

**IMPROVING ACCESS OF LOW-INCOME PEOPLE TO FORMAL
FINANCIAL SERVICES: EVIDENCE FROM FOUR
MICROFINANCE ORGANISATIONS IN KWAZULU-NATAL**

VOLUME I

By

Manfred Edmund Kubu

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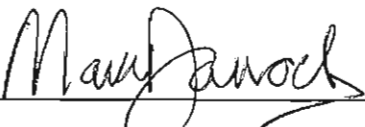
DECLARATION

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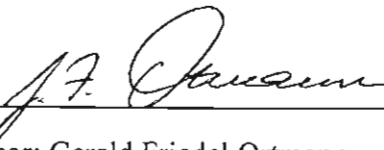


Manfred Edmund Kuhn

As Research Supervisors, we certify that the above statement is correct.



Senior Lecturer: Mark Andrew Gower Darroch



Professor: Gerald Friedel Ortmann

ABSTRACT

The first aim of this research was to examine the current financial technologies, outreach and financial viability over time (from 1997 to 2002) of four MFOs providing agricultural, micro-business and consumption credit in KwaZulu-Natal (KZN), South Africa (SA). Understanding the limitations and advantages of these financial technologies could facilitate institutional reform to improve access by low-income people to viable formal financial services in KZN. The second aim of this study was to estimate factors that affect the credit rationing decision and applicant loan default at the MFO providing consumption credit (MFO1), and the factors affecting default on medium-term agribusiness loans provided by MFO2 which was one of the agricultural MFOs. These analyses were intended to help to improve client selection procedures and to reduce loan default rates at these MFOs.

Study results show that institutions that finance specifically agricultural activities could improve the quality of their services by providing better access to branches and reducing loan approval times through improved screening and administrative procedures. Making financial services (consumption and production loans) available to both non-agricultural and agricultural sectors would also help to reduce portfolio risks resulting from the covariant incomes of small farmers. Savings mobilisation should also be considered, although institutions need to develop appropriate capacity to handle savings before mobilising deposits. The study shows too that the rural poor in SA have the capacity to save (for example, the average number of active savings accounts held by individuals at MFO2 rose to 474 052 in 2002).

Study results also suggest that the provision of both savings and loan services helps an institution to reduce borrower transaction costs in accessing financial services and means that savings can serve as a form of collateral and borrower information for lenders. Lenders need to charge interest rates that reflect the true cost of lending in order to cover costs, given that small loans to the rural poor in SA are risky and costly to administer. Charging a suitable interest rate, however, is not a sufficient condition for achieving financial self-sustainability. Reducing high arrears through stricter loan contract enforcement will also promote the financial self-sustainability of MFOs in SA.

Moveable assets, such as vehicles and equipment, were not effective sources of collateral due to the high costs of attaching these assets in rural parts of KZN. Cessions on sugarcane crops were often constrained by flaws in collection mechanisms, where borrowers could deliver sugarcane to sugar mills on non-borrower quota numbers. Secure and transferable property rights were important preconditions if land was to have value as collateral. Collateral substitutes such as joint liability mechanisms were less effective when lending to large farmer groups (30 - 60 members) compared with small groups (4 - 6 individuals) of micro-entrepreneurs operating in urban areas in SA. Costly legal action to recover debts further undermined borrower accountability for loan repayment and thus did not discourage morally hazardous activities. Reputational capital was an integral part of the financial technology successfully used by MFO1, and could be more effectively developed by agricultural lenders in SA if they strictly enforce the policy of denying borrowers access to future funds if they default on previous loans.

Based on data over the period 1998 to 1999, less contactable borrowers that were employed in sectors with a high likelihood of retrenchments, with higher debt-to-income ratios and with

more defaults and payment profile arrears, were more likely to be credit-rationed by MFO1 staff. Applicant contactability was another key part of MFO1's monitoring intensive financial technology, but constrains MFO1 from broadening its financial services to small businesses if these are not easily contactable. Credit bureau information on previous loan default was critical in this microfinance market where it is difficult to obtain formal collateral. The policy implication is that lenders need to share default information and credit bureaus need to correctly capture this information.

Borrowers with higher debt commitments, previous loan defaults, who were less contactable and who worked in sectors where employment was less secure, were more likely to default at MFO1. Low-income borrowers had lower levels of liquidity that reduced their ability to repay debt. The influence of contactability in loan repayment highlights the trade-off between monitoring-intensive and collateral-intensive technologies. Although MFO1 used reputational capital as a collateral substitute, the imperfect nature of this collateral type necessitated intensive client monitoring. Lender MFO1 also needed a well-diversified portfolio across employment sectors to reduce the impact of systemic income risks. The impact of previous credit history on loan repayment suggests again that this information can be an effective collateral substitute if information is shared between lenders, and the rule of not granting credit to defaulters is strictly enforced.

Based on data over the period 1993 to 1994, borrowers with smaller loans (lower asset bases and smaller businesses), lower own equity contributions, engaged in contract ploughing and cartage or broiler production ventures, with lower liquidity and with no previous borrowing experience, were more likely to default of MFO2's medium-term agricultural loans. Larger borrowers had well-diversified asset bases that enabled them to better withstand negative

income shocks and reduced the need to divert funds for loan repayment to current consumption. Improved liquidity generated from other sources of income (such as wage remittances and other business ventures) also improved loan repayment ability. Lenders thus need to focus on *all* sources of income, not just on the income generated by the investment project for which finance is provided, in assessing client repayment capacity.

Ploughing contractors probably need closer monitoring to ensure that equipment is properly maintained and that sufficient income can be generated from the business to repay loans. These contractors could also be encouraged to diversify into contract transport activities that provide more regular income. Given the increased competition and periodic outbreak of disease in the chicken industry when the study was conducted, borrowers should be encouraged to diversify to reduce price risk. Increasing the owner's equity stake in the investment, while a second-best option, may be a suitable alternative where collateral is ineffective in enforcing loan contracts. Borrowers that had an established record with the lender tended to repay their loans, again highlighting the importance of reputation in a borrower-lender relationship.

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INTRODUCTION

The provision of financial services can help to foster a greater degree of integration of markets for goods and services, factors of production and other assets (improve resource allocation). By providing both savings and loan instruments, effective financial intermediation allows entrepreneurs to make use of opportunities that would otherwise remain unexploited due to wealth constraints, facilitates consumption smoothing, and prevents unnecessary depletion of capital when poor producers experience a negative income shock (Gonzalez-Vega, 1996). Viable financial intermediaries can thus contribute to economic growth by facilitating the flow of funds to productive investments, managing risks and encouraging savings in financial form. Access to savings and credit can in turn stimulate faster enterprise creation and increase the demand for goods and services in South Africa (SA) (Porteous, 2003).

One of the major constraints facing rural and urban microenterprises and low-income households in SA is the lack of access to financing facilities (GEMINI, 1990). While there is no consistent definition of “low-income” households in SA, Porteous (2003) defines such households as earning less than R2 880 per month, a figure that coincides with the United Nations Millenium Development Goals definition of relative poverty (US\$ 2 per person per day). Statistics South Africa (StatsSA) has developed a measure of poverty which classifies households spending less than R1 000 per month as poor (Hirschowitz *et al.*, 2000). These definitions are used in this study, together with a very broad definition of urban and rural areas developed by StatsSA. An urban area consists of small or larger towns, cities, or metropolitan areas, while rural areas consist of farms,

small settlements, villages and other areas (Herschowitz *et al.*, 2000). Using the poverty classifications developed by Porteous (2003) and Hirschowitz *et al.* (2000), about 46% of SA's households are considered poor or low-income. Over 60% of black households can be defined as low-income and rely mostly on the informal sector (microenterprises whose economic activities are not fully reflected in official economic statistics) for an income. With more than 70% of low-income households remaining 'unbanked' (mostly black urban and rural households), many of their financing needs are met by rotating savings and credit associations, or stokvels (Schoombe, 1999; Porteous, 2003).

Concerns about the lack of access to formal finance by low-income households and microenterprises, and about stimulating economic growth in rural areas, led the SA Government to initiate support programmes in the mid 1980s included the provision of subsidised credit through state-owned Development Corporations. Subsidised credit was seen as a tool to promote economic growth by encouraging the transformation from subsistence to commercial production through investments in modern technology, reducing reliance on perceived exploitative 'informal' lenders, and compensating for urban-biased development policies and the perceived low savings capacities of low-income households (Coetzee, 1995).

The impact of these credit programmes in SA was relatively limited, as they reached only a small part of the target population without markedly increasing productive investment and technology adoption (Coetzee, 1995). Subsidised credit tended to be allocated to a few wealthy individuals who could meet the information and collateral requirements of the development corporations and who generated sufficient income to repay loans. While

informal lenders were perceived to be usurious, they continued to exist (Coetzee *et al.*, 1993a).

The programmes also had default rates as high as 40 per cent, costly administration, limited outreach and continued reliance on government and donor support (Lugemwa and Darroch, 1995; Coetzee and Vink, 1996). Credit granting non-government organisations (NGOs) had a relatively small client base (24 000 clients), while the number of active clients for Development Corporations ranged from 298 to 31 000 and for specialised agricultural banks from 853 to 4 700 – out of a potential five to eight million individuals (Strauss Commission, 1996a; Coetzee, 1998). Limited outreach meant that low-income households continued to rely on informal financing mechanisms to meet their credit needs (Schoombe, 1999).

The poor performance of credit programmes in SA led policy makers to embrace the emerging 'new view' on the role of microfinance in the 1990s. This view argued for greater focus on the intermediary role of financial services in fostering more integrated markets which promote the division of labour, greater competition, use of modern technologies and the exploitation of economies of scale and scope that improve productivity.

The new view, therefore, emphasised the development of viable financial intermediaries that charged interest rates that cover the costs and risks of lending and that supply a range of financial services, including deposit and transmission services, to different economic sectors (agricultural and non-agricultural) in order to reduce portfolio risk (Gonzalez-

Vega, 1994; Rhyne, 1994). An important feature of financial intermediaries that have provided sustainable financial services to large numbers of low-income individuals is the development of appropriate financial technologies to service their target market (Yaron, 1994; Navajas *et al.*, 2000).

Lending technologies have a major impact on the structure and the level of costs of a financial intermediary, and thereby affect profitability and sustainability. They also affect the utility of borrowers through the quality of financial products and the costs levied on the users of those products. Finally, lending technologies impact on society as a whole since they affect the level of market integration and hence resource allocation (Navajas *et al.*, 2000). The development of financial technologies that can reach large numbers of low-income individuals on a sustainable basis can help to increase access to financial services in SA and encourage the private sector to provide such services (Strauss Commission, 1996b). The absence of commercial financial institutions in developing markets in SA constrains the growth of microenterprises in rural and developing urban areas as government resources are not sufficient to assist small businesses (RSA, 1995).

Due to the perceived high risks and costs of servicing these markets, SA commercial finance institutions have been hesitant to provide finance to low-income households and microenterprises. The result is that financial technology innovation has remained largely with donor-funded NGOs in SA (Fuchs, 1998; Schoombe, 1999). In order to encourage the private sector to provide financial services to low-income households, the SA government amended the Usury Act in 1992 to exempt lending transactions below R6 000 from the interest rate ceiling imposed by the Act (Mohane *et al.*, 2000).

While this led to the growth of privately-owned companies (microlenders) that provided finance to employed low-income individuals through secure means of deducting loan repayment, there has been little innovation in trying to extend finance to microenterprises. Nominal interest rates charged by microlenders are relatively high (as much as 30% per month) and there is increased concern at government level that the exemption to the Usury Act has led to exploitation of borrowers, rather than the promotion of technological innovation (Mohane *et al.*, 2000). The limited outreach of NGOs and their continued reliance on donor support makes them less ideal vehicles to supply financial services to low-income individuals, although they may be important innovators of new financial technologies.

The Strauss Commission (1996a) undertook a comprehensive baseline survey to document financial technologies, levels of outreach and financial self-sustainability of a broad spectrum of financial institutions in SA including development corporations, NGOs, and commercial banks. They recommended that further research was needed to explore and document the financial technologies of microfinance organisations (MFOs) to better understand these technologies and to guide policy makers and practitioners in expanding access to microfinance. Reinke (1998) and Churchill (1998) have since described the financial technologies of individual SA MFOs and their limited outreach to low-income households.

Coetzee and Vink (1996) and Mohane *et al.* (2000) concluded that commercial sector involvement in SA microfinance was still inadequate, especially in financing

microenterprises. Unsuccessful attempts by commercial banks to link with existing MFOs to extend commercial banking services to low-income people in SA have also been reported by Schoombe (1998; 1999).

Bates (1997b) implemented a village banking model that would allow low-income rural individuals in SA to gain access to savings, transmission and credit facilities. A lack of organisational capacity and the bank's inability to develop transactional capacity through linking with a commercial bank again limited outreach (Bates 2002). Some success has been achieved by one of the MFOs analysed in this study in developing graduated mortgage loans to help 107 medium-scale emerging sugarcane farmers in SA to buy farmland (Simms, 1996). Since 1998, the Land Reform Credit Facility has also provided over R100m in deferred payment loans to help black South Africans finance land reform and equity share projects (Lyne and Darroch, 2003). Given the high proportion of unbanked, low-income individuals, the limited outreach of government agencies and NGOs, and the limited success of commercial bank – microlender linkage initiatives to date, more research is needed in SA to develop appropriate technologies that improve access to finance by low-income households and microenterprises.

The **first objective of this study**, therefore, is to build on the past research cited above by evaluating the financial technologies, outreach and self-sustainability of four MFOs in KwaZulu-Natal (KZN) *over time*. These four MFOs were chosen because they each used a different, but unique, financial technology to reach a different sector of low-income borrowers. Firstly, MFO1 is one of many microlenders that provide loans to low-income individuals that are formally employed. It relies on rigorous borrower screening and

monitoring in order to enforce loan contracts, rather than using the loan payment deduction mechanisms preferred by most other SA microlenders.

Secondly, MFO2 being one of several parastatal development finances institutions established by the government, provides a broad range of loan and savings facilities to low-income households that are available in many rural areas of KZN where commercial banks do not operate. It also developed the graduated mortgage loan product used to help 107 black emerging farmers to buy farmland. Thirdly, MFO3 is an NGO that offers loans only to small-scale farmers to develop and grow sugarcane – it is unique in being privately-funded and has achieved marked outreach to this clientele that is not served by commercial finance institutions. Fourthly, MFO4, uses a group lending technology to finance mostly urban, low-income women that want to establish small businesses.

The financial technologies of these MFOs will be evaluated by adapting the research frameworks used by Yaron (1992), Christen *et al.* (1994), Gonzalez-Vega *et al.* (1997) and Navajas *et al.* (2000). This entails evaluating the costs of using these technologies in terms of loan approval times, loan application procedures, access to branch networks, and providing information about collateral. Mechanisms that these MFOs use to reduce adverse selection (lenders' inability to correctly distinguish between high- and low-risk loan applicants) and moral hazard (borrowers default as they become more risky than originally assessed during the term of the loan contract) will be documented. The absence of suitable risk-assessment tools and limited collateral have been major obstacles in expanding microfinance services in SA (Simms, 1997).

Lender outreach will be measured by level (income of the target clientele), breadth (number of users of the financial technology) and scope (the type of loans and savings products offered) (Navajas *et al.*, 2000). Self-sustainability (service permanence) will be assessed by profit measures such as rate of return on equity (ROE) and rate of return on assets (ROA) (Barry *et al.*, 1995). Where the MFOs receive subsidies, a subsidy dependence index (SDI) developed by Yaron (1992) to determine the increase in on-lending interest rates required to become self-sustainable is estimated. Since charging a suitable interest rate spread must be complemented by good debt recovery rates, administrative efficiency, access to private capital and achieving economies of scale (Yaron, 1994; Gonzalez-Vega *et al.*, 1997), these additional dimensions of sustainability will also be established.

Profit maximisation can be compatible with lending to low-income borrowers if MFOs have appropriate lending technologies. Profits, in turn, attract private investors which is important in SA where public resources to assist small businesses are scarce. Better understanding of the limitations and advantages of the four study MFOs' financial technologies may further help policy makers, practitioners and commercial lenders to devise policies and financial innovations that help low-income households to access finance. Assessing the financial technologies in terms of outreach and sustainability can help policy makers to develop recommended microfinance practices that complement the initial efforts of the Strauss Commission in 1996. Finally, estimates of the value of the subsidy received by donor-dependent study MFOs will show the true costs of these MFOs relative to the outreach achieved.

