversity of organizational setups, and for its input of capital; and for the microbank's technology in reaching out to its customers.

The new market: Poor customers

A new product market belongs to the catalogue of Schumpeter's innovations. This is exactly what microbanks have been doing. The targeting of poor people is generally seen as the microbank's mission, but from a business model perspective it is equally a choice of a new market.

Before microbanks the clients were served, if at all, by local moneylenders, and intermittent initiatives from the government. The state banks had hopeless repayment rates, often forgiving the debt out of an "understanding" of the poor customer's plight, perhaps brought about by political pressures. The phenomenon is generally known as the "soft budget constraint" (Kornai et al., 2003), that is, the constraint is not absolutely binding but is open to (political) negotiation. On the other hand, the moneylender could achieve repayment because his deep local knowledge allowed him to select the low-risk borrower, and to monitor the borrower's effort to repay. Outside his backyard, the moneylender would have few sanctions, thus the local nature of the business precluded scale economics. Generally, ordinary banks were not present among the poor customers. To Akerlof (1970) this is a prime example of markets failing to arise due to informational asymmetry. The microbank arose to give poor people an alternative.

The small loan has been perhaps the most common measure of the microbank's outreach to poor people. Naturally, poor people can ill afford anything but a small loan. Commentators (e.g. Dichter and Harper, 2007) have worried about the socalled mission drift in microbanks, that is, their extension of services to better-off customers. Mersland and Strøm (2010a) show

that the small loan bias has not disappeared over the years, and it tends to be associated with such outreach measures as rural borrowers and female borrowers. Thus, the fear of mission drift is exaggerated. A more apt observation is that the microbanks have discovered, developed, and maintained a market for banking services to the poor.

The targeting of women

Modern microfinance and women have been intrinsically linked. From the starting point in the 1970s, microfinance has been above all a matter for women. Many initiatives have been celebrated for their ability to reach out to women and enhance their welfare. Even today, the gender argument continues to be at the forefront. The objective of the Microcredit Summit Campaign, which plays a central role in the promotion of microfinance, is '*to ensure that 175 million of the world's poorest families,* ***especially women****, receive credit for self-employment and other financial and business services'* (our emphasis)[5]. Among many, Morduch (1999) argues that one of the main reasons for the success of microfinance in the public eye is the targeting of women. In our data women represent 73 per cent of microfinance customers on average[6] and 42 per cent of microbanks declare a conscious gender bias towards women.

The targeting of women in pro-poor banking initiatives is historically something new. In Europe and North America, the first initiatives of the cooperative and mutualist banking movements showed little interest for women. Lemire (2001) finds that the proportion of women in the cooperative movement hardly reached 10 per cent. With a quarter of female clients, mostly widows and unmarried, the 18th century Irish funds were an exception, possibly because of their very small loan amounts (Hollis, 2001). Similarly, the first attempts

[5] See http://www.microcreditsummit.org.
[6] This figure is close to that in earlier literature (see, e.g., Cull et al. 2007; Daley-Harris, 2007).

to provide credit in developing countries through development banks and cooperative movements also showed little interest for women (Fournier and Ouédraogo, 1996).

How can we explain this sudden enthusiasm for female targeting and why do many microfinance organizations today still choose to focus on women? Three main arguments are usually put forward in favour of targeting women: (1) gender equality, (2) poverty reduction, and (3) microbank efficiency (Mayoux, 2001). With respect to gender equality, microfinance is considered an effective means of promoting women's empowerment. By enabling women to develop or strengthen income-generating activities, microfinance is likely to increase their monetary income, their control over their income, and their bargaining power within the household. These effects are expected to lead to various mutually reinforcing social, psychological, and even political effects: better self-esteem and self-confidence, an improvement in status within the family and the community, better spatial mobility, and greater visibility of women in public spaces, and so forth.

As far as poverty reduction is concerned, it is argued that women invest their income to nurture the well-being of their families, whereas this is not always the case for men - a dollar loan to a woman seems to have a greater development impact than a dollar loan to a man (Daley-Harris 2007, p. 165).

Coming to microbank efficiency, a high female repayment rate is often the main argument. Empirical evidence usually confirms that women do indeed repay better than men (D'Espallier *et al.* 2009b). The microbank assumes less risk when lending to women rather than men, and may consequently prefer women. However, financial performance is more than just repayment. D'Espallier et al. (2009a) find that microbanks targeting women perform equally well in financial terms compared to microbanks that don't consciously target women. The high emphasis on women in microbanks is therefore probably not so much related to

efficiency but to the rising influence of gender lobbies within donor agencies, nongovernmental organizations and international social lenders to microbanks monitoring women outreach (Fernando, 2006; Mayoux, 1999; Weber, 2006).