High levels of outreach and self-sustainability require innovative and cost-effective financial technologies to overcome information asymmetries, the absence of formal collateral, and high transaction costs prevalent in microfinance markets (Hoff and Stiglitz, 1990). The **second objective** of this study is, therefore, to evaluate the loan screening mechanisms used by MFO1 and MFO2. Unlike in standard product markets, lenders sell a product (loan contract) for which they will only receive payment (loan principal and interest) in the future based on a promise to pay by the borrower (Navajas, 1999a). Consequently, there is risk in the lending transaction with the level of risk being a function of the information that the two contracting parties have and the incentives embedded in the contract to encourage the borrower to repay the loan (Hoff and Stiglitz, 1990).

Hence, the lender's ability to correctly predict loan repayment levels is crucial to remain financially viable. Although exogenous income shocks can affect on loan repayment performance, the lender's financial technology can also affect the quality of borrowers that are granted credit. A flawed financial technology may result in incorrectly granting credit to high-risk borrowers, or granting too little credit to low-risk borrowers. Lenders must, therefore, understand what factors influence loan repayment performance, and how effective their current loan screening technology is (Hunte, 1993).

Past research on rural loan default in SA has focused on short-term loan default by small-scale farmers (Ortmann and Lyne, 1995; Lugemwa and Darroch, 1995). No previous research has evaluated factors that affect MFO credit granting decisions and the efficacy of their loan screening mechanisms. There has also been no local published research on

factors that affect loan default by low-income clients who borrow funds from microlenders such as MFO1, nor on loan default for medium-term agricultural loans.

Using data on both accepted and rejected loan applicants, this part of the study will first identify factors influencing the credit granting decision of loan officers at three branches of MFO1. Using credit bureau data on existing and previous loan repayment performance with *other* lenders at the time of the loan application, the study will expand the scope of previous credit scoring models (see Turvey, 1991; Hunte, 1993; Reinke, 1998). Since loan repayment performance is only observed for those loan applicants that were granted credit, there is sample selection bias (Boyes *et al.*, 1989; Greene, 1992).

This bias will be accounted for by estimating a bivariate probit model of factors that influence the credit granting decision, and factors influencing loan repayment performance. By comparing the signs and significance of the parameter estimates in the loan approval decision with the signs and significance of the parameter estimates in the loan default equation, the efficacy of the loan screening mechanism can be determined (Greene, 1992). This will help MFO1 to improve its existing screening technology and thereby improve the quality of its credit granting decisions.

Improved loan screening technologies are needed in an SA microfinance sector that is becoming increasingly competitive and where loan security mechanisms such as the retaining of bank cards and PINs (personal identification numbers) have been prohibited by the SA Government (Government Gazette, 1999). This study will also assess how

credit bureau data that affect borrower's reputation (reputational capital), influence the loan granting decision and predict loan default.

The focus on determinants of a binary loan outcome where loans are either current or in default ignores another dimension of the loan repayment problem, namely loans that are repaid in arrears. These can have considerable impacts on MFO liquidity management over time and hence should be considered when analysing loan repayment (Aguilera-Alfred and Gonzalez-Vega, 1993). This study will, therefore, use both a binomial and a multiple category response model to estimate factors influencing medium-term agricultural loan repayment performance at MFO2.

This information can assist MFO2 in improving the management of existing loans by anticipating performance problems during the term of the loan and helping it to adjust cash flow projections accordingly.

Identifying key factors affecting loan repayment by low-income households and agribusiness clientele, will assist MFOs in SA to design improved screening procedures (client information needs) and lending technologies that reduce the risk of loan default. This information can also be used by commercial banks to better understand the dynamics of lending to this clientele, and help them to better manage associated adverse selection and moral hazard problems.

The study is organised as follows: Chapter one discusses the importance of financial markets and financial intermediation in helping low-income households to manage

liquidity risk and to make use of investment opportunities. Chapter two reviews the nature of contractual relations between the borrower and the lender, and highlights past research on financial and management principles adopted by ‘best practice’ MFOs. Chapter three focuses in more detail on SA experiences in providing rural financial services. Chapter four discusses the methodology used, and results of, the evaluation of the four MFOs’ financial technologies. Chapters five and six present the methodology and results for the loan default analyses. A concluding section discusses the policy and MFO management implications of the results.

CHAPTER ONE

THE ROLE OF FINANCIAL INTERMEDIATION AND FINANCIAL MARKETS

The first section in this chapter outlines the importance of financial intermediation in economic development, focusing on the matching of surplus and deficit investors' needs and role that financial institutions have in helping individuals' better manage risk and liquidity. In an effort to stimulate economic development, particularly in rural areas, governments have used targeted finance programmes. The mechanisms and shortcomings of these programmes are covered in section two which leads to the evolution of the "new view" on the role of financial institutions economic development and poverty alleviation.

1.1 The Importance of Financial Intermediation in Economic Development

Despite considerable debate about data, methodology and direction of causality, evidence suggests that policies which favour the provision of broad and efficient financial services can contribute to economic growth. The most important contribution of financial intermediation is its ability to induce larger size and foster a greater degree of integration of markets for goods and services, factors of production and other assets (improve resource allocation). This expansion is necessary to facilitate the division of labour and specialisation, greater competition, use of modern technologies and exploitation of economies of scale and scope, which facilitate economic growth (Gonzalez-Vega, 1996).

Financial intermediaries contribute to this process by providing an effective and reliable payments mechanism which reduces the transaction costs of using money and promotes the division of labour in production and increased specialisation (Fry, 1988: 233 - 299). Division

of labour, use of modern technologies and exploitation of economies of scale and scope are further encouraged through intermediation between savers and investors. A flow of funds arises because savers (surplus spending units) may not all be good investors or entrepreneurs (deficit spending units), and may be unwilling to make the full amount of their savings available to investors. This is because the search and match process between potential borrowers and potential savers results in costs to locate the other party, and to negotiate and monitor contract performance. In addition, the risk, liquidity and divisibility preferences of the two contracting parties may not fully coincide (Barry *et al.*, 1995: 427 - 451).

Financial intermediaries are able to reduce the transaction costs of the search and match process by issuing their liabilities (deposit facilities) to serve as assets for savers, with the assets earning a competitive return, and providing these assets to investors by purchasing their primary securities (loans). A wide variety of financial instruments can be created which suit both savers and investors that differ in duration, riskiness and marketability of the instruments, level and type of yield and the kind of issuer (Fry, 1988: 233 - 299). Financial intermediaries thus facilitate the transfer of purchasing power from producers and regions with resources in excess of those required for current consumption and/or limited growth, to those with investment opportunities offering higher marginal rates of return, and where a more rapid expansion of output is possible, but which do not have enough resources to fully exploit those opportunities. However, opportunities for productive investment and incentives to invest must exist (Gonzalez-Vega, 1996).

Selection of the best possible uses of available resources is achieved through the disciplining role of interest rates, the screening and monitoring of borrowers, and loan contract enforcement. Screening and monitoring of borrowers is frequently too expensive for

individuals and hence the specialisation and resulting economies of scale give financial intermediaries a clear advantage in selecting projects with high marginal productivity which promotes economic growth (Fry, 1988).

Financial intermediaries also perform the important function of effectively managing risks inherent in financial intermediation. Firstly, the financial intermediary substitutes its own financial strength for that of investors. Consequently, savers do not look at investors for deposit security, but at the intermediary. Secondly the intermediary conducts screening procedures to determine whether the investor is a worthy borrower. Thirdly, portfolio risk is managed through geographic and sectoral diversification to reduce the incidence of covariant risks (individuals living in same area or conducting similar business are subject to the same negative income shocks). This reduces the volatility of rates of return on individual investor's wealth, while the ability to diversify sectoral risks allows increased specialisation and productivity of resources. The reduction in transaction costs and the impact of risks thus encourages productive investment and economic growth through increasing the attractiveness of savings and investment by providing suitable alternatives to holding wealth in the form of tangible assets, which facilitates the flow of funds in the economy (Gonzalez-Vega, 1996; Barry *et al.*, 1995: 427 - 451).

Financial services are not just a demand for funds for productive investment, but are also linked to household risk management by facilitating synchronisation of income generating and consumption activities. When households or individuals need to set aside liquid assets for unforeseen events, they cannot allocate funds to higher return but less liquid investments. Since not all households need access to funds for emergencies at similar times, deposit-taking intermediaries can provide liquidity to households without the households having to keep

large unused cash balances. Efficiency of investments are thus improved by directing liquid funds to illiquid projects, and by preventing the liquidation of valuable assets to meet unexpected cash demands. Deposit facilities may also provide valuable services for liquidity management and accumulation of stores of value (Rhyne, 1994).

Financial intermediaries thus contribute to economic growth indirectly by facilitating the flow of funds to productive investments, managing risks and encouraging savings in financial form by offering suitable loan and savings facilities. Research by King and Levine (1993) showed that financial indicators tend to be positively related to economic growth and physical capital accumulation. Frequently, while recognising but misunderstanding the roles of financial markets, governments have intervened in financial markets, trying to achieve non-financial objectives with the use of financial instruments. These policies, and criticisms of how they have been applied, are outlined in the following section.

1.2 Traditional Finance Programmes

Concerns about poverty alleviation and promoting economic growth in under-developed areas resulted in government initiatives from the early 1970s onwards to assist the poor through the provision of a comprehensive set of support services (Adams, 1971; Baker and Bhargava, 1974; Meyer and Nagarajan, 1997). Perceived problems prompting direct government intervention included the absence of formal financial intermediaries, lack of modern technology considered important in increasing productivity, rectification of urban-biased development policies, the prevalence of usurious money lenders, the perceived poor savings capacities of poor individuals, and political pressures requiring governments to be seen to assist the poor (Yaron *et al.*, 1997).

Loans at concessionary interest rates were provided by government schemes to supposedly ease the capital constraint, promote growth and alleviate poverty by serving as an income transfer mechanism and to encourage borrowers to shift away from 'exploitative' money lenders. Specialised lenders were established or existing lenders coerced through regulations to lend to rural sectors (Ladman and Adams, 1978; Meyer, 1989; Getubig, 1992). The intention was to stimulate the production of farm commodities by augmenting the use of inputs such as fertiliser and to encourage the investment in machinery and equipment. It was generally argued that more credit at a reduced cost, and more technical assistance, would accelerate economic growth in under-developed areas (Baker and Bhargava, 1974; Lipton, 1976; von Pischke and Adams, 1980). In addition, concessionary credit would offset production disincentives caused by either low product prices or high input prices which many governments had instituted to satisfy urban populations (Adams and Graham, 1981).

Most projects, although showing initial success, showed poor results. High default rates ranging between 30 and 60 per cent were observed amongst programmes in Africa and Latin America (Adera, 1987; Yaron *et al.*, 1997). Factors contributing to this included poor client screening, lax supervision, and inadequate default management (Braverman and Guasch, 1986). Financial innovations developed by formal lenders were cost-increasing rather than cost-reducing, while the allocation of resources by financial markets appeared highly skewed. Farmers were not adopting new technology, while loans meant for the poor tended to be often concentrated in the hands of a few wealthy individuals (Adams and Graham, 1981).

Banks and other existing financial institutions often did not have the absorptive capacity to cope with the increased lending which led to poor loan screening and supervision (Vyasulu

and Rajasekhar, 1993). It became evident that these 'cheap' credit policies were no quick and easy mechanism for poverty alleviation in under-developed areas, since the development of institutions to serve these financial markets is as much a cause as a result of development. Doubt also arose as to whether lack of funds was the real problem faced by small entrepreneurs in adopting new technologies and increasing production.

Experience in Africa has shown that institutional systems, such as the absence of secure and transferable property rights, high market transaction costs and ineffective contract enforcement, are underlying constraints to investment and adoption of technology (Lyne, 1996). In addition, loan finance presents an additional source of liquidity that can improve low-income households' command over *all* resources. Funds will likely flow toward the most attractive use available for the loan recipient. This may not necessarily result in productive investment and the purchase of new technology but in expenditure on consumption goods (von Pischke and Adams, 1980). Consequently, the assumptions upon which traditional government credit programmes were based were questioned. The next six sections consider these questions in more detail.

1.2.1 The Usury Argument

Interest rates charged by informal money lenders were considered immoral by governments and donor agencies (Adams and Graham, 1981; Adams, 1984). However, high nominal interest rates do not necessarily imply large profits. Money lent by informal lenders can often have a high opportunity cost, since capital was scarce in rural economies. In addition, although lenders charged high nominal interest rates (up to 60% per annum), the loans were considered inexpensive by borrowers since the transaction costs in obtaining these loans were

fairly low while loan use was flexible (Adams, 1984; Larson *et al.*, 1994). This is further demonstrated by their continued existence and use even though relatively cheap credit was available.

1.2.2 Liquidity and the Use of Credit in the Production Process

A common argument in support of subsidised credit is that it is necessary to induce the poor to make productive investments and to use new technologies to encourage economic growth and poverty reduction (Adams, 1984). However, research has shown that policies which provide access to productive resources elicit a muted response from low-income households if local institutions do not provide opportunities and incentives to invest (Olson, 1996; Zander, 1997). Insecure property rights negatively influence investment decisions since the investor cannot internalise the benefits of the investment. Markets produce the objective information that guides economic decisions taken by investors. Poorly developed infrastructure (roads, telecommunications, postal services) and legal uncertainty (ineffective and costly contract enforcement) present in developing regions and economies increase market transaction costs, negatively affecting investment (Lyne, 1996; Yaron *et al.*, 1997).

Securing the full participation of the poor in the economic growth process may thus require policies which improve the employability of the poor, improving the performance of labour markets, and establishing the necessary institutions and appropriate infrastructure that reduce market transaction costs, facilitate tenure security (secure and transferable property rights) and uphold commercial contracts (Gonzalez-Vega, 1994; Olson, 1996). Evidence from SA suggests that where low-income households have had access to additional resources (more

land through improved land rental markets and earned higher off-farm incomes), credit has encouraged investment in productive inputs and led to increased incomes (Coetzee, 1995).

In addition, the separation of business activities from household consumption does not tend to be distinct in poor households, the decision of the amount and allocation of credit is based on all requirements of the household, whether it be for production, consumption or other contingencies. Therefore, use of credit may not only be a demand for funds for productive investment, but may also facilitate consumption smoothing by synchronising income generating and consumption activities. Credit has the properties of divisibility, substitutability and diversion (fungibility of money) and can be used for many purposes, not necessarily for the one it was intended (von Pischke and Adams, 1980).

Credit can thus have an important liquidity value in low-income households, since it prevents the liquidation of valuable assets such as cattle, stored crops and jewellery, which, although relatively liquid, may result in considerable transaction costs to liquidate (Baker and Bhargava, 1974; Gustafson, 1989; Barry *et al.*, 1995: 185 - 210). Loans to subsistence borrowers could provide an important source of liquidity to meet unanticipated negative income shocks and facilitate consumption smoothing such as paying for school fees, food, weddings and funerals, since these may be more important to the borrower at the time. Even where loans are provided in kind, secondary markets for the goods emerge through which liquid funds can be recovered. Hence, credit cannot only be viewed as an input in the production process because a loan is a claim on real resources that provides additional liquidity in any economic activity available in the market (von Pischke and Adams, 1980; Adams and Graham, 1981; Adams, 1984).

1.2.3 Interest Rate Restrictions and Lending Costs

Interest rates have a very strong influence on lenders' behaviour since they make up a large part of lenders' total revenues. Major increases or decreases in interest rates have an impact on revenues and thus surpluses or deficits of the lender (Adams and Graham, 1981). Hence, loan pricing is a key managerial control variable and is based on factors both external and internal to the lending institution. Translated into costs experienced by the lender, loan pricing entails covering the full set of lending costs which include administrative costs, funding costs, risk-bearing costs, competitive costs and non-loan costs (Barry *et al.*, 1995: 453 - 468).

Administrative costs include personnel salaries, documents, equipment, legal services, computers, supplies and other costs involved in running the loan programme. Funding costs cover interest costs on funds purchased in the financial market and equity costs (the desired return on the institution's own equity capital). Delinquency and borrower default, and any unanticipated variations in borrower's need for funds are covered by risk-bearing costs. Competitive costs reflect the level of competition in the institution's loan market, while non-loan costs cover services provided by the lender such as technical production assistance, business training and financial planning (Barry *et al.*, 1995: 453 - 468).

Operating in rural financial markets is costly to lenders due to geographic dispersion of clients, collateral insecurity, small size of loans and covariant risks associated with farming (Adams, 1984; Gonzalez-Vega, 1984). Interest rate restrictions make it difficult for formal lenders to cover costs, with the result that the financial viability of the lender is undermined.