New lending technologies.

A borrower often obtains a loan by pledging collateral, such as a mortgage on the house. In microfinance, this method is often not available, since the individual customer has little or no collateral to offer and the local environment offers little opportunity to legally enforce repayment. The microfinance industry has developed loan types to meet this problem. The loan may combine characteristics such as a group loan, a small loan, and a loan given on short maturity. The small loan of short duration is the main defining property of the microfinance loan, but the major innovation is the group loan.

The basic characteristic of the *group lending* arrangement is, in most cases, that a loan is given to an individual, but then the whole group is responsible for its repayment (Armendáriz and Morduch, 2010). This is the joint liability condition of the group loan. Then the social capital implied by belonging to a group acts as a substitute for collateral (Tirole, 2006). For this to work, the community to which the group members belong often needs to be close-knit, as in a village.

Among others, Ghatak and Guinnane (1999) argue that the group loan solves the three banking problems of screening, repayment, and auditing. In the screening process group members are often chosen by self-selection. Ghatak (2000) introduced the term “positive assortative matching”, to show that good risk borrowers tend to team up with other good risk borrowers. They can do so, because they know each other from other social settings. The positive assortative matching is in effect borrower screening carried out on behalf of the bank.

The asymmetric information problem is reduced, and at a far lower cost than the microbank could achieve on its own.

In the repayment stage the group loan's advantage is that the joint liability condition leads to an incentive by group members to monitor other members (Stiglitz, 1990; Varian, 1990). Besley and Coate (1995) expressed this mutual monitoring colourfully: "Under an individual contract, all the borrower has to fear, if he defaults, is the penalties that the bank can impose on him. Under group lending, he may also incur the wrath of other group members. If the group is formed from communities with a high degree of social connectedness, this may constitute a powerful incentive device, since the costs of upsetting other members in the community may be high." Compared to the bank's own monitoring, this mutual monitoring achieves two things. First, monitoring is improved since other group members are probably in a better position than a loan officer to judge whether a group member is making the necessary effort to meet loan obligations. Second, the members can wield sanctions that are not open to the bank, such as social exclusion, and therefore, are better able to discipline group members to repay. Thus, monitoring should be more effective in a group loan, and the moral hazard problem consequently lower. This again acts to reduce the microbank's borrower riskiness and costs of monitoring.

Finally, the auditing model of Besley and Coate (1995) says that group members are better able to verify each other's effort to fulfil obligations. Again other members of the loan group are the eyes and ears for the microbank.

Group lending models varies. Often a maximum number of group members is set, for instance the five member group is the common group size in the classical Grameen Bank system and the original solidarity groups practiced by Accion International affiliates. In other models, for example the Village bank system practiced by FINCA and Freedom from Hunger, groups can

be of around 20 members with or without intra-groups of around five members within the Village Bank (Armendáriz and Morduch, 2010). Self-selection of members is mandatory in some group schemes, in others the microbank selects the group members as loan applicants arrive, for instance Karlan (2007) describes such a scheme in FINCA-Peru. However, it seems that regardless of the model, group lending by itself induces members to repay more often than individual lending.

Furthermore, other rules are built into the loan contract. The practice of sequential financing and contingent renewal schemes are often part of the agreement. Sequential financing refers to the practice of first giving, say, two members of a group a loan, and then step up to two more if the first two loans are repaid (Morduch, 1999). Contingent renewal is the refusal to lend again to any group member if not all outstanding debt is settled. Contingent renewal is not necessarily a group feature, but may be part of an individual loan contract as well. Bolton and Scharfstein (1990) model a repeated lender-borrower relationship where the threat of termination induces the borrower to repay. Thus, the bank takes the risk of extending a loan to persons with no previous credit history and no collateral, and then uses the experience from the borrower's repayment record to establish creditworthiness.

The predicted relationship between repayment and social cohesion are largely borne out in empirical studies. From field study data of urban and rural borrowing groups in Guatemala, Wydick (1999) finds that rural groups are much more willing to exert social pressure to repay than urban groups, but finds no effects of social ties, such as same gender or partaking in the same social activities. In contrast, Zeller (1998) and Karlan (2007) find that repayment increases with social cohesion, or what Karlan calls social connectedness. Ahlin and Townsend (2007a) document an inverted U-shaped curve linking social cohesion and repayment. Thus, beginning at a low social cohesion, the repayment rate increases, but then falls off at high levels of social cohesion, such as between close relatives.