This may lead to a highly skewed distribution of credit, with formal lenders only lending to wealthy individuals with readily collateralisable assets, leaving many potential smaller borrowers credit-rationed. The presence of government or donor supported MFOs may also reduce the incentives that commercial lenders have to develop innovative financial technologies to provide financial services to the poor (Krafft, 1996). Allowing lenders to charge interest rates that account for the costs and risks of lending to low-income individuals could improve the provision of financial services in these markets by improving lender viability (Adams, 1984; Gonzalez-Vega, 1984).

1.2.4 Borrower Transaction Costs

Although traditional credit programmes assumed that the burden on the poor can be relieved by reducing the nominal interest rate, borrower transaction costs - which together with the interest payment make up total borrowing costs - are seldom considered (Adams and Nehman, 1979; Ladman, 1984). Such transaction costs include direct out-of-pocket costs such as the costs of obtaining documentation, paying bribes, travelling expenses and, in some instances, collateralisation costs. Indirect costs include the opportunity costs of time and pledging collateral (Cuevas, 1988; Ladman, 1984). These costs arise due to the financial technologies employed by lenders, since they need information about prospective borrowers to protect their funds.

Ladman (1984) shows that borrower transaction costs have at least three important impacts on the degree of internal credit rationing (decision whether or not, and how much, to borrow) by potential borrowers. First, borrower transaction costs reduce the expected returns from investment. Second, there is a project threshold below which the borrower will not be willing

to borrow - this occurs where the marginal cost of borrowing equals the marginal revenue generated from additional resources purchased with the borrowed funds. Higher borrower transaction costs increase the threshold below which potential borrowers will not borrow. Thirdly, high initial out-of-pocket costs required to apply for the loan might deter potential borrowers from applying for the loan if the risk of loan rejection is high.

First-time borrowers may have larger borrower transaction costs and out-of-pocket cost thresholds, since they must present information that need not be furnished by repeat borrowers. In addition, first-time borrowers are likely to have smaller profits and hence a greater possibility of not exceeding the borrowing threshold and, therefore, not applying for credit. Low-income borrowers may also have limited collateralisable wealth, or may regard the opportunity costs of pledging collateral too high where there is a threat of foreclosure (Feder *et al.*, 1988). Borrower transaction costs can thus provide an important means for lenders to ration credit in the presence of interest rate restrictions.

This is achieved by shifting a considerable portion of the non-interest costs onto borrowers, thereby increasing borrower transaction costs (Adams and Vogel, 1986). Since these transaction costs make up the largest portion of total borrowing costs for small loans, this form of rationing is systematically biased against small borrowers. Larger, wealthier borrowers are in a better position to absorb these costs and thus apply for credit. It is also more profitable to the bank to make larger loans since the relatively constant transaction costs are spread over a larger loan amount (Ladman, 1984; Adams and Vogel, 1986).

The above discussion indicates that policies that provide credit at concessionary interest rates to induce the desired production and technology adoption are rendered ineffective, since non-

interest costs play a key role in determining the price of credit to low-income borrowers. Concessionary interest rates may result in lenders rationing the excess demand for credit by increasing the non-interest costs to borrowers.

1.2.5 Cheap Credit as an Income Transfer Mechanism

Financial markets may transfer subsidies in two ways: through loan default and through concessionary interest rates. Since loan size is highly correlated with the assets and income of borrowers, subsidies tied to loans turn out to be a highly regressive way of helping the poor because the desired income transfer to small borrowers often does not take place (Adams, 1992).

1.2.6 The Importance of Savings Mobilisation

Savings mobilisation has mostly been neglected in past targeted government credit programmes in developing countries. Even when savings were considered, attention was focused on determinants of the portion of income that was saved rather than on savings mobilisation (Adams and Vogel, 1986). The poor were generally considered to have low savings propensities because of their poverty and hence little capital formation was taking place. The poor were also seen as unresponsive to higher interest rates as an incentive to save (Adams, 1971; Adams, 1978; Robinson, 1994).

In addition, grants were readily available to finance agricultural credit at subsidised rates and this meant that there was little incentive to pursue savings mobilisation (Meyer, 1989; Fischer, 1989). Adams (1978), Swanepoel and Darroch (1990) and Robinson (1994) showed

that savings capacities do exist in the rural areas of developing countries. However, evidence is less clear whether these savings are as a result of higher interest rates (Meyer, 1989). A complex interrelationship exists between production and consumption decisions. Savings may be used for production or consumption purposes and held in either financial or non-financial form, depending on household preferences, security, liquidity, availability of the savings and the expected net return.

An increase in interest rates may stimulate savings by making current consumption expenditure expensive in terms of future consumption (substitution effect). An increase in interest rates may also raise expected income and induce individuals to increase both current and future consumption (income effect) (Meyer, 1989; Gurgand *et al.*, 1994). Thus, depending on whether the substitution or income effect dominates, an increase in the savings rate offered can have opposite effects. In addition, transaction costs (travel costs, cash costs of depositing and withdrawing money and the opportunity cost of time) may influence the net return obtained from deposit interest rates and, hence, incentives for low-income individuals to deposit. Low-income households may also save since this may increase the possibility of eventually getting a loan. This means that the linkage by MFOs between savings mobilisation and lending is important, since savings can serve as collateral and provide important information on potential borrowers. Yet most MFOs are single function, credit-only lending institutions (Meyer, 1989).

Evidence from Sub-Saharan African countries such as Rwanda, Togo, and Cameroon suggests that lower transaction costs in terms of ease of access (liquidity and lender proximity) have contributed most to deposit mobilisation (Gurgand *et al.*, 1994). Similar results were reported by Meyer (1989) for Asian countries including India, Pakistan, Nepal,

Sri Lanka and Bangladesh. Savings also have the potential to create stronger financial institutions by reducing the institutions' dependence on donor funds (Meyer, 1989; Vogel, 1984). Loan repayment performance may also be improved by deposit-taking financial intermediaries, because funds are drawn from the community and members might be more willing to repay the loans. Institutions also have the incentive to perform better screening procedures because they are accountable to the people that they serve (Poyo *et al.*, 1993).

Credit policy should, therefore, not focus on whether or not low-income people save, but rather on how to access those savings. This requires that: Firstly, financial institutions must have sufficient incentives to provide savings services. Liberalised interest rate policies could allow for a bigger interest rate spread which enables lenders to offer positive real returns on savings (Fischer, 1989). Secondly, these savings instruments also need to be accessible, meet the liquidity needs of the target clientele and be secure (Robinson, 1994).

1.3 The New View on Providing Financial Services to the Poor

Given the poor performance, and above criticisms, of targeted finance programmes, a 'new view' of microfinance has emerged which strongly supports the development of the micro financial sector. Focus shifted from treating MFOs as mere disbursement windows, to developing financial intermediaries which provide financial services across a broad sector of enterprises, for both productive investment and consumption purposes, and which mobilise deposits (Rhyne, 1994; Gonzalez-Vega, 1993; Yaron *et al.*, 1997).

This has resulted from the realisation that the causal links between the receipt of credit and subsequent economic growth are indirect, with financial services *facilitating* rather than

inducing productive investment and technology adoption (Gonzalez-Vega, 1994). In addition, it is considered important to build capacity within the financial system rather than substitute for its inadequacies since finance is valued more for its effect across whole economic sectors. Providing credit through subsidised donor and government-funded MFOs often reduced the incentives to innovate cost-reducing financial technologies (Rhyne, 1994). Self-sustainability of MFOs is considered important, since continued dependence on finite government and donor funds was not conducive to the continued provision of financial services (Yaron, 1994).

This 'new view' has required policies which promote the liberalisation of interest rates, such that lenders can achieve a suitable interest rate spread to cover costs and risks of lending, reducing rent-seeking behaviour by borrowers and increasing financial independence from donor and government funds. Improved financial performance also requires better loan collections and improved loan contract enforcement, which together with a suitable interest rate spread, promote long-term provision of financial services (Adams and Graham, 1981; Robinson, 1994; Gonzalez-Vega, 1993; Yaron *et al.*, 1997; Schreiner, 1997). Credit has an important liquidity value to low-income individuals and hence *continued access* to financial services over the long term at reasonable cost is important. Excessive transaction costs encountered by clients prevents them from seeking loans and making deposits at financial institutions. The new view emphasises more active mobilisation of savings, the development of cost-reducing financial technologies (which involves reforms in collateral requirements) and banking procedures, and legislation that imposes high costs on both borrower and lender (such as restrictive interest rate policies and costly contract enforcement due to ineffective legal systems) (Fischer, 1989; Adams, 1992; Rhyne, 1994).

1.4 Concluding Comments

Financial intermediation has the essential functions of mobilising resources and allocating them to investors that can achieve the best marginal returns on investment, helping the economy to manage risks and facilitating transactions. Past 'cheap' government credit policies have undermined these essential functions. Consequently, the emphasis in the new view of microfinance on the role of credit has shifted from poverty alleviation with cheap credit to that of facilitating economic development through viable financial intermediaries and well-functioning financial markets.

Financial technologies of finance institutions influence their ability to achieve high levels of outreach of self-sustainability. They also influence the cost structures of financial institutions, borrower transaction costs, and the ability to reduce the problems of adverse selection and moral hazard through screening processes and designing incentive compatible debt contracts (Navajas, 1999b). Chapter two reviews one of the most fundamental challenges in financial markets arising from information asymmetries between two contracting parties. Such asymmetries reduce the impact of price (interest rate) as a market-clearing mechanism and result in credit rationing being observed in financial markets where some borrowers are granted credit while others are denied credit or granted less than the amount requested (Hoff and Stiglitz, 1990).

CHAPTER TWO

THE NATURE OF CONTRACTUAL RELATIONS BETWEEN BORROWERS AND LENDERS

This chapter covers the agency problem that arises between borrowers (agents) and lenders (principals) as a result of asymmetric information. The consequences of asymmetric information are explored in section 2.2 where low-risk borrowers may be incorrectly denied credit while high-risk borrowers may be granted credit to the detriment of lender income. Mechanisms by which lenders can reduce the negative impacts of asymmetric information through loan applicant screening and writing incentive compatible debt contracts are also explored in this section. Section 2.3 and Section 2.4 outline how successful MFOs have applied innovative screening, incentive and contract enforcement mechanisms to overcome the problem of asymmetric information in microfinance markets.

2.1 The Principal-Agent Problem

Rural and urban microfinance credit markets are characterised by features that cannot adequately be explained by perfect competition or monopoly theory. For instance, informal and formal lenders coexist even though formal lenders charge substantially lower interest rates. The price of credit (interest rate) may also not equilibrate the supply of and demand for credit. Instead it is observed that some loan applicants receive loans while others receive less than the desired amount, or no credit at all (they are quantity or non-price credit-rationed), although they are informationally indistinguishable (Baltensperger, 1978; Stiglitz and Weiss, 1981; Carter, 1988). The involvement of formal commercial lenders in rural financial markets

tends to be limited to loans that are well collateralised by assets with secure and transferable property rights.

These observations about rural and urban microfinance markets result from the agency relationship that exists between lenders (principals) and borrowers (agents). Principal-agent theory describes the relationship between economic agents where the principal wants to induce the agent to take a specific action. In loan contracts, the lender contracts with a borrower to productively utilise and repay the borrowed funds *at a future point in time* (Barry *et al.*, 1995: 185 - 212). The challenge for the principal is to induce the agent to take the best actions that are consistent with the principal's objectives, by building incentives into the contract (Varian, 1996).

Information asymmetries (differences) arise in loan contracts since borrowers (agents) have private information about their risk level (quality), distribution of investment returns, level of effort exerted and the states of nature that affect those actions (Kotowitz, 1987; Besley, 1994). Two important problems arise from information asymmetries, namely adverse selection and moral hazard. Adverse selection occurs when lenders do not know particular characteristics of loan applicants or are unable to adequately assess the distribution of returns of investments available to loan applicants. Loans may, therefore, be granted to both high- and low-risk borrowers (Wilson, 1987). In the presence of adverse selection, the challenge for the lender is to separate high and low risk borrowers. This can be done by investing in screening technologies, or by designing contracts that encourage agents to reveal their type (Varian, 1996).

Moral hazard occurs when there are actions that borrowers can take on during the term of the loan contract (adopting a riskier action than originally anticipated by the lender) in maximising their own utility, that are detrimental to the lender (Kotowitz, 1987). Moral hazard results because the principal cannot costlessly and accurately observe the level of effort exerted by the agent. All that can be observed is the outcome of the project. The principal does not always know whether this outcome is as a result of agent effort or external factors beyond the control of the agent. Rodriguez-Meza (2000) refers to this as *ex post* contractual risk. To mitigate against such risk, the principal must design a contract that will induce the agent to take the desired level of action, *ex ante*, subject to the constraints imposed by the agent's optimising behaviour (Varian, 1996).

Agents face two constraints in their optimising behaviour. The first is that the agent may have another opportunity available that provides some reservation utility. The principal must ensure that the agent receives at least this reservation utility in the contract. This is referred to as the participation constraint. Second, a contract must motivate the agent to align his/her interests with that of the principal. This is the incentive compatibility constraint (Varian, 1996). Under symmetric information, the principal will always be able to offer a contract such that the agent exerts maximum effort. In the presence of asymmetric information about the agent's level of effort and reservation utility, the challenge for the principal is to design a contract that induces the desired level of effort, subject to the participation constraint. This involves passing some of the risk of the project outcome on to the agent such that the principal does not bear all of the risk of a failed outcome, and thus maintains the right incentives in the contract (Varian, 1996).

Loan contracts are thus inherently risky, with the risk being a function of the level of information possessed by the two contracting parties, and available incentive and enforcement mechanisms (Hoff and Stiglitz, 1990). Lenders may incur considerable agency costs in structuring, administering and enforcing loan contracts to better align borrower goals with those of the lender, resolving problems associated with informational deficiencies, and dealing with contingencies during the loan term (Barry *et al.*, 1995: 185 - 212). Given the risks, lenders adjust contract terms. This may result in some, particularly small, borrowers being rationed out of the formal credit market, since formal lenders have a distinct informational disadvantage to informal lenders and may find contract enforcement extremely costly when operating in microfinance markets (Gonzalez-Vega, 1984; Carter, 1988).

In addition, the financial technologies used by lenders may impose high transaction costs on borrowers. Small rural and urban borrowers may thus opt not to borrow from formal financial intermediaries (voluntary price credit-rationing), while lenders may opt not to operate in these financial markets since high contracting costs negatively influence viability. Therefore, on a policy level, these informational, incentive, enforcement and transaction cost issues need to be addressed before formal credit can be successfully extended to rural and urban borrowers. The following sections outline the consequences of asymmetric information in credit markets, and highlight the need for cost effective screening, incentive and enforcement mechanisms.

2.2 The Problem of Asymmetric Information in Credit Markets

Prior to recent advances in information and agency theory, the existence of non-price credit rationing was perceived as a short-term phenomenon due to sluggish adjustment of interest rates to exogenous shocks to the economy, such that demand for credit temporarily exceeded

supply (Braverman and Guasch, 1986). Explanations of long-term non-price credit rationing in formal credit markets assumed that lenders had symmetric information and that rationing resulted from exogenously imposed interest rate restrictions (Jaffee and Modigliani, 1969; Gonzalez-Vega, 1984). Thus, an appropriate starting point is to examine credit markets characterised by symmetric information and no borrower and lender transaction costs to show why, in such markets, non-price credit rationing will not prevail.

2.2.1 Loan Markets with Symmetric Information

A framework for analysing these credit markets is provided by Milde and Riley (1988) and extended to rural financial markets by Carter (1988). Consider a credit market with a large number of risk-neutral loan applicants seeking to finance a one period investment project. The loan applicants are assumed to have limited wealth and finance the investment fully by debt. The gross returns R for the i_{th} project are given by:

$$R_i = f_i(L, \gamma, \theta) \quad (2.1)$$

where L is the size of the loan, γ represents the quality of the investment, and θ is a stochastic term reflecting the impact of uncontrollable events on investment returns with a closed interval $[0, m]$ (the point m denotes optimal production conditions) and a cumulative distribution function $H(\cdot)$. The function $f(\cdot)$ is increasing in the quality of the investment and is an increasing and strictly concave function of L . The lender is assumed to be risk neutral, operate in a competitive lending environment and offers a debt contract with the interest rate (i).