The theoretical case for the superiority of group loans is not settled. Armendáriz de Aghion and Gollier (2000) develop a model where group lending has a potential even if matching is random, that is, where positive associate matching is not required. The clue is that risky borrowers will pay more in case of default than safe, thus subsidizing the safe and bringing them into the credit market. Unlike Armendáriz de Aghion and Gollier, Rai and Sjöström (2004) assume that group members may enter into side contracts with other members. They show that these individual contracts between members can replace the joint liability condition for group formation, a point noted by other authors too. These and other alternative theories should give rise to increased attention to individual contracts in microfinance.

Furthermore, the costs of the group loans for both the microbank and its customers seem to be little reflected in the theoretical models and also the empirical literature. For the customer the costs include the expected cost of bailing out non-paying group members and high transaction costs, such as time and travel expenses for meetings. There is also the social cost of acting as a monitor of closely related borrowers, be they relatives or neighbours. The lower repayment rate at the very high level of social cohesion (Ahlin and Townsend, 2007a) is a reflection of the high social costs the group members are asked to supply.

How common is the group loan in microfinance? In the Mersland data the microbanks are classified as giving only group or individual loans, or a mixture of the two. It turns out that 54.1 per cent of the microbanks belong to the mixture category, 26.0 to the individual loan, and 19.9 per cent to group loan only. Thus, individual loans are more important than group loans. This is in contrast to the Ghatak (2000) prediction that group loans would become the prevalent form of loan in both developed and developing countries. In a recent study Mersland and Strøm (2010b) further demonstrate that the cost of upholding group lending often outperforms the benefits of it. They question the future widespread use of group lending in microfinance.

Now we look at the *small loan of short duration*, loan types that are equally suited to individual lending. When the loans are small, the bank is able to extend credit to more customers. This fulfils its social mission, but also implies risk diversification. Short duration loans further reduce the risk that the client will not repay. It also has a second effect. The customer is fairly quickly able to build a credit history and to show that he or she is able to repay the loan obligation. Thus, small loans of short duration also contribute to a better repayment record in the same way as the contingent renewal scheme above. Thus, the first small loans on short duration may be seen as screening devices for the microbanks that help them separate good and bad risks. As loans are renewed, extended, and prolonged, the microbank earns rents on the enduring relationship with the customer (Petersen and Rajan, 1995). Finally, step-wise increase in loan amounts is a typical feature especially in individual lending that gives the customers an additional incentive to repay their current obligations (Armendáriz and Morduch, 2010). These features of the microfinance lending contract are little explored theoretically and empirically. Bayesian updating models could show how the microbank quickly gains knowledge of customers through their repayment record.

Organisational forms for better monitoring

The microbank screens customers for loans and monitors the loan's repayment, but the microbank needs to be monitored as well. Is monitoring a microbank easier than alternative development banks? In this section we argue that this is the case, and that microfinance has developed organisational innovations to do so.

The microbank grows deep roots in the community it serves. Often the bank is organized from below, and has a mutual or non-profit ownership, that is, the customers have a say in the affairs of the bank. This often means that customers are able to monitor the microbank. They

may recognize the bank officials from their local communities, see that they are not overpaid, that the operations are executed in an efficient and fair manner, and they may be addressed in a way that is familiar to their situation. The development of this closeness between bank and customer is probably a precondition for many a microbank to flourish in its community.

This form of banking has its parallel in the early experience in banking to the poor in the North-Atlantic countries in the 19th and the 20th century. Banking to the poor has generally been dominated by mutual and non-profit ownership, not by investor ownership (Hansmann 1996; Mersland, 2009b).

This is in contrast to the preceding state-owned banks and development initiatives. These large, distant and impersonal banks are created to implement government policies. Therefore, they need to adapt to customer needs to a lesser extent than microbanks. On the other hand, these banks may have a corporate governance advantage in that a large, dominant owner can internalize costs of monitoring and may therefore have an incentive to take the oversight function seriously. However, the state bank may lack adequate customer knowledge and may be more susceptible to political favouritism and outright self-dealing (Morck et al., 2005).

The new microfinance initiatives in the 1970s and 1980s emerged in nongovernmental organizations (NGOs) concerned with poverty alleviation, seeing banking services to the poor as a part of this. These were not organizations set up to manage complex banking operations. Thus, ever since the NGO Prodem in Bolivia was transformed into Banco Sol in 1992, it has been argued that an evolutionary organizational process that transforms nongovernmental microbanks into commercial shareholder owned firms is required (Pischke 1996). As a privately owned firm, the microbank can benefit from superior corporate governance, it can perform better since they can provide a larger range of better quality services, and it is more independent of donors. However, few (probably less than 100) of the thousands of NGOs

have transformed into more commercial ownership structures (Hishigsuren 2006). Mersland (2009b) argues that the overall cost for a microbank to be organized as a NGO may be lower than previously thought since NGOs may be better in reducing cost of asymmetric information between the lender and the borrower and between the depositor and the bank. Mersland and Strøm (2008) find that NGO microbanks actually perform similar to their more commercial peers. Thus, even if NGO microbanks tend to be small they continue being the most important ownership form in the microfinance industry with 51.4% of all microbanks in the Mersland sample.