Information between borrower and lender is assumed to be symmetric (lender and borrower have equal knowledge of the quality of the investment) but imperfect (lender and borrower have limited information about the realisation θ) (Milde and Riley, 1988). The lender also incurs no transaction/agency costs in writing and policing the contract, while the borrower incurs no costs in accessing the credit. Furthermore, the borrower is assumed to pledge no collateral. This assumption is not entirely unfounded since low-income borrowers in microfinance markets in developing countries tend to have few or no collateralisable assets. Hence, the interest rate is the only variable contract term at the lender's disposal to compensate for additional risk. It is also assumed that the borrower will always repay the loan such that the incentive compatibility constraint is always met (no voluntary default). Default is only observed when the condition given by equation (2.2) holds, namely

$$R < L(1+i) \rightarrow R - L(1+i) < 0 \quad (2.2)$$

In this case the lender keeps all the returns from the investment. It is also assumed that loan contracts are perfectly enforceable. The opportunity cost of the lender's funds is r . Expected returns for borrowers of a given quality are shown by Milde and Riley (1988) to be:

$$\rho(L, i) = \max[f(L, \gamma, \theta) - iL; 0] = \begin{cases} 0 & \text{if } \theta < t \\ f(L, \gamma, \theta) - iL & \text{if } \theta \geq t \end{cases} \quad (2.3)$$

where t is the realisation of a random return such that default is just avoided as shown in equation (2.4):

$$f(L, \gamma, \theta) - iL = 0 \quad (2.4)$$

Using equation (2.4), equation (2.3) can be rewritten as:

$$\rho(L, i) = \int_1^m (f(L, \gamma, \theta) - iL) dH(\theta) \quad (2.5)$$

Expected returns to the lender are given by:

$$\pi(L, i) = \min[iL; f(L, \gamma, \theta) - iL] - (1 + r)L = \begin{cases} f(L, \gamma, \theta) - iL & \text{if } \theta < t \\ iL & \text{if } \theta \geq t \end{cases} \quad (2.6)$$

Equation (2.6) can be rewritten as:

$$\pi(L, i) = L(i - 1 - r) + \int_0^t (f(L, \gamma, \theta) - iL) dH(\theta) \quad (2.7)$$

From equations (2.5) and (2.7), and given the assumptions about the production function and the distribution of θ , Milde and Riley (1988) show that, in a market characterised by symmetric information and zero transaction costs with perfect loan contract enforcement and borrower incentives, the lender is able to write individual-specific (separating) credit contracts with the interest rates being adjusted to compensate for increased risks (non-linear pricing scheme). In such a market no non-price credit rationing will prevail. Every borrower willing to pay the contractual interest rate (based on the lenders observations of the quality of the loan applicant) necessary to yield the lender an expected profit of $E(\pi)$ will obtain credit.

Where an individual is observed not to borrow, it is voluntary, since the individual perceives the loan to be too costly (participation constraint is not met by the terms of the contract). In equilibrium, the interest rate thus functions as prices would in conventional markets for the exchange of goods as outlined by neo-classical economic theory (Stiglitz and Weiss, 1981). In addition, the credit contracts would always be *pareto optimal*, independent of the market structure, with lenders operating in perfectly competitive markets, earning zero long-run profits, while monopolistic lenders end up with the entire consumer surplus (Milde and Riley, 1988; Varian, 1996).

The following section relaxes the assumption of zero agency costs and shows that costs arising from the financial technologies which lenders employ, and the costs to access those financial technologies, can result in further price rationing or internal credit rationing by borrowers.

2.2.2 Loan Markets with Symmetric Information and Positive Transaction Costs

While information may be symmetric, both lenders and borrowers incur transaction costs when entering into a credit contract. Lender costs consist of agency costs, the opportunity cost of the funds, and the losses due to loan default. Agency costs consist of both a fixed and a variable component. Fixed costs (FC) are incurred in preparing loan applications, evaluating collateral and project viability, disbursing the loan and receiving payments (Ladman, 1984; Gonzalez-Vega, 1984; Barham *et al.*, 1996). These costs remain relatively fixed for both small and large loans. The variable component consists of risk-reducing costs, such as information collection and loan contract enforcement, which are negligible in this case since the lender is assumed to have symmetric information and no contract enforcement and incentive problems (Gonzalez-Vega, 1984).

Given the fixed FC, the effective interest (i'), defined in equation (2.8), now consists of a combination of risk-adjusted loan pricing and handling charges. The effective interest rate will, therefore, be higher on small loans since FC form a bigger component of the total interest charge (Barham *et al.*, 1996).

$$i' = \frac{(1+i)L + TC}{L} \quad (2.8)$$

Small rural and urban borrowers would thus receive less favourable contract terms (small loans and high effective interest rates) than they would have in the absence of FC, given their demand for credit. Given the increased costs of the contract, the participation constraint may not be met if the effective interest rate exceeds the reservation price of these small rural and urban borrowers, resulting in transaction cost credit-rationing (borrowers opt out of the credit market) (Barham *et al.*, 1996).

The loan applicant may incur further transaction (T) costs in following the requirements as stipulated by the financial technology of the lender to obtain the loan as well as paying i' . These costs include cash costs to obtain the necessary documentation, travel costs, commissions and bribes, collateralisation costs, and implicit costs such as the opportunity costs of time and pledging collateral (if the borrower has collateral) (Adams and Nehman, 1979; Ladman, 1984; Cuevas, 1988; Feder *et al.*, 1988). These can be termed borrower agency costs. The total effective interest rate for the borrowers thus consists of $i' + T$. Given borrower demand for credit, the total effective interest rate may exceed the reservation price of borrowers, who may opt not to borrow. This can be considered a form of price or internal credit rationing, since the borrower voluntarily opts out of the credit market and decides not to borrow (Ladman, 1984).

The above discussion implies that developing financial technologies that reduce both borrower and lender agency costs is important in extending financial services to low-income individuals in rural and urban areas. Cost-increasing financial technologies that have prevailed in many government and donor funded MFOs have biased financial service provision toward larger wealthier clients, with lenders operating under interest rate

restrictions also using these non-interest costs to ration excess demand for credit (Ladman, 1984).

Several early static models focusing on factors endogenous to the credit contract have been developed to try and show that non-price credit rationing was consistent with the profit-maximising behaviour of lenders (Hodgeman, 1960; Jaffee and Russell, 1976). These models still could not explain why identical interest rates were charged to loans of a different size, or why both high- and low-risk borrowers were charged similar interest rates for their loans (Stiglitz and Weiss, 1981). The next section relaxes the above assumption of symmetric information, and outlines why non-price rationing may be an equilibrium outcome in the absence of exogenous interest rate restrictions.

2.2.3 Asymmetric Information and Non-Price Credit Rationing

In the presence of asymmetric information, lenders have difficulty in judging the quality of loan applicants and investments, and are thus unable to write individual specific (separating) credit contracts stipulating those actions that affect lender returns. Instead, one contract (pooling contract) is offered where the terms of the contract are based on the *average* riskiness of the loan applicant pool rather than the riskiness of each individual client. This provides an incentive for high-risk borrowers to apply for loans, since the cost is borne by the entire borrower group (Akerlof, 1970).

In situations where the interest rate influences the quality of the loan applicant, Stiglitz and Weiss (1981) show that the interest rate may be ineffective in acting as a market-clearing mechanism and non-price credit rationing may prevail. Even in situations where the lender

could perfectly assess the quality of the loan applicant, monitoring and contract enforcement costs could be prohibitive and lender returns could still be negatively affected. To show how asymmetric information may lead to non-price credit rationing, assume that risk neutral borrowers, engaging in first-time single-period loan contracts, have some information on the distribution of their investment, while the lender can only observe an average distribution for the borrowers. The projects undertaken by the loan applicants have the same mean return differing only by mean preserving spread such that project 1 is riskier than project 2 as given by:

$$\int_0^m F(R, \theta_1) dR \geq \int_0^m (R, \theta_2) dR \quad (2.9)$$

Following Stiglitz and Weiss (1981), loan contracts are completely described by the interest rate (i) and collateral (C). Borrowers are assumed to have limited collateral fixed at some level (C) with $C < L(1+i)$. Asymmetric information on its own is not a sufficient condition to create equilibrium non-price credit rationing. If the loan applicant is able to offer enough collateral such that $C = L(1+i)$, the lender could completely eliminate repayment risk and lender returns become independent of the interest rate charged (Carter, 1988). With the condition that $C < L(1+i)$, limited borrower liability is ensured such that borrower behaviour affects the outcome of the contract. Assuming that enforcement and incentive problems are still assumed to be negligible and that borrowers will always repay the loan, defaulting only occurs when the following condition holds:

$$R + C < L(1+i) \quad (2.10)$$

The supply of loanable funds is assumed to be unaffected by the interest rate the lender charges, and that investment projects are not divisible (Stiglitz and Weiss, 1981). Given limited collateral, borrower (ρ) and lender (π) expected returns are expressed as:

$$\rho(R, i) = \max[R - L(1 + i); -C] = \begin{cases} -C & \text{if } \theta < t \\ R - L(1 + i) & \text{if } \theta \geq t \end{cases} \quad (2.11)$$

and

$$\pi(R, i) = \min[L(1 + i); R - C] = \begin{cases} R + C & \text{if } \theta < t \\ L(1 + i) & \text{if } \theta \geq t \end{cases} \quad (2.12)$$

where t is the realisation of a random event such that default is just avoided. Given equations (2.11) and (2.12), Figure 2.1 depicts lender and borrower expected returns as a function of investment returns (R).

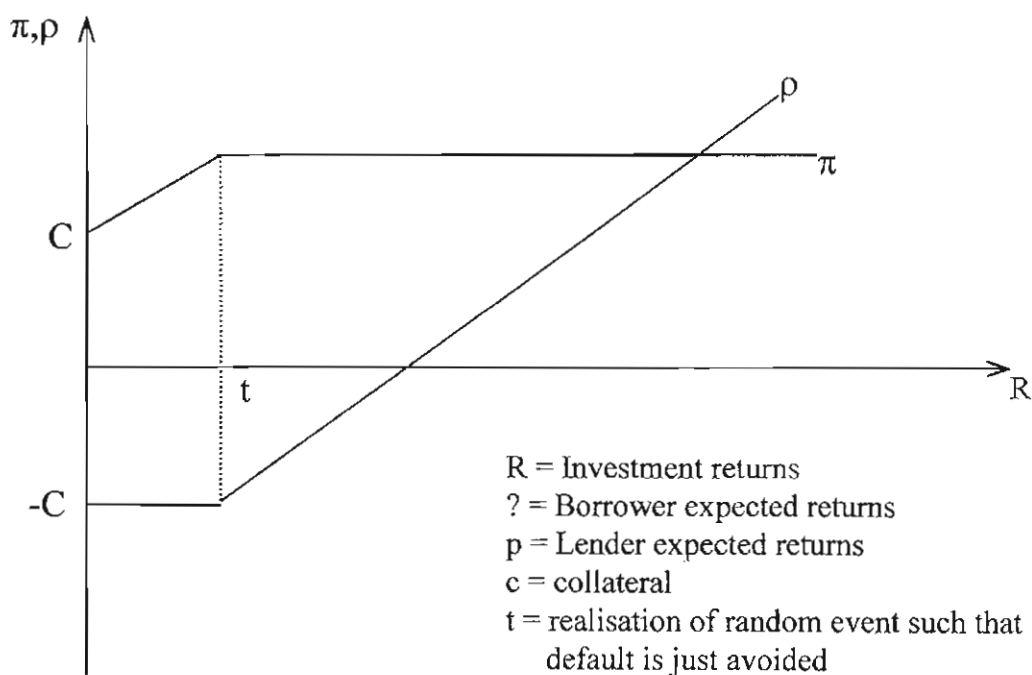


Figure 2.1 Borrower and Lender Expected Returns

Source (Stiglitz and Weiss, 1981: 396)

Lender expected returns are a concave function of the returns to the project since the increased risk associated with increased expected project returns is not offset by increased lender returns, since after point t (where borrowers do not default) the lender receives $L(1+i)$ regardless of the expected project returns. Borrower expected returns are convex in R since project expected returns increase with increasing risk. Thus, borrowers and lenders have asymmetrical incentives, with borrowers being indifferent to returns below t while lenders are indifferent to returns above t (Stiglitz and Weiss, 1981; Carter, 1988). Borrower and lender expected returns are thus increasing and decreasing, respectively, in mean preserving spread.

In deciding whether or not to borrow, the loan applicant will compare his/her expected income, $V(R)$, attainable with the credit to an alternative expected income, $V(U)$, without the credit at a given interest rate i , and only borrow if $V(R) > V(U)$. Thus the project must generate sufficient returns at a given interest rate to induce the borrower to invest in the project (i.e. the lender must satisfy the participation constraint of the borrower). Given equation (2.9), the maximised expected income is higher, at a given interest rate, for a riskier project than for an otherwise identical safer project, and thus $V_1(R) \geq V_2(R)$. However, higher interest rates reduce $V(R)$ as expected returns are reduced (Carter, 1988).

Given that $V(U)$ is identical for all borrowers, higher interest rates compensating for the observed average riskiness of the loan applicant pool will result in $V_2(R)$ approaching $V(U)$ before $V_1(R)$. Low-risk loan applicants will thus drop out of the credit market first, leaving a riskier applicant pool. Where the negative impact of a change in the pool of applicants exceeds the positive impact of an increase in interest rates, lender expected returns will not increase monotonically as the interest rate increases. Lenders, therefore, cannot arbitrarily

increase the interest rate to compensate for the observed average riskiness of loan applicants, but instead may opt for a lower interest rate that maintains a favourable risk composition in the loan applicant pool (Stiglitz and Weiss, 1981; Carter, 1988). Hence, if lenders are better able to collect information about loan applicants and their investments, their ability to write individual specific (separating) credit contracts is improved.

Higher interest rates may also induce moral hazard. Assuming identical borrowers and given the expected profit maximising function in equation (2.11), borrower expected returns are decreasing in the interest rate as shown by equation (2.13):

$$\frac{\delta \rho}{\delta i} = -B(1 - F(L(1 + i) - C)) \quad (2.13)$$

Given two projects such that $\rho_1 = \rho_2$ but the mean preserving spread of project 1 is higher than project 2, then by equation (2.9) and equation (2.13), Stiglitz and Weiss (1981) show that:

$$\frac{\delta \rho^1}{\delta i} < \frac{\delta \rho^2}{\delta i} \quad (2.14)$$

From (2.14), since the returns of the less risky project (2) decrease by more than the returns of the riskier project, an increase in the interest rate may result in increased loan risk. Risk-neutral borrowers indifferent between the two projects would opt for the riskier project whose expected returns decrease by less, as the interest rate increases, to repay the loan. This may adversely affect lender expected returns if the negative effect of borrowers adopting riskier projects is greater than the positive effect of an increase in interest rates, since the riskier projects have a greater likelihood of default. Lender expected returns will thus not be monotonically increasing in the interest rate (Stiglitz and Weiss, 1981).

The presence of loan quantity rationing for a single period loan contract, when lender expected returns are not monotonically increasing in the interest rate, is shown in Figure 2.2 by relating expected returns ($E(\pi)$) to the supply of funds (L_S), given borrower demand for credit (L_D). Since adverse selection and moral hazard increase the riskiness of the loan applicant pool, there exists a critical interest rate, i^* , after which lender expected returns per loan begin to decrease for an increase in interest rates as shown in the fourth quadrant of Figure 2.2.