New sources of funding

Further innovations come in funding. There are three main sources of funds for a bank; equity, deposits and borrowing from credit providers other than depositors. Microfinance may be seen as a better vehicle for channelling funds to poor people than former state owned development funds or banks. Ever since the pilot schemes in the 1970s microbanks have been able to attract donor capital to a substantial degree. Morduch (2000) claims that for microfinance to reach the poorest segments microbanks need continued subsidies in some form.

Lately the investment in microfinance has become popular. Between 2004 and 2008 the total stock of foreign capital investment in microfinance increased more than six times, to US$ 6.5 billion (Reille et al., 2009). Currently more than one hundred international Microfinance Investment Vehicles (MIVs) invest in MFIs worldwide (www.mixmarket.org), offering equity, loans, bonds, collaterized debt obligations (CDOs) or securitization. Thus, the microbanks constitutes an innovation also in its sourcing of funds, and therefore, plays a vital

role in mobilising and allocating international capital for investment purposes in developing countries.

The international element is strong in microbanks. In fact, 38.3% (out of the 376 microbanks with records on the variable) are internationally initiated, 37.8% (341 microbanks) have international commercial debt, 45.0% (340 microbanks) have international subsidised debt, 24.7% (267 microbanks) have an international member on the board, and 30.2% (377 microbanks) belong to an international network.

Personalised online lending across borders is a new innovation. Kiva is an online organisational platform for facilitating loans from individual lenders to poor persons and small businesses in developing countries by means of the internet. It combines microfinance and the internet, and has (April, 2010) passed USD 130 million in loans made to close to 340,000 entrepreneurs. Kiva is surely not the last innovative organisation to find solutions for enhancing donations and loans.

SECTION 4: THE FUTURE OF THE MICROFINANCE INNOVATIONS

In many instances the success factors at the innovation stage may not be the success factors in later stages. However, the business model built up, the fixed resources and the routines built into the way of doing business, in short, the microbanks' technology acts as powerful determinants for later development. Changes should be expected as prolongations of current practices rather than as clean breaks from the past. Further development is path dependent (David, 1975; Rosenberg, 1994).

Thus, a pertinent question to ask is: Is the microfinance business model sustainable, or is it the case that the innovations needed to set the industry off at the inception in later stages act as

brakes on further development? Two developments motivate this question. The first is increased competition, the other higher customer heterogeneity. The monopoly position enjoyed by the first microbanks has been eroded as others follow in their footsteps. McIntosh and Wydick (2005) model how cross-subsidising poorer customers, for instance in long term relationships, are undermined by competition. Higher customer heterogeneity may come from the microbanks' success in lifting individuals out of poverty. Paradoxically, the microbank's business model may become outdated because of its own success.

Table 3 showed that a consolidation is taking place among microbanks. This is an indication of increased competition. Together with higher customer heterogeneity this put strains on the microfinance business model. In both cases, the cost of doing business becomes more important for the microbank's survival (Mersland and Strøm, 2010a). Being cost efficient is a viable strategy for survival when competition stiffens and budget constraints become "hard". Therefore, an analysis of cost drivers among microbanks is called for. We undertake a simplified analysis here, focussing on the microbank's lending. Accordingly, we regress operational costs on variables taken from the microbank's business model. In addition, since the main argument for the innovative aspects was to reduce asymmetric information and secure loan repayment, we test whether the innovative aspects are the factors that still uphold high repayment rates in microbanks.

To discuss these questions systematically, we run a panel data regression based on the Mersland data that extends from 1998 to 2008 and covers 379 microbanks in 73 countries[7]. The dependent variables are (Operational costs)/(Loan portfolio) and the default rate. The default rate is defined as the portfolio at risk (PaR30), that is, the fraction of the portfolio with more than 30 days in arrears.

[7] The data is further described in Mersland (2009a) and Mersland and Strøm (2010a).

The same explanatory variables enter both regressions, since the variables are likely to relate to both operational costs and risk. We first include variables for the microbank's business model. Mersland and Strøm (2010a) find that operational cost per customer is related to such outreach measures as average loan size, the microbank's gender focus, and lending methodology. We use these as proxies for the firm's choice of market and technology. Then, the microbank's institutional features, ownership type (shareholder owned or not – SHF for short), its regulation, and its competition may capture institutional features of the individual bank (Mersland and Strøm, 2008). A third explanation is microbank size. Allen and Rai (1996) and Berger and Humphrey (1997) find scale economics disappear beyond a certain level. Thus, this may be of great importance in the generally small microbanks. We also add the Mersland and Strøm (2010a) institutional economy-wide variables to neutralise country effects. These include risk factors such as inflation and the current account balance, the growth factors GDP per capita (purchasing power parity adjusted) and growth of GDP, and lastly the Heritage Foundation index of economic freedom in the country. The "law and finance" literature (Shleifer and Vishny, 1997; La Porta *et al*., 1998) shows that such macroeconomic factors are highly significant. Furthermore, we add time and region dummies to further control for exogenous factors that may impact the operational cost to loan portfolio ratio.