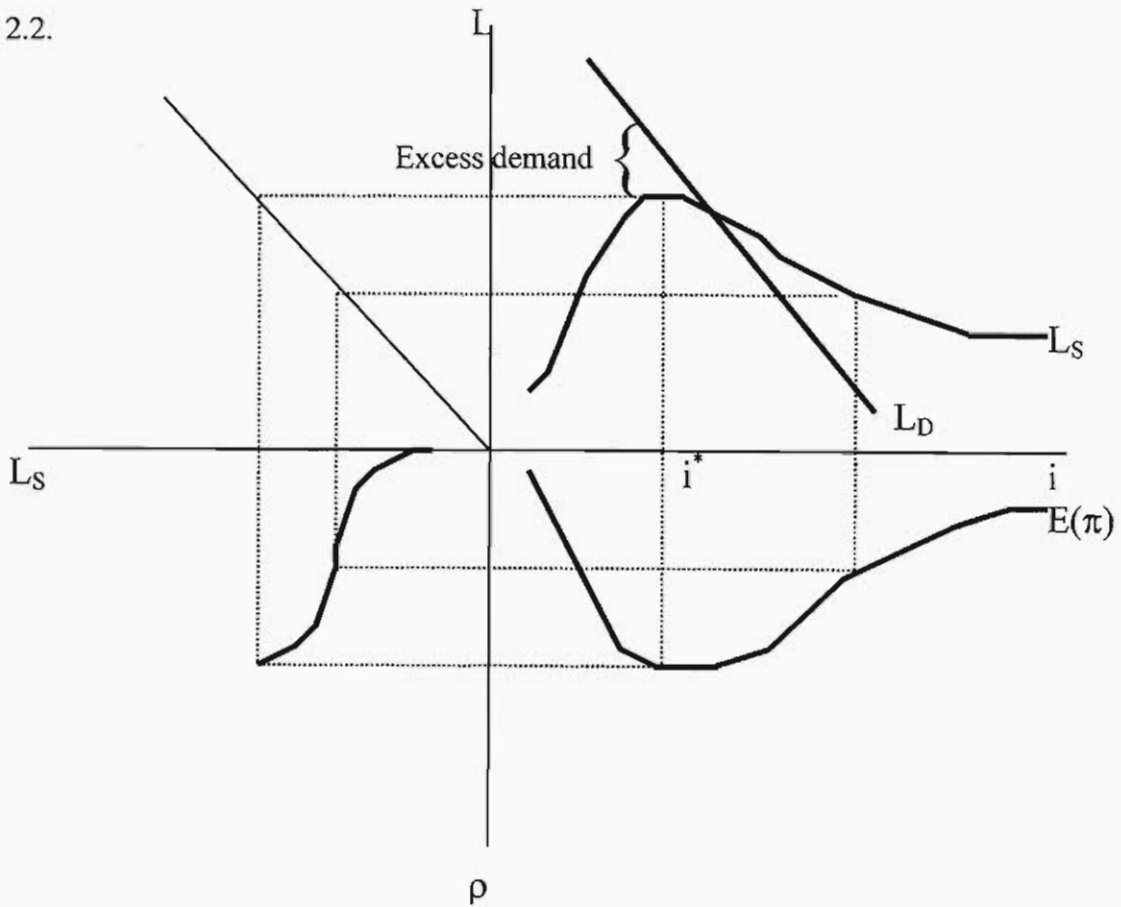


Figure 2.2 Determination of Credit Market Equilibrium in the Presence of Asymmetric Information
(Source: Stiglitz and Weiss, 1981:397)

Note that no indication of the magnitude of the bank optimal rate is given above. In addition, the models by Stiglitz and Weiss (1981) and Carter (1988) assume an 'all or nothing' case to simplify the analysis. Borrowers who were not rationed receive the full amount of the loan, while quantity-rationed borrowers received no loan at all. In reality it may be reasonable to

assume that lenders may ration the loan size to applicants such that they do not receive the full amount of the loan requested. Both adverse selection and moral hazard effects are shown by Wette (1983) to hold when borrowers are risk-averse. Higher interest rates make projects with lower mean returns (projects undertaken by risk-averse individuals) infeasible, while leaving the expected returns to the relatively risky projects unaltered. Thus, relatively risk averse borrowers may drop out of the loan market or divert credit to alternative uses, leaving a relatively risky pool of loan applicants, which negatively affects lender expected returns (Wette, 1983).

Loan applicants may not all be indistinguishable to the lender, who may be able to divide borrowers into broad risk classes based on easily observable criteria such as business or farm size. Small rural farm and business incomes may demonstrate greater income variability (greater mean preserving spread) due to less diversified asset bases, making them more vulnerable to negative income shocks as a result of production adversity such as pests, droughts and floods. In addition, small rural borrowers may opt for household utility maximisation rather than profit maximisation, which could also lead to business income variability due to funds from production being easily diverted to household consumption rather than loan repayment (Carter, 1988; Barham *et al.*, 1996).

Individuals having larger businesses may thus be preferred by lenders due to better income generating ability (diversified asset bases) which implies higher expected returns for the lender. Lenders may, therefore, extend credit to large borrowers first, and only after their demand for credit has been satisfied would it be possible to extend credit to small borrowers. Whether any credit would be extended to small borrowers depends on the opportunity cost

and supply of loanable funds, with a higher opportunity cost of funds reducing the number of small borrowers obtaining credit (Carter, 1988).

In the presence of risk aversion the situation for small rural borrowers is likely to even be less favourable, since there is a greater likelihood of credit diversion, increasing the incidence of moral hazard. Adverse selection effects are also likely to be more severe for small rural borrowers in the presence of risk-aversion. Information on this borrower class is more difficult and costly to obtain than for large borrowers, making it easier to write individual specific contracts for large rural borrowers (Gonzalez-Vega, 1984; Carter, 1988). More severe incentive and selection effects on small loans to small rural borrowers implies that lender expected profits per loan would begin to diminish at a lower interest rate than for larger borrowers. It would thus pay the lender to first extend loans to large rural borrowers. For a given opportunity cost and supply of funds, it thus becomes more likely that small rural borrowers may be completely rationed out of the formal credit market (Carter, 1988).

Despite the rich literature on the impacts of adverse selection and moral hazard, there is little empirical evidence to document their existence in credit markets as real world phenomena. In one of the first published studies of its kind, Ausubel (1999) tests, through a series of large-scale randomised trials in pre-approved credit card solicitations in the United States of America (USA), the impacts of changing contractual terms (most notably interest rates) on the quality of loan applicants in credit markets. Ausubel (1999) focuses specifically on two phenomena: adverse selection on observable information and adverse selection on hidden information. Adverse selection on observable information implies that the pool of consumers who accept a credit contract display inferior characteristics as compared to a pool of consumers who do not accept the credit contract. In addition, the pool of consumers who

accept an inferior credit contract (high interest rates, small loan amount) exhibit inferior characteristics as compared to the pool of customers who accept a better loan contract.

After controlling for all observable characteristics, the pool of consumers who accepted an inferior credit contract exhibited worse loan repayment performance than the pool of consumers who accept a better offer. This Ausubel (1999) terms adverse selection on hidden information. The results of the market experiment confirm the presence of both adverse selection on observable information and adverse selection on hidden information. Ausubel (1999) found firstly that respondents to the credit contracts were, on average, worse credit risks than non-respondents. Customers that accepted worse credit offers had inferior characteristics compared to customers that accepted better offers as determined by the credit score, previous credit utilisation, months on file, number of bankcards and number of delinquencies in the last 12 months. Finally, after controlling for all observable information, there was a significantly higher default rate amongst borrowers that accepted inferior loan contracts than borrowers that accepted better loan contracts. This supports the theoretical work by Stiglitz and Weiss (1981) who argue that higher interest rates (worse contract terms) attract riskier clients. Where the lender can only offer one pooling contract, profits may be affected if the average risk of the borrowers is too high.

2.2.4 Consequences of Asymmetric Information for Microfinance

Given symmetric information, with perfect observability and no incentive problems, a separating equilibrium is achieved where the lender can write individual-specific credit contracts with the interest rate reflecting the expected lending risk. Microfinance markets,

however, are characterised by information asymmetries leading to the problems of moral hazard and adverse selection. Incentive problems arise because lenders may not be able to accurately monitor borrowers' actions and hence cannot condition the contracts on these actions. It may also be difficult for the lender to separate the effects of random states of nature (adverse weather, theft, fire), about which borrowers have some, possibly incomplete information, from borrowers' actions.

The lender thus has difficulty in verifying whether the inability of borrowers to repay the loan results from the borrowers' actions or unfavourable exogenous events. A conflict of interest arises between borrower and lender, since the lender wants the borrower to exert maximum effort to generate income to repay the loan, while additional effort creates disutility to the borrower (Ross, 1973; Harris and Raviv, 1979; Arrow, 1985; Hayami and Otsuka, 1993: 21 - 55). To reduce the incidence of credit rationing, lenders need to write contracts that make it in the borrower's interest to exert the required level of effort and to reveal his/her risk type. Screening loan applicants, or offering a specific set of contracts that induce loan applicants to reveal their risk type, can do this.

To create the right incentives for the borrower to act in the interest of the lender two aspects have to be accounted for in the loan contract. Firstly, the borrower must be incentivised *ex ante* to act in the interests of the lender by undertaking actions that are conducive to repay the loan. Given that there is the opportunity for moral hazard before the completion of the loan contract, this type of moral hazard is termed *ex ante* moral hazard. It can be reduced by passing some of the risk of the project on to the borrower such that it is in the interests of the borrower to apply a sufficient level of effort to try and ensure project success.

Secondly, on completion of the loan contract, borrowers may decide to appropriate the full benefit of their actions and thus voluntarily default. This is termed *ex post* moral hazard, can be reduced by ensuring that the loan contract is enforceable (Rodriguez-Mesa, 2000). Collateral and borrower own equity contributions are mechanisms used in credit contracts to incentivise borrowers to exert maximum effort, while the credible threat of seizure of collateral reduces the problem of *ex post* moral hazard. The following sections explore the importance of appropriate screening and contract incentive mechanisms to reduce the agency problem prevalent in credit contracts.

2.2.5 Loan Applicant Screening

Lenders may employ a strategy of screening loan applicants before the loan is granted to try and minimise the risk up front (Devinney 1984 as cited by Navajas, 1999a). Screening involves the assimilation of information about loan applicants' personal and business characteristics and previous credit history to determine the credit risk of the loan applicants or the investment projects. A type of scoring process is performed where the loan applicant information is linked to performance of previous borrowers with similar information to estimate future performance (Schreiner, 2002). Large commercial finance institutions have developed statistical scoring techniques that can assimilate large quantities of information to produce a credit score that gives an indication of the likelihood of loan default (Hand and Henley, 1997; Schreiner, 2002).

The more accurate the scoring process, the better the lender is able to separate high- and low-risk borrowers, and offer individual specific contracts that meet the participation and incentive compatibility constraints. Typically, low-risk borrowers can be offered loan

contracts with lower interest rates and collateral requirements. It may, however, be difficult to accurately determine the risk of each individual borrower. Instead of writing individual-specific contracts, the lender may group borrowers into different risk classes offering a different loan contract per risk class (Hunte, 1993). Alternatively, the lender may employ a collection technology, which focuses on imposing penalties upon default to control for risk. To employ a suitable collection technology implies effective contract monitoring. Devinney (1984), as cited by Navajas (1999a), argues that screening and collection mechanisms are substitute technologies and depend on the type of information available in the market.

In microfinance markets, the information problem is exacerbated by the absence of documented credit histories, standardised information and financial statements. Household and business expenditure are often not separated making it difficult to assess ability to repay as income may be diverted from the business to the household or *vice versa* (Gonzalez-Vega, 1998). The absence of easy to interpret information makes it difficult and costly for MFOs to apply formal scoring techniques. MFOs have, therefore, relied more on contract design to create suitable incentives for borrowers to repay the loan, and on peer monitoring techniques to overcome information asymmetries (Conning, 1999; Rodriguez-Meza, 2000).

2.2.6 The Role of Collateral

An important mechanism in loan contracts to induce the necessary incentives for borrowers to exert maximum effort to repay is to increase the borrower's stake in the investment. This can be done by requiring collateral and/or borrower own equity contributions to the point where the borrower equates his marginal disutility of effort to the marginal product of the investment (Hayami and Otsuka, 1993: 21 - 55). Financing the whole project will not result in

the right incentives, since effort is a disutility to borrowers and borrowers obtain greater expected utility from not having to bear any of the risk in the loan contract. Hence lenders will want to pass some of the responsibility of the project outcome to the borrower as an incentive to exert the desired amount of effort (Rodriguez-Meza, 2000).

Collateral is “an asset that upon liquidation is adequate to cover *all or most* of the lender's risk exposure including principal, accrued interest and collection costs” (Nagarajan and Meyer, 1995: 3). As an enforcement device, collateral secures loans against exogenous risks (poor business performance due to events uncontrollable by the borrower) by allowing the lender to liquidate the collateral in the event of loan default, reducing his default loss (Barro, 1976). *Ex post* contractual risk is thus reduced. *Ex ante* moral hazard is reduced when threats of foreclosure discourage the borrower from engaging in moral hazardous activities (Bester, 1985). High-risk borrowers will, therefore, be required to offer more collateral than low-risk borrowers, while the loan amount is expected to increase and the interest rate to decrease as the value of the collateral increases and lender transaction costs in using the collateral decrease (Barro, 1976).

For collateral to be a useful incentive/enforcement device, it must be able to reduce the lender's default loss or make it costly for the borrower to default. This requires that the asset has well-established and transferable property rights, and a legal environment that facilitates loan contract enforcement such that the lender is able to foreclose and attach the asset. Liquidation costs must be sufficiently low and asset marketability good to enable the lender to recover sufficient funds from liquidating the collateral to cover loan losses. The asset should also not be easily prone to loss of value due to collateral specific risks such as theft, pretended theft, damage by fire or accident and poor maintenance (Binswanger and Rosenzweig, 1986).

Although collateral can serve as an incentive device in a loan contract, Stiglitz and Weiss (1981) show that credit rationing still exists even with collateral. While for sufficiently low levels of collateral no adverse selection effect occurs, there exists a critical level of collateral above which low-risk borrowers drop out of the loan market. If this effect outweighs the incentive effect of collateral, then the credit market may still be characterised by non-price credit rationing in equilibrium.

However, if the lender is able to simultaneously vary the interest rate and collateral requirements, Bester (1985; 1987) shows that credit rationing may be eliminated since the lender can induce borrowers, by self-selection, to reveal their risk type. Hence a separating and not a pooling equilibrium will exist. Borrowers with a low probability of default will accept loan contracts with higher collateral requirements and lower interest rates, while high-risk borrowers will accept contracts with higher interest rates and lower levels of collateral. Moral hazard will also be reduced since higher collateral encourages the selection of less risky projects.

For collateral to be an effective self-selection device, borrower wealth and collateralisation costs are important. Borrower collateralisation costs include the potential loss of collateral if the investment fails, costs incurred by the borrower in pledging collateral (group formation, legal costs) and foregone opportunities to use collateral to secure additional debt (Chan and Kanatas, 1985; Feder *et al.*, 1988). The ability of collateral to serve as a signalling device may be undermined if the marginal collateralisation costs of low-risk borrowers are higher than for high-risk borrowers, if low-risk borrowers have less wealth to offer as collateral than high-risk borrowers, and where no credible threat of foreclosure and the attachment of assets exists

(Bester, 1985; 1987; Besanko and Thakor, 1987; Chan and Kanatas, 1985). In addition, the asset holdings should be positively related to ability to repay so that low-risk borrowers can distinguish themselves from high-risk borrowers.

Bester (1994) argues that the potential for debt re-negotiation further undermines the ability of collateral to serve as a signalling device. Where this potential exists, lenders will require collateral to encourage borrowers to truthfully reveal the outcome of their project. In the presence of limited liability and the possibility of debt re-negotiation, high-risk borrowers may have an incentive to default if it is too costly for the lender to assume management of the project. Collateral reduces this incentive to default since the lender can take possession of the collateral to reduce loan losses. However, in this case both high- and low-risk borrowers have an incentive to pledge collateral reducing its value as an incentive device. Bester's (1994) model only holds true in the case of *ex ante* symmetric information.

While collateral can act as an incentive and signalling device, loan contracts are seldom fully collateralised. Excessive collateralisation costs, limited borrower wealth and poorly developed property rights in microfinance markets prevents the use of collateral to the point where the marginal disutility of the borrower's effort equals the marginal product of the investment (Besley, 1994; Gonzalez-Vega, 1998). This reduces the use in particular of formal collateral types such as land and chattel assets in microfinance markets. Costly legal processes in attaching and disposing of collateral also make it less attractive for MFOs to use collateral (Besley, 1994). In addition, loan contracts that require formal collateral types would also restrict MFOs to relatively limited, wealthy client market segments. Lenders may also want to assume some risk, since increased risk increases the expected return (Navajas, 1999a).

2.2.7 Loan Contract Monitoring

Monitoring of borrowers' actions is a possible way to ensure incentive alignment between borrower and lender, particularly in limited liability contracts where borrowers are unable to pledge sufficient collateral. Monitoring can take place during and/or at the end of the loan contract and may only be worthwhile if it lowers the potential for moral hazard (Conning, 1999). For monitoring to have any effect, it is important that the borrower's gains or losses are influenced by monitoring (Navajas, 1999a). Optimal contracts would involve borrowers repaying the lender according to some predetermined fee schedule, if the results of monitoring reveal that borrowers actions are appropriate, while borrowers receive a less preferred schedule (liquidation) should monitoring reveal that their actions are inappropriate, assuming perfect contract enforcement. Williamson (1986; 1987) shows that in credit markets where lenders have symmetric *ex ante* information about borrowers but asymmetric information about the outcome of the project, credit rationing will likely be the equilibrium outcome.

The quality of the information obtained by monitoring depends on the resources committed to monitoring, and the available monitoring technology. Thus different levels of direct monitoring may result where monitoring is expensive or where substitutes for monitoring are cheaper (Arrow, 1985; Pratt and Zeckhauser, 1985; Conning, 1999). For formal lenders in rural financial markets, direct monitoring may be extremely costly due to the geographic dispersion of rural borrowers, and may make lenders more reluctant to operate in these markets. Mechanisms to reduce monitoring costs are thus an important innovation that can contribute to improved financial service provision by MFOs.