The international funding innovation is missing in this list. However, funding should have no association to operational efficiency or risk, according to the Modigliani-Miller theorem. Furthermore, Mersland et al. (2010) find that international funding plays no role in the determination of financial performance (e.g. ROA). Consequently, this aspect is left out of the regression.

We use the random effects model (Greene, 2008) on the panel model, with standard errors adjusted for the individual microbanks, and obtain results in table 4.

Table 4

Significant results are marked with stars at the 10, 5, and 1 (three stars) per cent significance level. The first regression shows that the operational costs to loan portfolio ratio increases with loan methodology (more group loans in portfolio), with shareholder ownership, with inflation, and with economic freedom, but it decreases with a larger average loan, more lending to women, a larger loan portfolio, the microbank's experience, and when the current account increases. A regression with the operational costs to assets ratio as dependent and assets as independent variable for microbank size does not substantially alter the results above. In comparison, few significant results emerge in the risk regression with PaR30 as dependent variable. Microbanks with a gender bias have a lower risk, and older microbanks are willing to take on more risk than younger.

Let us discuss these findings in the light of ongoing changes in the microfinance sector. First, consider the microbanks' business model variables. These are captured in average loan size, gender (bias), and lending methodology. Using the results as a guide for future action, the microbank should lend larger amounts, lend more to women, and lend more to individuals. Thus, part of the microbanks business model is vindicated in terms of operational costs, others are not. Let us look closer at these aspects.

Loan size. With rising income we should expect borrowers to demand larger loans. Cost considerations also favour larger loans, our simple regression says. Yet Mersland and Strøm (2010a) show that the average (as well as the median) loan has remained at the same level over a ten year period. A possible interpretation of this is that the microbank starts out serving the better-off of the poor and grows through penetration into poorer markets. Another possibility is that the customers "graduate" from the microbank to an ordinary bank, and as a replacement, the microbank seeks out new customers among the poor. A third alternative is

that the borrower remains and has a small loan, but now also holds loans with other microbanks and ordinary banks. A report from smartcampaign.org informs that 20-75% microbank clients have multiple loans from several providers. Krishnaswamy (2007) confirms that such multiple borrowing take place in India as well.

Multiple borrowing could be a sign of microbanks holding the loan amount to individual borrowers artificially low. If this is the case, the average loan size is not a measure of the microbank's outreach, but a self-imposed limit on the loan amount, possibly made so as not to ruin the microbank's standing as a provider of loans to poor people. It implies that the microbank does not grow with the customer. It also implies that the microbank's investment in the relationship is lost, thus preventing the bank from earning later-stage rents on a longstanding relationship (Petersen and Rajan, 1995). The limit on loan amount may be justified by the microbank's effort to diversify risk, but we believe cost considerations should play a bigger role. First of all, servicing a large loan is not proportionally as expensive as a small loan due to the fixed element in loan provision. Second, the bank needs to compensate the loss of business to a larger customer with an outreach to more customers. This generates costs in risk assessment of new customers, default losses on weak new borrowers and so on. Third, the customer incurs greater transaction costs when he or she needs to obtain loans from several providers. Thus, a prediction is that the microbank will increase the average loan size by differentiating the loan size more between customers. Morduch and Rutherford (2005) predict that microbanks will become more flexible in their lending practice, in particular, they will keep their established customers by offering services better tailored to their needs.

The targeting of women. The Becker (1971) hypothesis says that statistical discrimination, that is, the choice of individuals on account of a general characteristic such as gender or race, will disappear with greater competition. But from a cost and risk perspective, microbanks should continue preferring women. This may change in the future when microbanks seek to

expand their market in order to achieve scale economics and also to meet competition from other microbanks or ordinary banks in their markets.