2.2.8 Multi-period Contracts and Borrower Reputation

Theoretical models describing credit rationing have mainly focused on single period contracts. However, information asymmetries may be reduced where lenders are able to engage in multiple contracts over time such that a long-term relationship between the borrower and the lender is established (Hyami and Otsuka, 1993; Navajas, 1999a; Rodriguez-Meza, 2000). Stiglitz and Weiss (1983) show that in a multi-period framework the threat of terminating the borrower-lender relationship provides additional leverage to encourage borrowers to undertake less risky projects. Webb (1991) argues that mere repetition of a single period loan contract will not result in a separating equilibrium. To facilitate self-selection, the lender would have to offer a modified contract and a standard contract in a multi-period framework where the modified contract has positive benefits of improved terms and conditions.

If the loan is repaid in full in the first period, the borrower is offered a modified contract in the second period with positive benefits (such as a lower interest rate). A defaulting borrower will be offered a standard debt contract with negative benefits. Low-risk borrowers will hence opt for the modified debt contract since they are certain of the outcome of their project, while high-risk borrowers will opt for a standard debt contract since their probability of loan default is higher. Underpinning the success of multi-period contracts in alleviating asymmetric information problems is the credible threat of denial of access to future loans if default is observed in the first period, and the use of sequencing and improving contract terms if the borrower maintains the desired level of effort throughout the contracting period (Lambert, 1985; Hayami and Otsuka, 1993; Rodriguez-Meza, 2000).

Borrowers thus need to evaluate the effect that current actions will have on their contract performance and thus their reputation. Repaying the loan in arrears would imply a repeated contract with less favourable terms and conditions as described by Webb (1991), while default would result in the termination of the lender-borrower relationship altogether. The effectiveness of borrower reputation within a multi-period framework is reduced where the long-term relationship between the borrower and the lender cannot be properly established (Lambert, 1985). Rodriguez-Meza (2000) shows that the extent to which borrowers are credit constrained and the ease with which these credit constraints are overcome impact on the success of borrower reputation to reduce incentive effects. The incentive to repay a loan in a multi-period framework may diminish as the wealth levels of initially credit-constrained borrowers improve. In such a case, the value that the borrower derives from the lender-borrower relationship is critical to maintain the incentive. Such a value is derived from service quality and other benefits such as access to savings and transmission facilities.

A similar situation emerges with group loans. Credit-constrained borrowers have a better incentive to repay, since access to future credit has greater value. Once the credit constraint is reduced over time, the incentive effect is diminished. Easy access to alternative credit sources can also negatively impact on the value of borrower reputation as an incentive mechanism. This is particularly the case in a competitive environment where information sharing between lenders is limited as switching between lenders is less costly for borrowers (Lambert, 1985; Gonzalez-Vega, 1998).

Given the costly information acquisition and monitoring processes in many developing country microfinance markets, and the lack of formal collateral, MFOs have strongly

emphasised borrower reputation and sequencing of loan terms and conditions in their contract design (Rodriguez-Meza, 2000). However, this enforcement mechanism is under threat where markets are becoming increasingly competitive and where borrower wealth levels are increasing.

2.2.9 Concluding Comments

A number of practical issues arise out of the potential problems encountered by lenders when designing suitable loan contracts. Firstly, how well informed are lenders about the production technologies and riskiness of their potential clients? Does the credit delivery system employed by lenders allow for cost-effective provision of financial services? Can lenders effectively monitor their clients without incurring excessive costs? If not, can lenders make use of suitable incentive devices such as collateral to encourage loan repayment? Is *ex post* contract enforcement possible given the nature of the collateral and the legal and institutional environment in which the lender operates?

To the extent that these issues differ across lenders, some may be able to more profitably service individuals in rural financial markets. Informal lenders may have distinct informational advantages, since information is a by-product of living in the communities in which they operate (Chaves and Gonzalez-Vega, 1996). They are able to cost-effectively monitor their clients because of their close proximity, while also making use of interlinked credit contracts and 'strong arm' tactics, relying less on formal collateral types, to increase the cost of default (Carter, 1988). Their credit delivery systems are simple and inexpensive making credit easily accessible to potential borrowers. In addition, they are not subject to the administrative requirements, interest regulations and reserve requirements of formal lenders

which allows more flexible and timeous provision of credit to the rural poor (Larson *et al.*, 1994; Llanto, 1990). Thus, the credit market characterised by a degree of symmetric information appears more relevant to informal lenders.

Formal lenders may face considerable information asymmetries, enforcement and incentive problems when operating in rural financial markets. As shown by Stiglitz and Weiss (1981) and Carter (1988), lenders may not be able, given asymmetric information, to write individual-specific credit contracts to account for borrower risk, resulting in non-price credit rationing. While government interventions in the form of subsidised interest rates have been criticised as being counterproductive, free market credit policies may have a similar outcome in rural financial markets in the presence of asymmetric information (Carter, 1988).

Successful extension of formal credit to small borrowers in rural financial markets requires institutions that can economically resolve the information problem (Gonzalez-Vega, 1998; Rodriguez-Meza, 2000). The financial technologies of formal lenders may necessarily be complex and costly and result in a systematic bias against small borrowers in rural financial markets (Barham *et al.*, 1996). The design of suitable financial technologies that reduce both borrower and lender transaction costs is necessary to promote ready access by rural borrowers to formal financial intermediaries, and to allow lenders to provide these financial services on a cost effective basis. Excessive administrative work, extensive travel distances and long loan approval times may be obstacles that formal financial intermediaries will have to overcome in order to provide low-cost financial services to low income individuals.

The provision of the necessary incentive devices and proper loan contract enforcement are also imperative for successful credit provision in rural and urban microfinance markets. To

the extent that limited collateral is available to formal lenders and monitoring is costly, alternate strategies have to be developed to encourage borrowers to repay their loans while the institutional environment must be conducive to contract enforcement. The next section highlights how successful MFOs have adapted their financial technologies to reduce information asymmetries and transaction costs to successfully operate in rural and urban microfinance markets.

2.3 Financial Technologies used by Successful Microfinance Organisations to Reduce Agency Problems

Microfinance credit markets are characterised by three principle features, that distinguish them from other credit markets – the absence of suitable collateral, underdeveloped complementary institutions (absence of credible legal system, insecure and non-transferable property rights, and under-developed infrastructure such as roads and telecommunications) and high covariant risks (rural residents in the same geographic area are all subject to income shocks). In addition, high illiteracy amongst the poor has resulted in formal financial technologies imposing high transaction costs on borrowers. Poorly-developed communication systems and geographic dispersion of people in rural areas makes information difficult and costly to come by, while high covariant risks increase borrower susceptibility to income shocks (Llanto, 1990; Besley, 1994).

This section explores the financial technologies employed by MFOs who have successfully provided rural financial services, where success is measured in terms of the ability to reach a large number of rural poor (outreach) with viable financial services free of any subsidy (self-sustainability) (Yaron, 1992). The types of contracts used by MFOs are complex and consist of a plethora of implicit and explicit terms and conditions that have been refined over time

through a process of experimentation and learning. One aspect that stands out is the use of innovative collateral substitutes which can be included *ex ante* into loan contracts to reduce *ex post* costs. Collateral substitutes are non-physical assets with or without market value, or physical assets that have qualities other than collateral to enforce loan repayment (Nagarajan and Meyer, 1995). Several of the collateral substitutes used by 'best practice' MFOs are discussed below.

2.3.1 Information Processing and Screening Mechanisms

Important costs for a lender are incurred (and its comparative advantage developed) while processing information about the likelihood that loan applicants will default on their loans (Chaves and Gonzalez-Vega, 1996). The costs are a function of availability of information and feasible technologies used to process this information (Gonzalez-Vega, 1994). This process needs to be quick and effective to ensure that costs associated with collecting the information do not become excessive, and to be accurate to avoid poor decisions being translated into unpaid debt (Simms, 1997).

Successful Indonesian and African MFOs have overcome the problem of accessing client information by incentivising local agents (e.g. village heads) to screen loan applicants on their behalf (Yaron, 1994; Gurgand *et al.*, 1994). High costs resulting from information collection due to geographic dispersion and heterogeneity of the loan applicants are reduced, since the technology is decentralised, exploiting the comparative advantage local individuals have about loan applicants since information is a bi-product of living in the area or village (Meyer and Nagarajan, 1997). Penalty for poor client selection is immediate with denial of future loans while it also reflects poorly on the local agent selecting the borrower. Best practice

MFOs pay local agents a fee for each character reference. This becomes a personal asset worth the discounted stream of future fees. Should a mistaken *ex ante* good reference be given about a poor borrower, the agent has a strong incentive to exert pressure on borrowers to repay to avoid losing credibility and future fees (Chaves and Gonzalez-Vega, 1996).

2.3.2 Loan Contract Monitoring

The cost and the quality of information obtained by contract monitoring depend on the resources committed to monitoring and the available monitoring technology. Typically, MFOs have not engaged in monitoring intensive technologies, as these tend to be costly in the markets that they operate. Monitoring is facilitated by loan contracts that have frequent repayment regimes (Rodriguez-Meza, 2000). Borrowers whose loan repayments are in arrears are followed up immediately and rigorously. While direct monitoring may be costly for some MFOs, Indonesian MFOs and BancoSol of Bolivia have cut costs by utilising the concept of delegated monitoring. Indonesian MFOs use the local village heads used to screen loan applicants also monitor the borrowers. BancoSol uses the principle of peer monitoring where individuals within the borrower groups monitor each other (Chaves and Gonzalez-Vega, 1996; Gonzalez-Vega *et al.*, 1997).

2.3.3 Incentive and Enforcement Mechanisms

2.3.3.1 Collateral and Chattel Assets

Land is typically the most desired collateral type by lenders. To be used as collateral, land must have secure and transferable title and have value such that the lender is able to take possession of the property should the borrower default to cover loan losses. For land to have

value, well-developed markets for land must exist (Feder *et al.*, 1988; Roth *et al.*, 1989). Whether a lender can take possession of land depends to a great extent on the socio-political environment of the country. If foreclosure is difficult, the use of land as collateral is diminished. Land titling on its own may thus not improve its collateral value if transferability is limited (Nagarajan and Meyer, 1995).

Pledging land as collateral may also result in high collateralisation costs (legal costs, threat of loss of collateral in the event of default) for small rural borrowers, particularly new landowners, who may thus be deterred from applying for formal credit (Feder *et al.*, 1988). These institutional constraints have limited the use of land as collateral because MFOs are not able to foreclose and take possession of the asset. Chattel assets such as machinery, household goods, livestock and crops are characterised by high collateral-specific risks such as sale of the asset without the lender's knowledge, theft, disease, and loss in value due to poor maintenance or accidents, and adverse weather. Lenders may also incur high transaction costs in attaching and marketing the collateral due to the often poor condition of the assets, geographic dispersion of borrowers and the absence of secondary markets for the goods. Costly and/or ineffective legal procedures have also contributed to reducing the value of chattel assets as collateral (Nagarajan and Meyer, 1995). Although best practice institutions such as Bank Rakyat Indonesia and Caja Los Andes in Bolivia do seize assets, this serves more as a demonstration effect to incentivise other borrowers rather than a means to recover the funds (Gonzalez-Vega *et al.*, 1997).

2.3.3.2 Borrower Reputation and Multiperiod Contracts

One of the most fundamental features of best practice MFO contract design is the incorporation of borrower reputation and loan sequencing in a multi-period framework. First-time borrowers are offered loan contracts with small loan amounts, at relatively high interest rates and shorter loan terms. Borrowers are incentivised by the promise of access to future credit at better terms and conditions if the current loans are repaid on time (Gonzalez-Vega *et al.*, 1997). This engenders the concept of developing a long-term relationship with the borrower. If loans are repaid with arrears, the repeat loan terms and conditions are worsened, while voluntary default is penalised immediately through denial of future loans (Yaron, 1994; Gurgand *et al.*, 1994; Gonzalez-Vega *et al.*, 1997).

Several threats to the effectiveness of multiple period contracts exist in micro-finance credit markets. Firstly, the effectiveness of reputational capital may be reduced where the long-term relationship between borrower and lender cannot be properly established. This occurs where borrowers have easy access to alternative credit. In the markets that many of the best practice MFOs have been functioning this has not been a problem. However, as MFOs become more profitable, the level of competition increases making alternative sources of credit available. This is a particular challenge for MFOs in Bolivia (Gonzalez-Vega, 1998). If lenders share information on borrower loan repayment performance this problem can be alleviated, but such sharing is not yet taking place in many emerging credit markets in developing countries. Secondly, if lenders do not stop lending to borrowers who have voluntarily defaulted, then reputation has no value.

Thirdly, Rodriguez-Meza (2000) shows that conflicting interests exist between loan contracts that rely on borrower reputation and graduated access to future credit, and alleviating the credit constraint of low-income individuals. If the wealth levels of credit constrained individuals increases over time through the productive use of credit, the incentive to maintain the borrower-lender relationship reduces. Hence, the quality of financial services (speed with which loan applications are processed, simplicity of loan application, ease of access to branches) provided by the MFO becomes critical, particularly in competitive markets.

2.3.3.3 Joint Liability Groups

This collateral substitute has been used successfully by MFOs such as the Grameen Bank in Bangladesh and BancoSol in Bolivia. Rural borrowers are required to form small, socially cohesive groups, such that group members are jointly responsible for each other's debt obligations. Hence, group members are expected to exert considerable peer pressure to ensure that all members' loans are repaid, since no member of a group can access additional credit until all members of the group have repaid their loans (Paxton *et al.*, 2000). Rigorous application of this rule is required for the joint liability mechanism to be effective. This also provides the necessary incentive for groups to effectively screen members and monitor each other. Where groups have been larger, group leaders have been required to pledge personal assets as collateral to ensure contract enforcement (Desai, 1983; Graham and von Pischke, 1994).

Given that individual group members have to screen and monitor each other, joint liability groups have been observed to work best when they are small (four to six members) and homogenous with respect to social and economic criteria (Jain, 1995). High population

densities in the villages of Bangladesh, Thailand and Bolivia result in close proximity for group members such that peer monitoring is feasible. The joint liability mechanism has been less effective for larger groups, particularly in African agricultural group-lending programmes, where group members tend to be spatially disbursed, heterogeneous and where male group members migrate to towns to find employment (Graham, 1995a).

Group lending also requires considerable investments in group formation (such as finding members, training and setting up governance structures), which may be borne by both borrower and lender (Paxton *et al.*, 2000). This often results in high transaction costs for borrowers and lenders, negatively affecting group solidarity while also increasing lender administration costs. In addition, well trained and committed staff are required to administer these programmes that may impose additional costs on lenders. The Grameen Bank has invested heavily in group formation which has negatively affected financial viability but contributed to the success of the group lending programme. The Grameen Bank has also been able to recruit highly qualified lending staff without having to pay high salaries – this has saved on overhead costs. African programmes in Malawi and Burkina Faso have shown lower levels of investment in group formation, partly contributing to their poor performance (Graham and von Pischke, 1994; Graham, 1995a).

Successful groups have frequent repayment schedules (weekly or bi-weekly) to provide the regular interaction between group members and lenders that is required to maintain group cohesion. This does not suit the seasonal cash flow patterns of agriculture, and groups consisting only of farmers have encountered difficulty in maintaining group solidarity. Group lending programmes built on micro-enterprise activities with more regular cash flows have been more successful (Yaron, 1994; Paxton *et al.*, 2000).

The joint liability concept also has its limits. Graham and von Pischke (1994) and Gonzalez-Vega *et al.* (1997) argue that this mechanism does not necessarily guarantee loan repayment since the incentives that it creates have ambiguous impacts on group members' willingness to repay. Firstly, non-defaulting members undertake repayment for defaulting members or encourage delinquent members to pay their loan to avoid the loss of their own reputation with the lender. Evidence suggests that once individuals in a group have covered the shortfall of delinquent group members two or three times, the group collapses, resulting in total default (joint enforcement creates hostility within the group). This has frequently been observed in African group lending programmes (Graham and von Pischke, 1994). To avoid hostility within groups, group members are often required to contribute to a compulsory savings fund from which money can be taken to make up the shortfall of delinquent members. However, contributions to such funds tend to be small and cannot sustain continued default by group members.