Lending methodology - group or individual? The first regression shows that the microbanks have good economic reasons for gradually preferring individual loans over group loans, as the operational costs ratio becomes lower when more loans are given to individuals. Similarly, the second regression does not uphold the claim that group loans are needed in order to secure repayment. Thus, will the group loan withstand pressures from greater competition and greater customer heterogeneity? We think it will not. One reason is that the social capital acting as collateral also contains social liability. Individuals may want to escape the vigilant watch of their neighbours, even though the microbanks may prefer it. Conversely, they may not be willing to be "thy neighbor's keeper" (Banerjee et al., 1994). Wydick (2001) finds that 80.3 per cent of his Guatemalan sample prefers an individual loan. Over time, microfinance customers may also have acquired individual items that may be used as collateral, for instance a house. Thus, with less poverty the need for the social capital as collateral may wither away. When customers have a choice of microbank, they may well prefer the bank that gives individual loans.

Similarly, with increasing customer heterogeneity, the group loan may be difficult to uphold. The relatively large borrower may be unable to induce group members to guarantee for the loan. Likewise, groups may become unable to attract relatively wealthy people, since these may fear their wealth will guarantee repayment of loans to risky projects for other group members (Banerjee et al., 1994). Thus, for reasons of operational cost, competition, and customer heterogeneity the individual loan is likely to increase its share.

The microbank's institutional situation turns out to be of minor importance in the cost regression. The operational costs ratio increases if the microbank is shareholder owned, and

its regulation has no impact upon the operational cost ratio. These findings confirm the Mersland and Strøm (2008) study of ownership impact upon firm performance. Consideration for costs is not an argument for transforming the microbank into a shareholder owned bank.

Scale advantages. Many microfinance aspects touched upon above are influenced by the size of business. First, the results confirm the scale economy findings in Allen and Rai (1996) and Berger and Murphy (1997). Thus, the regression shows a clear scale advantage in microbanks. Given the rapid growth in the sector, microbanks should be able to achieve cost savings in the future. This may enable further lending by means of small loans, thus reaching out to more poor customers. Another implication is that with increasing competition the banks that have achieved scale will have a competitive advantage. In those markets where NGOs cannot easily scale up because of legal regulatory constraints the scale advantage will probably motivate more NGOs in the future to transform into shareholder owned banks

In summary, our regression implies that the future of microfinance lies with larger microbanks concentrating more on individual loans and differentiating loan size more between customers. The repayment risks seem to be under control, however, cost concerns need to be taken more seriously in the future.

SECTION 5: CONCLUSION

Morduch (1999) closes his overview of the microfinance field with a call for a “second wave of innovation” if financial sustainability and outreach goals are to be met. In this chapter, we see microfinance as an innovation unfolding and becoming an integrated part of the daily lives of millions of people. In the process, some early features of the microfinance innovation lose their importance, other gain. Lending methodology is an example. Group loans are retreating, individual loans become more common. This step-by-step extension of the original

innovation is common to most innovations, and the incremental improvements are often larger than the original innovation (Rosenberg, 1994). Rather than a second wave of innovation, microfinance needs to expand further, to diffuse its technology even more. In so doing, it needs close consideration to operational efficiency, to consolidation into stronger entities, and even the transition to formal banking operations.

The greatest innovation is the discovery of the new market among poor people. The concentration upon meeting poor people's demand for financial services is the defining character of microfinance. How this is to be undertaken is a matter of pragmatic adaptation to the local market. But to be able to fulfill the tasks in the longer term, microfinance must manage the transition from idealism to regular business activity. It needs to be profitable so as to lend new amounts the next time a customer applies. It needs to fulfill the microfinance promise of financial sustainability and outreach.

In this regard the microbanks can learn from the historic savings banks that adopted a pragmatic attitude in expanding their missions to serve better-off clients alongside the poor and developed professional banking procedures in order to assure their long term survival (Hollis and Sweetman, 1998; Mersland, forthcoming). We thus welcome more research on how microbanks can expand their missions without losing sight of the poorest. Likewise more research is needed to identify factors driving operational efficiency in microbanks. Finally, it is important to monitor innovations in wireless technologies as these will probably shape the future of microfinance methodologies and cost structures.

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Table 1: OVERVIEW OF MICROFINANCE RESEARCH