Secondly, default by some members may prompt default by other members if the costs of repaying the defaulters' loans are higher than the value of the individual's relationship with the lender (Besley and Coate, 1995). This may be the case where individuals in the group have easy access to alternate sources of credit, and where lenders do not strictly enforce the rule of not granting individuals access to future credit if current loans are not repaid. Group loans also present borrowers with particular contract rigidities which include the need for synchronous terms to maturity and repayment schedules, and having to participate in group meetings which may further reduce the perceived benefits of this type of credit to group members, particularly over time (Gonzalez-Vega *et al.*, 1997; Paxton *et al.*, 2000).

Gonzalez-Vega *et al.* (1997) have argued that since individuals in BancoSol's group lending programme do not have access to alternate sources of credit, the value of the client-lender relationship has been sufficiently enhanced to promote loan repayment, rather than the joint liability mechanism itself. Joint liability groups may thus be an effective collateral substitute, but replicability of this form of collateral requires careful consideration of the social setting of the target clientele and of the requirements for successful implementation of this technology.

2.3.3.4 Other Incentive and Contract Enforcement Mechanisms

Compulsory savings have been used by MFOs to cover losses arising from default, death or disability (Jain, 1995). While compulsory savings reduce the lender's financial risk, since they can be used to compensate the lender for default losses, they also enhance financial discipline amongst inexperienced, first-time borrowers (Yaron, 1994; Nagarajan and Meyer, 1995). Best practice MFOs using savings as a form of collateral and information on potential borrowers have been multi-function lending institutions providing both savings and loans. Use of savings as a source of information and collateral becomes more difficult if the savings and credit functions are performed by different lending institutions.

Informal lenders also frequently use **credit interlinkages** to secure loans. Interlinked contracts involve the lender and the borrower entering into several contracts at the same time, such as trade-credit linkages (Hayami and Otsuka, 1993: 70 - 84). Trade-credit linkages increase the informational advantage of the lender, thus reducing the likelihood of adverse selection, transaction costs and moral hazard, and providing an effective loan contract enforcement mechanism. Interlinked contracts allow the lender to gain more direct control of effort by using credit to influence the borrower's behaviour (Braverman and Guasch, 1986).

Interlinked contracts tend to be confined to specific geographic areas where close relationships exist between lender and borrower, but represent an important institutional adaptation to underdeveloped markets where it is difficult to attribute the outcome of a borrower's activities to adverse changes in states of nature and where each transaction is too small to enforce profitably by court of law (Hayami and Otsuka, 1993: 70 - 84).

Warehouse receipts provide the lender with secure collateral and considerably increase small farmers' access to formal credit by providing assurance of the existence and condition of stored agricultural inventories (Coulter and Shepherd, 1995; Lacroix and Varangis, 1996; Meyer and Nagarajan, 1997). In the event of borrower default, the lender can effectively take possession of the underlying goods or their monetary equivalent. This form of collateral has been used to good effect by the PTA Bank in Kenya and the Agricultural Development Bank in Ghana, which finance coffee and maize producers respectively. For warehouse receipts to work effectively as collateral there must be a well-functioning legal system that recognises warehouse receipts as a negotiable instrument, reliable warehouse certification procedures and performance guarantees such that the lender is assured that the quantity of goods are actually stored and that their quality is of sufficient standard (Coulter and Shepherd, 1995; Lacroix and Varangis, 1996).

Besides designing financial technologies that successfully reduce information asymmetries, it is important that financial technologies reduce agency costs for both the borrower and the MFO. Gonzalez-Vega *et al.* (1997) and Rodriguez-Meza (2000) highlight the importance of providing financial services that add value to the borrower-lender relationship. This is an important component of providing the necessary incentives for effective multi-period

contracts. The next section reviews some characteristics of financial technologies that add value to the client-lender relationship.

2.4 Value-Adding and Cost-Reducing Aspects of Financial Technologies

2.4.1 Short-term Loan Products

Best practice MFOs in developing countries tended to offer mostly short-term loan products with loan terms less than 12 months. They also have well-diversified portfolios, both geographically and across sectors, with few providing loans exclusively for agricultural purposes. Loan repayment policies have ranged from a standardised, rigid structure to fairly flexible repayment terms. Rigid repayment structures were mainly adopted to instil financial discipline amongst borrowers in group loans and to prevent borrowers from accumulating cash that could be spent on other activities (Christen *et al.*, 1994; Yaron *et al.*, 1997). Flexible repayment patterns allow loans to be tailored to a wide variety of activities and their typical cash flow patterns (Yaron, 1994; Gurgand *et al.*, 1994).

2.4.2 Reduced Transaction Costs

Best practice MFOs have reduced borrower transaction costs by establishing an extensive village-based branch network and making use of mobile banking services. Loan application procedures have been kept simple and short with minimal paper work being involved (Yaron, 1992; Chaves and Gonzalez-Vega, 1996). Loan approval times were within one to two weeks for new loan applicants, while repeat loans were approved within one to two days (Christen *et al.*, 1994). Fast loan approval times are facilitated by decentralised decision-making structures which characterise best practice MFOs (Yaron *et al.*, 1997). Decentralised decision-making

also facilitates the use of staff incentive structures. If a branch manager is being paid incentive wages, then some autonomy must be given over those performance variables that govern the remuneration (Chaves and Gonzalez-Vega, 1996).

2.4.3 Effective Staff Incentive Mechanisms

Successful MFOs have instituted staff incentive systems that reward staff for better performance in assessing, extending and collecting loans, and in promoting savings services. In many instances the salary including the incentive payment is much higher than what staff could earn in alternative employment, while the basic salary is lower than salaries paid to individuals with similar qualifications and experience in other employment. The additional gain that MFO employees receive as a result of the incentive payments over and above what could be earned in alternative employment opportunities is termed 'efficiency wages' (Chaves and Gonzalez-Vega, 1996). Raising the payment above the opportunity wage increases the cost of job loss to the employee. Thus, not only are staff given an incentive to make the right decisions but they value their position more than any alternative job in the labour market - this facilitates alignment of manager incentives to those of the lender (Chaves and Vega-Vega, 1996). Staff incentive schemes are less prominent in African MFOs (Gurgand *et al.*, 1994).

2.4.4 Quality Management Information Systems

A good management information system (MIS) also facilitates high MFO productivity and lower administration costs. Best practice Indonesian and Latin American MFOs are characterised by MISs which enable improved loan tracking, prompt reporting of loans that

are overdue, fast preparation of statements, better implementation of performance based remuneration and, in some instances, even facilitate the loan applicant screening procedure (Yaron *et al.*, 1997).

2.4.5 Savings Mobilisation

Savings mobilisation can contribute toward financial self-sufficiency in addition to being an important part of rural financial services. Savings can potentially reach far more clients than loans, yet few MFOs mobilise voluntary savings. Best practice MFOs in Africa such as the credit unions in Togo and Cameroon and the Banques Populaires in Rwanda, and BUD in Indonesia, have actively mobilised savings amongst the rural populations they serve and have achieved considerable success - evidenced by considerable growth in the volume and number of savings deposits, with BUD achieving a savings to loan ratio of 110 per cent (Yaron, 1994).

Mobilisation of savings was successful in part due to the extensive branch network (Banques Populaires and credit unions in Togo and Cameroon) and mobile banking services (BUD) offered by these MFOs that reduce borrower transaction costs in accessing the deposits. In addition, these MFOs actively collected savings on a regular basis. Both time and demand deposits were offered with the interest rates on demand deposits being lower. The success of BUD's savings programme is also due to the nature of the savings products which give depositors ready access to their money while still offering a positive real rate of return (Robinson, 1994).

While empirical evidence is not clear about whether higher interest rates induce more savings, it appears that safety and accessibility of deposits was a more important concern for rural poor depositing money in the credit unions in Togo, Cameroon and Banques Populaires in Rwanda. These institutions also require that borrowers must have saved for a certain time period (Rwanda) or accumulated sufficient savings (Togo and Cameroon) before loans were made (Gurgand *et al.*, 1994). A similar approach is followed by the village banking methodology where potential borrower groups mobilise savings that are deposited in a bank which then serve as collateral for loans which are made in some multiple of the amount deposited (Meyer and Nagarajan, 1997).

Savings can thus provide a channel for introducing individuals to other services offered by a lending institution, while also instilling financial discipline and providing useful collateral to lenders (Yaron, 1992). Savings also reduce dependence on donor funds, which are subject to variable availability, and political interference. While savings can reduce dependence on donor funds and give MFOs much more flexibility in determining own policy and pursuing financial viability, savings may not always be an optimal source of funds. Savings mobilisation necessarily involves administrative complexities and high costs (building staff capacity, time taken to mobilise voluntary savings and advertising costs) with MFOs also having to comply with prudential regulations. It is thus important that MFOs, as in the case of BUD, have the financial strength and institutional capacity to mobilise savings to be able to offer depositors security (Yaron *et al.*, 1997).

2.4.6 Appropriate Financial Policies

The 'new view' on the role of credit emphasises the need for MFOs to become self-sustainable, which implies permanence. This, in turn, implies being able to maintain the value of equity capital with profit (Schreiner, 1997). Permanence matters as it impacts on the incentives embedded in multi-period loan contracts. The threat of no future access to credit and better terms and conditions for future loan contracts have limited effect if borrowers perceive that the MFO is not permanent (Schreiner, 1997). Only a few MFOs have reached full financial self-sustainability, while most programmes have reached some degree of operational self-sufficiency (e.g., Grameen Bank in Bangladesh, African MFOs in Togo, Cameroon, Banques Populaires, Credit, Solidaire) (Christen *et al.*, 1994; Gurgand *et al.*, 1994). Financial viability matters because it allows MFOs to reach large numbers of rural individuals with continued financial services (Gonzalez-Vega, 1994). Key factors that contribute to financial viability include charging interest rates that allow the MFO to achieve a suitable interest rate spread, containment of administration costs, achieving high loan collections, and savings mobilisation (Yaron *et al.*, 1997).

2.4.6.1 Interest Rate Policy

Best practice Indonesian and Latin American institutions have charged positive real interest rates that compared favourably to the rates offered in the informal credit market. This is necessary to allow for appropriate risk-pricing and improved coverage of financial and administrative costs which are high for MFOs owing to the small loan size and relatively high turnover of the loan portfolio. In addition, interest rates should be high enough to maintain the

value of the institution's equity in real terms (Yaron, 1992; Chaves and Gonzalez-Vega, 1996; Schreiner, 1997). Interest rates charged also depend on the institution's scale of operations, organisational development and degree of market penetration (Riley, 1996).

An alternate option for MFOs is to charge low interest rates and continue to be subsidy-dependent. Such a strategy may be viable in the short-term, but ultimately is not sustainable because funds become embedded in the subsidy and cannot be used to expand operations of the MFO (Yaron, 1992; Christen *et al.*, 1994). The Grameen Bank has compromised on financial viability in an effort to reach large numbers of poor. This approach may be acceptable if the process achieves outreach and resources are available to fund the institution. However, high interest rates alone are not a sufficient condition to achieve financial self-sustainability low administration costs and high loan collections are also needed.

2.4.6.2 Controlling Administrative Costs

Controlling administration expenses is essential as they are determinant of the interest rate that MFOs must charge to break-even. Successful MFOs have shown a spread of administration costs which depend on the economic and financial environment in which they operate, the legal framework (interest rate restrictions), type of clientele served, access to concessional funds and the stage of maturity of the MFO or branch structure (Yaron, 1992; Riley, 1996). Rural credit programmes designed to serve the poor are notorious for their high administrative costs due to the relatively small loan size, frequent nature of transactions and staff training requirements.

Inexpensive retail outlets (a large fixed cost structure requires a minimum volume of transactions required to break-even), high staff productivity at branches (with an average of 200 loans per staff), not offering non-financial services, providing larger loans (in the case of BancoSol in Bolivia), offering simple and standardised loan and savings products, reducing the amount of paper work, and a well-functioning MIS have contributed to lower administration costs (Yaron, 1994; Chaves and Gonzalez-Vega, 1996; Riley, 1996; Yaron *et al.*, 1997).

2.4.6.3 High Loan Collection Rates

Achieving suitable high loan collection rates is also a necessary condition for an MFO to become self-sustainable. Best-practice institutions in Indonesia, Latin America and Africa have reported good recovery rates that are a result of the MFOs' ability to promote financial discipline amongst borrowers by providing strong incentives to repay loans via using suitable collateral substitutes and incentive mechanisms. Good MISs have also facilitated the monitoring of loan repayment performance, such that problem loans can be identified timeously and corrective action taken (Yaron, 1994; Gurgand *et al.*, 1994).

2.4.7 The Economic Policy Environment

Successful MFOs have been able to adapt not only to their clientele but have also found ways to cope with problems posed by the macro-economic environment. Low levels of inflation, stable exchange rates and financial reform proposals make it easier for MFOs to become self-sustainable and achieve greater levels of outreach (Bourne and Graham, 1983). Besley (1994) cautions against direct government intervention in developing countries credit markets based

on perceived market failures caused by information problems, enforcement difficulties, protecting depositors and market power, since it is impossible to be categorical that such interventions are justified. Governments probably need to develop complementary institutions that facilitate information flows, strengthen property rights, establish infrastructure to reduce market transaction costs and provide a legal framework that facilitates contract enforcement (Lyne, 1996). Direct government or donor support may be important *in the initial stages* of credit-first MFO development, but *should then be one-off grants targeted at institution building (such as adequate staff training and providing MISs)* (Yaron, 1992).

Subsidised interest rates can indicate to borrowers that the credit is a 'gift' or welfare transfer that does not have to be repaid while also encouraging less profitable investments, which severely undermines financial viability. The best practice Indonesian MFOs received an initial endowment to capitalise them, but this was NOT followed by the expectation of additional injections of resources (Chaves and Gonzalez-Vega, 1996). The Bank Rakyat Indonesia is a prime example where donor support did not create organisational dependency, while active savings mobilisation became the driving force behind BUD's expansion.

Once-off subsidies can thus improve the future viability of MFOs, not only through increased solvency, but through building institutional efficiency by influencing the behaviour of managers and borrowers who perceive the institution to be permanent (Chaves and Gonzalez-Vega, 1996). African MFOs such as the credit unions in Togo and Cameroon and Banques Populaires were established on the savings-first principle and rely on deposit collection as their prime activity. These MFOs have grown slower and reached lower share of the target population initially because of the timely nature of savings mobilisation. However, the relatively slow growth has led to sound institutional development. Greater reliance on savings

by both African, Asian and Latin American MFOs has lead to less dependence on outside funding which is often linked to political motives and the availability of fiscal resources in a given year. In addition, African and some Asian MFOs (BUD, GB) had independent governing and auditing bodies that were free of political interference (Gurgand *et al.*, 1994).

2.5 Concluding Comments

Successful MFOs have managed to overcome information asymmetries and loan contract incentive and enforcement problems by employing innovative loan applicant screening and loan monitoring procedures that involve local community structures and self-help groups. They have made effective use of collateral substitutes such as joint liability mechanisms relying on peer pressure, warehouse receipts, co-signers, savings and reputational capital to overcome contract enforcement and incentive problems. Financial technologies have been improved with decentralised decision-making structures combined with an extensive branch network and loan and savings products that meet the needs of the clientele. While not all best practice MFOs in developing countries have reached full financial self-sustainability, most have attained some degree of operational viability. Flexible interest rate policies are important in enabling these institutions to cover their operating costs.

Best practice MFOs have also been able to control their administrative costs while achieving high loan collection rates, which further improves financial viability. Good management information systems are important to facilitate financial control and loan tracking. Although donor funding has been important in establishing many successful MFOs, it seems that this funding should be aimed at the institutions and not the borrower, and be phased out over a definite time period. Savings mobilisation has been actively pursued by successful MFOs and

helps to reduce dependence on donors and to provide a more complete financial intermediation system. Attempts to replicate the mode of operations of successful MFOs in other developing areas to improve access by low-income households pose a major challenge. A solution that functions adequately in one socio-economic environment, where a specific set of social values exist, may not be suitable in providing rural financial services in another socio-economic environment (Yaron, 1992; Gurgand *et al.*, 1994). Social mechanisms used by many of the successful MFOs to overcome information asymmetries and contract enforcement problems require careful consideration. Local cultural barriers, population densities, and existing physical and human infrastructure may make it difficult to implement such an approach (Yaron, 1992). Group lending technologies, while suitable for smaller short-term micro-enterprise loans, may be difficult to implement for larger medium- and long-term loans which tend to be more individual specific (Gurgand *et al.*, 1994; Riley, 1996).