Topic	Author and Journal	Summary of study and major findings
ROSCAs	Besley, Coate, Loury (1993)	Lays out the economics of ROSCAs, their economic role, and why people participate in this type of financial organizations. Also discusses the sustainability of ROSCAs.
	Anderson, Baland (2002)	Lays out a model to explain that women participate in ROSCAs to protect their savings against claims by their husbands. Tests the implication of the model with data from Kenya
	Ambec, Treich (2007)	Presents a model where they explain that poor people participate in ROSCAS to alleviate self-control problems stemming from the many claims for cash.
	Bouman (1995)	Explains the widespread of ROSCAs and identifies two main groups of ROSCAs – the ones distributing the savings and the ones accumulating the savings
Historic pro-poor banking systems and their relevance for microfinance today	Hollis, Sweetman (1998)	Lays out the economics of ROSCAs, their economic role, and why people participate in this type of financial organizations. Also discusses the sustainability of ROSCAs from similar European history.
	Cull et al. (2006)	Identifies a wide variety of local financial institutions during nineteen century America that served the needs of SMEs. In addition these institutions were able to intermediate local resources.
	Mersland, (Forthcoming)	Reviews historic literature on the savings banks and identify similarities with today's microbanks. Lays out how microbanks can learn governance lessons from the savings banks and how a pragmatic commercial attitude helped the savings banks survive.
Group lending: Theory	Stiglitz (1990)	A pioneer paper using modern contract theory to show how mutual monitoring in a group lending scheme improves members' repayment rates.
	Banerjee et al. (1994)	Introduce the "joint liability" condition that group members are all responsible for each member's loan. This induces better repayment and monitoring.
	Besley, Coate (1995)	Theory that group members' joint liability gives incentives to repay. Local sanctions outside loan contract, termed "social capital" strengthen repayment willingness.

	Armendáriz de Aghion, (1999)	Group lending induces repayment, mostly so when borrowers' risks are positively correlated.
	Ghatak, Guinnane (1999)	Reviews theory and historical and recent evidence relating to group lending schemes.
	Ghatak (2000)	Theory of how group lending succeeds by utilizing the local information of potential group members to screen out bad risks, inducing homogeneity in the group by "positive associate matching".
	Armendáriz de Aghion, Gollier (2000)	Group lending is possible without positive associate matching, since in good states high risk borrowers can compensate low risk.
	Rai, Sjöström (2004)	Individual contracts with joint liability clause duplicates group lending. Group lending is only feasible if members cannot perfectly "side contract" to help each other.
	Chowdhury (2005; 2007)	Models how group lending is successful when financing is sequential, renewal being dependent upon former repayment.
Group lending: Evidence	Zeller (1998)	Repayment in a Madagascar random sample of 146 groups is higher in groups with high social cohesion. Group size is 10 on average, self-selection into groups means that high land and low land farmers form groups.
	Wydick (1999)	Guatemalan sample shows rural groups are more willing to exert social pressure to repay than urban groups, but finds no effects of social ties.
	Thorp et al. (2005)	Analyses of group cases reveal that group lending may alleviate poverty and empower members by greater control over vital decisions. Group formation has political implications.
	Ahlin, Townsend (2007a)	Testing of theories' implications for repayment reveals that in a Thailand sample of lending groups and households repayment increases with social cohesion, but strong social ties have adverse effects on repayment performance.
	Ahlin, Townsend (2007b)	Testing of mechanism design theories for choice of individual or group loan contract. Similar wealth level and member screening favour group loan.
	Karlan (2007)	Evidence from FINCA-Peru exogenously formed groups shows repayment increases with social cohesion, i.e. the monitoring effect.
Impact	Morduch (1999)	A survey of the microfinance field, stressing microfinance's success, but underlines dependence upon subsidies. It urges more attention to mechanisms for individual lending.

	Coleman (1999)	Quasi-experiment study of households in villages in Thailand with some villages having microfinance and others not yet. Self-selected members are compared, but results on a range of outcomes are insignificant.
	Pitt, Khandker, (1998)	Quasi-experiment study of villages in Bangladesh with microfinance programs and villages without shows that microfinance improves labour supply, schooling, consumption and assets. The effects are largest for the poor and for women.
	Khandker (2005)	A follow-up survey in 1998/99 extends the Pitt and Khandker (1998) data and confirms their findings using panel data estimations.
	Morduch, Rutherford (2005)	Describes how informal credit schemes give way to microbanks due to the convenience, reliability, continuity, and flexible range of services in formal banking
	Roodman, Morduch (2009)	A re-examination of the Pitt and Khandker and Khandkar data cannot replicate their salient findings that microfinance helps the poorest of the poor, and women.
	Banerjee et al. (2009)	Randomised sample of households in a new microfinance area in India reveals that new business ventures increased, as did profits in existing businesses, but no average consumption or human development impacts were discernible.
	Zinman, Karlan (2009)	Randomised sample of households in the Philippines shows positive impacts on productive activities are due to downsizing. Households also substitute from labour into education. Risk management is more important than productive investments.
	Karlan, Zinman (2010)	Randomised sample in South Africa yields a number of positive outcomes for consumer loans (SA) for marginal borrowers in terms of employment, income, food consumption and a subjective measure of well-being.
The mission drift debate	Mosley, Hulme (1998)	Reports from a project which estimated the impact of 13 microbanks. Finds that the poverty impact is higher from lending to the not-so-poor compared to lending to the poorest. A certain degree of "mission drift" will thus bring along higher social impact.
	Morduch (2000)	Discusses the win-win proposition where some advocates argue that those microbanks that follow a commercial banking approach are those that alleviate the most poverty. Claims that such a proposition is supported neither by logics nor by empirical evidence.
	Mersland, Strøm (2010a)	A global microbank panel data sample from raters' reports shows that mission drift

		(average loan) does not increase. Higher operational costs drive average loan size.
Competition and commercialization	McIntosh, Wydick (2005)	Models how competition limits non-profit microbanks to cross-subsidise weaker customers, leading to greater customer differentiation.
	Vogelgesang, (2003)	
Efficiency and performance	Cull et al. (2007)	A global, non-verifiable data set of microbanks investigates financial performance, outreach, and mission drift. Few microbanks combine profitability and outreach. Ownership type and interest rate play decisive roles.
	Mersland, Strøm (2009)	A global microbank panel data sample from raters' reports indicates few governance mechanisms matter for a microbank's financial performance and outreach. Female CEO improves financial performance.
	Caudill et al. (2009)	Eastern Europe and Central Asia 2003-4 data are used to estimate a translog cost function that shows microbanks are improving with time. A "mixture model"reveals that not all microbanks are improving; the larger accepting deposits and the unsubsidised improve the most.

Table 2: Characteristics of microbanks. Mersland sample containing 379 microbanks in 73 countries with observations from 1998 to 2008. Numbers are in nominal USD. Proportions (for instance ROA) are expressed in percentages.

	Mean	Median	Std	Minimum	Maximum	Count
Average loan	759	354	1,514	1	28,694	1,240
Credit clients	12,483	4,831	27,416	20	394,462	1,250
Assets	6,122,570	2,298,799	14,202,427	19,288	248,115,376	1,299
Loan portfolio	3,976,827	1,727,960	6,110,062	3,425	59,731,394	1,313
Equity fraction	38.8	35.2	30.5	-157.1	100.0	1,299
Subsidy fraction	22.3	9.4	28.0	0.0	100.0	341
Portfolio yield	38.6	33.8	23.9	2.3	500.7	1,235
Operating cost of portfolio	29.0	19.8	37.3	0.0	623.1	1,313
Portfolio at risk (30 days)	6.6	3.3	9.8	0.0	97.3	1,196
Portfolio writeoff	2.1	0.5	5.3	0.0	92.8	1,122
Return on assets (ROA)	0.5	2.2	12.5	-99.0	34.2	1,239
Adjusted ROA	-2.3	-0.6	14.7	-118.2	119.5	686

Table 3: The loan portfolio in microbanks, their growth rates, and growth rates in Western countries 1998 to 2008 in nominal USD. From Mixmarket.org and Bank for International Settlement (BIS).

Year	Microbanks' loan portfolio	Loan portfolio growth Microbanks	Western banks	Number of microbanks	Average loan portfolio
1998	1 299 705 105	5.7	6.6	107	12 146 777
1999	1 765 359 797	35.8	-2.3	146	12 091 505
2000	2 168 663 260	22.8	6.6	208	10 426 266
2001	2 965 019 290	36.7	7.1	311	9 533 824
2002	4 878 148 358	64.5	17.4	497	9 815 188
2003	8 331 753 261	70.8	18.3	762	10 934 059
2004	12 012 897 910	44.2	16.9	939	12 793 289
2005	17 811 148 228	48.3	9.9	1122	15 874 464
2006	25 249 706 904	41.8	22.5	1205	20 954 114
2007	37 461 209 551	48.4	33.6	1339	27 977 005
2008	43 091 075 159	15.0	-8.0	1291	33 378 060
2009	62 112 865 943	44.1	-4.6	982	63 251 391

Loan portfolio is defined as gross loan portfolio in microbanks and as gross loans and deposits in Western banks

Table 4: Operational cost on portfolio and portfolio risk explained by a common set of factors. 379 microbanks in 73 countries from 1998 to 2008.

	Operational cost	Portfolio at risk
Loan portfolio	-0.007***	-0.001
Rural/urban market	-0.017	-0.004
Gender bias	-0.092**	-0.021**
Loan methodology	0.138***	-0.006
Average loan	-0.023**	0.001
Shareholder owned	0.132	-0.011
Bank regulated	0.015	-0.018
Ownership*Regulation	-0.130	0.012
Experience	-0.004**	0.003***
Inflation	0.238*	-0.003
GDP/cap PPP-adjusted	0.011**	-0.003*
GDP growth	-0.022	-0.007**
Current account	-0.017***	-0.003
Heritage	0.005***	0.001**
Constant	-0.266*	0.042
Year dummies	Yes	Yes
R2	0.133	0.096
Observations	1128	1058
Microbanks	342	329