Gonzalez-Vega (1998) highlights important future challenges for current and new MFOs that can be grouped into four categories, namely: coping with systemic risks; increased competition; excessive regulation, and the return of the state. Systemic risks result from events that simultaneously affect all clients of an MFO and all MFOs in a given sector. Macro economic disequilibria, political instability, and unpredictable weather patterns are factors contributing to systemic risk. Only those MFOs with well-diversified portfolios and established credit lines can survive exogenous shocks brought on by systemic risk. The increased success of MFOs in profitably serving microfinance markets has attracted new actors. Commercial banks in South Africa, through acquisitions of MFOs, have shown increased interest in becoming involved in this sector. While increased competition encourages efficiency, it can also impact on a key area of contract design on which many

successful MFOs have been built. Increased alternative sources of credit make it harder to enforce contracts and incentivise borrowers with a gradual improvement in the terms and conditions of the loan contract. Loan repayment may no longer reflect the true repayment performance, since borrowers may use money borrowed elsewhere to repay their loans. To address contractual risks, MFOs will have to revisit the incentive structures built into their contracts.

Increased competition may also bring increased loan repayment tolerance levels. The success of controlling *ex post* moral hazard has been based on the denial of future access to credit. Where weakened tolerance levels are built into this mechanism, loan default is difficult to control. Successful MFOs have had zero bad payment tolerance (Gonzalez-Vega, 1998). This raises the question of whether or not the regulation of MFOs may be desirable. Gonzalez-Vega (1998) argues that some degree of regulation is justified for deposit-taking institutions, since appropriate regulation that cannot be enforced is just as harmful. He further cautions most against intervention by the state in microfinance markets, as historical interventions that have targeted subsidised credit at low-income individuals to alleviate poverty and stimulate economic growth in developing areas, have seldom achieved their objective. At best, the role of the state should be to establish an institutional framework that reduces the transaction costs of market participants.

Given the above review of the characteristics of successful MFOs, the next chapter outlines past government-supported rural and urban finance programmes in SA, focusing on credit programmes, recommendations by the Commission of Inquiry into the Provision of Rural Financial Services (Strauss Commission), current developments and key future challenges.

CHAPTER THREE

MICROFINANCE MARKETS IN SOUTH AFRICA - PAST POLICIES AND FUTURE DIRECTIONS

The first section of this chapter reviews the function and pitfalls of targeted credit programmes that were implemented to encourage economic development in low-income rural and urban areas of SA. Limited outreach and continued subsidy dependence by development microfinance institutions in SA resulted in a review of these programmes and the adoption of the principles of the 'new view' of the role of microfinance institutions. The emergence and adoption of the 'new view' in SA is discussed in section two while sections three and four outline some the key challenges facing microfinance in SA.

3.1 Traditional Credit Programmes in South Africa

A large number of small entrepreneurs and low-income households (50% - 60%) experience limited access to formal financial services in South Africa (Porteous, 2003). Past government social and economic policies prevented them from accumulating suitable asset bases to be able to meet conventional credit conditions required by formal financial intermediaries (Coetzee *et al.*, 1993a). Low-income households and small entrepreneurs had to rather rely on informal lenders such as friends and family and township lenders to meet their financing needs (Schoombe, 1998; 1999). Commercial banks offered savings facilities, but were hesitant in providing credit due to the high risks associated with lending to this sector as a result of insufficient or absent collateral (poorly defined property rights and low wealth levels), poor financial record-keeping, and high transaction costs of granting small loans (Coetzee and Vink, 1991; Christodoulou *et al.*, 1993).

Low levels of liquidity and limited access to finance have been identified as important constraints faced by small farmers and small- and medium-scale micro enterprises (SMMEs) in SA (Fenwick and Lyne, 1999; Schoombe, 1999). This led to initiatives by the SA government in the early 1980s to actively intervene in microfinance markets, based on the premise that subsidised credit was needed to give the poor better access to support services and to motivate productive investment and technology adoption by providing low cost funds. In addition, it was assumed that low-income individuals were too poor to save to finance own investments (Coetzee and Vink, 1991; Coetzee *et al.*, 1993b; Coetzee, 1995). Targeted, sector-specific rural development programmes, such as the Farmer Support Programme (FSP), were launched as part of SA government initiatives to promote structural change, based on the assumption that this change could be achieved by supplying a comprehensive set of support services including subsidised credit to economically and geographically isolated areas (Singini and Sibisi, 1992).

Problems experienced with targeted credit programmes in other developing countries also emerged in these SA initiatives. The provision of finance followed a supply-driven approach by institutions with highly specialised loan portfolios established between 1975 and 1985 by the SA government. These included MFOs such as the Ithala Finance and Investment Corporation (Ithala), Agriwane, Agricultural Bank of the Transkei (ABT), Agricultural Bank of the Ciskei (ABC), and Agribank, as well as, Development Finance Corporations (DFCs) such as Gazankulu Development Corporation (GDC), KwaNdebele National Development Corporation (KNDC), KwaNdebele Agricultural Company (KAC), KwaNdebele Utility Company (KUC) and the Northwest Development Corporation (NWDC) (Coetzee and Vink, 1996).

These financial institutions operated in geographic-specific areas, which resulted in focusing specifically on financing agricultural activities that were vulnerable to covariant risks, which undermined their financial self-sustainability. Relatively high administration costs were incurred due to technical assistance offered by these institutions, in addition to providing credit. These MFOs were also plagued by relatively high infrastructure fixed costs and complex financial technologies that were not geared to reducing agency problems and transaction costs (Coetzee and Vink, 1991; Strauss Commission, 1996a).

These government-supported MFOs had limited client outreach and relatively low productivity. Average loan sizes were relatively large (R2 700 to R43 000 - LB and ACB not included) and branch networks small, while the mean loan-to-staff ratio of 98 was low compared to the norm of approximately 200. These MFOs also had poor loan recovery records with high arrears (mean arrears = 20 per cent by volume), particularly in the institutions that focused only on agriculture (mean arrears of 25 per cent by volume). Contract enforcement was difficult due the absence of tangible collateral such as land (no secure and transferable property rights in tribal areas of South Africa), a costly legal system and the developmental focus of MFOs (which made MFOs less willing to enforce loan contracts). MFOs also did not have suitable information systems and screening procedures to adequately assess borrower repayment capacity and to track loan repayment performance (Coetzee and Vink, 1991; Strauss Commission, 1996a).

Savings mobilisation was largely neglected with only Ithala and ABC actively mobilising savings. The lower subsidised interest rates that they charged did not reflect the true cost of lending, further undermining financial viability of the MFOs (Coetzee *et al.*, 1993a). The net

effect was that these institutions tended to crowd out the private sector, and became dependent on continued state subsidies as evidenced by the high subsidy-dependence indices ranging from 54 to 808 per cent (LB and ACB excluded) (Coetzee and Vink, 1996). Little attention was given to the scope of financial service requirements and the inherent costs of credit to borrowers. Cash tended to be disbursed in kind, with MFOs situated further away from clients than informal lenders. They required a greater number of visits (often double the number) and had much longer average loan approval times (60 days, compared to eight days) than informal lenders, due mostly to centralised decision-making structures. This increased both the direct (travel costs and commissions) and indirect (opportunity cost of time) borrower transaction costs in accessing credit, further limiting the ability of the MFOs to reach the rural poor (Coetzee and Vink, 1991; Coetzee, 1995).

Although credit was targeted for the purchase of inputs, few used this credit as the need for production finance amongst subsistence households tended to be low. More use was made of own savings, with family and friends being preferred as alternate sources of informal finance. In addition, credit provided by these MFOs gravitated to surplus-producing households who had larger tracts of land and higher family incomes to service the loan repayments (Ortmann and Lyne, 1995; Coetzee *et al.*, 1993a). Elements other than credit, such as insecure property rights, adverse weather and cost and availability of inputs, were major constraints to production, while access to extension services in many rural areas was poor (Fenwick and Lyne, 1999). Blanket approaches to credit provision did not, therefore, seem to have the desired effect of promoting technology adoption and development in rural areas of SA and raised doubt as to whether production credit was the real constraining factor to economic development (Ouattara and Graham, 1996; Fenwick and Lyne, 1999). The need for

consumption credit, transmission and savings facilities tended to be more important for subsistence producers.

Some non-government organisations (NGOs), such as the Financial Aid Fund (FAF) of the South African Sugar Association (SASA), Rural Finance Facility (RFF), Social Enterprise Foundation (SEF), Get Ahead Foundation (GAF) and Village Banks (VB) were able to reduce some of these transaction costs by operating closer to the clients and using simpler financial technologies with suitable collateral substitutes such as joint liability mechanisms. However, most focused mainly on financing non-farm micro-enterprises, with FAF being the only NGO making exclusively agricultural loans. Few NGOs provided voluntary savings facilities, with only VB actively engaged in savings mobilisation.

While these institutions serviced much poorer clientele, as shown by the small average loan sizes, the scale of outreach as indicated by relatively low number of branches and small client base was fairly limited (a survey of 13 NGOs showed these to collectively have fewer than 24000 clients) (Schoombe, 1999). The productivity of these NGOs was good, and arrears were moderate ranging from 1,6 per cent to 25 per cent. Although these NGOs charged relatively high nominal interest rates (36 per cent to 46 per cent per annum), they had relatively high administration costs as many of them were recently established and thus had not achieved a sufficient scale of operations, and due to the type of clientele they served (small and frequent loan disbursements) (Strauss Commission, 1996a).

Commercial banks, while having an extensive branch network, provided largely transmission and savings facilities rather than loans. Banks registered as Mutual banks were only established in 1995, and focused largely on small business and housing loans. TEBA Cash

has branches in the hostels of major mines and in rural areas where it provides transmission and savings services to the mine workers and their dependants. It has achieved a considerable scale of operations and outreach, serving approximately 700 000 savings accounts (Strauss Commission, 1996a). Thus, microfinance markets in SA tended to be segmented and under-serviced with government-funded supply-led institutions providing targeted credit while private sector institutions mobilised savings. Recognising the shortcomings of micro credit programmes in SA, policy proposals more akin to the new institutional view on rural credit outlined in section 1.3 above began to receive attention in the mid 1990s.

3.2 The New View on the Provision of Microfinance in South Africa

New policy proposals focused on the provision of broad-based, demand-driven microfinancial services (termed the financial systems approach), rather than concentrating on sector-specific credit aimed at promoting technology adoption. The underlying premise was that all clients do not have the same needs, resources and sources of income. Financial technologies should be adapted to clients' needs, with the provision of more flexible loan and savings products catering for business and consumption financing needs (Coetzee, 1995). Borrower transaction costs should be reduced through better accessibility and quicker loan approval times facilitated by decentralised decision-making, simpler administrative procedures and better developed MISs. The financial viability of the MFOs was emphasised with subsidised interest rates being strongly discouraged (Coetzee *et al*, 1993a; Coetzee *et al*, 1993b). A need to greatly improve loan repayment by reducing information asymmetries through improved loan tracking systems, screening procedures and loan contract enforcement was also identified to further promote financial viability of MFOs. Savings mobilisation should not be ignored and

should form an integral component of future MFOs in South Africa (Christodoulou *et al*, 1993; Coetzee, 1995).

This new view of the role of microfinance required a review of the role of government in rural finance. Two views on the role of government exist within the rural finance literature: a non-interventionist and an interventionist view. The non-interventionist view argues for the removal of interest rate restrictions and the elimination of state development banking to allow the competitive market to be the driving force in the growth of financial intermediation. The underlying premise was that growth in the financial sector would ultimately benefit rural areas, although indirectly (Krafft, 1996).

The interventionist approach argued that government intervention, based on perceived credit market failures to encourage technology adoption and to offset years of discrimination in access to resources, was justified. Such intervention, however, had limited success as evidenced by the poor performance of the cited MFOs and the inability of the sector credit programmes to bring about substantial economic development and technology adoption (Krafft, 1996). While market failures are said to occur when the competitive market is unable to bring about a pareto-efficient allocation of credit, this definition assumes away the presence of asymmetric information and positive transaction costs in rural financial markets (Besley, 1994). Thus, a standard of efficiency impossible to achieve in the real world is not a useful test against which to define market failures. Instead, Besley (1994) defines a constrained pareto-optimal criterion accounting for information, incentive and enforcement imperfections. The point at which this condition is violated and market failure occurs is less clear, and blanket state intervention based on the inability of credit markets to achieve constrained pareto-optimality, given the current status of empirical evidence, becomes

difficult to justify (Besley, 1994). The extent of government intervention thus lies somewhere between these two extremes with no fully accepted view on appropriate levels of intervention.

Lessons for SA that emerged focused on developing the right framework for successful rural financial intermediation. Emphasis was placed on developing 'good' institutions that are based on clearly defined property rights and sound contract enforcement, rather than trying to address non-credit problems with subsidised credit (Coetzee, 1994; Krafft, 1996). While initial state support may be required in establishing and facilitating growth of current MFOs, this intervention should be temporary and in the form of infrastructural improvements only. Government intervention should not crowd out the private sector but rather create a favourable economic environment in which it can operate. Trade, legal and regulatory constraints should be removed and property rights, infrastructure and education levels improved, making information accessible, contract enforcement more credible and lowering transaction costs (Besley, 1994; Fafchamps *et al.*, 1995; Krafft, 1996). Savings mobilisation should form an integral component of future rural finance institutions (Coetzee, 1994).

These policy proposals regarding future direction of rural finance in South Africa formed the basis of the work of the Strauss Commission in 1996. The Commission was established to investigate the provision of financial services within the context of the SA Governments Reconstruction and Development Programme (RDP) objectives and to make recommendations for future policy, legislative and institutional measures to improve rural finance. The recommendations of the Commission broadly encompass three areas: the financial environment, the legal environment and policy implementation.

Both the interim and final reports of the Strauss Commission emphasised the need for promoting access to a broad range of financial services with specific emphasis given to savings mobilisation, transmission services, housing, trade, agricultural and consumption-related finance (Strauss Commission, 1996b). While these proposals were in line with the new institutional view of credit, the SA government still regards as one of its key responsibilities the channelling of resources to strategically targeted areas such as the support of SMMEs (DTI, 1998). While SMMEs and poor individuals may be credit-constrained, financial markets can only indirectly contribute to economic development and income growth. Constraints other than access to finance that create sufficient incentives for rural individuals to invest need to be addressed first. These include factors already mentioned in Chapter 2 such as the development of secure and transferable property rights, infrastructural development and legal certainty to reduce market transaction costs for all rural participants, including women (Gonzalez-Vega, 1994; Lyne, 1996).

In addition, loans in rural areas of SA are not only needed for productive investment but are intimately linked to inter-temporal consumption smoothing. Hence the less interventionist approach could, create an environment such that private lending institutions are encouraged to become more active in micro-financial markets. Commercial banks already had an extensive branch network and had indicated their willingness to become more involved in rural finance, provided rural infrastructure is improved, contract law is enforced and adequate crime prevention measures are instituted (Fuchs, 1996; Krafft, 1996).

The interim report of the Strauss Commission focused much on the development of multisectoral institutions which are well-diversified and give equal emphasis to savings mobilisation and credit, given assessments of targeted SA credit programmes, such as the

FSP, and international experience. The Commission recognised the efforts of NGOs but argued that these local level institutions, with the exception of commercial banks, were small and had a narrow focus in terms of clientele and geographic spread (Strauss Commission, 1996a; Strauss Commission, 1996b). The absence of commercial financial institutions in developing markets in SA is seen as a constraint to increased SMME investment in rural and developing urban areas. The importance of private sector involvement in supporting small business has been acknowledged, as government resources alone are not sufficient for small business support.

The SA government has taken several measures to try and increase private sector participation in micro credit markets, with particular emphasis on providing financial services to SMMEs and emerging farmers. These include exempting certain money lending transactions from the Usury Act (Act No. 73 of 1968). Such transactions included loans under R6000, repayable over 36 months or less where such loans are not paid out in terms of a credit card scheme. State funded institutions such as Khula Enterprise Finance (Khula) were established to act as wholesaler providing services to financial institutions serving small business and micro entrepreneurs. Importantly Khula offers a credit guarantee scheme that covers 60% of a financial institution's exposure to SMMEs (Schoombe, 1998).

The credit guarantee scheme did not result in commercial banking institutions increasing their exposure to designated sectors such as SMMEs. Although commercial banks had indicated a willingness to participate in the sector, the absence of suitable financial technologies to operate in this market, cost pressures, and the perceived high risk of micro enterprise were major constraints to commercial banks operating in this sector. Commercial banks tended to opt for granting larger (greater than R50 000), more cost-effective loans at lower interest rates

with collateral. Commercial banks were also reluctant to charge high interest rates due to the negative perceptions associated with expensive credit (Schoombe, 1998; 1999). Importantly, development finance institutions and NGOs such as Ithala, FAF (now called Umthombo Agricultural Finance) and SEF continue to play a meaningful role in the microfinance landscape. Umthombo Agricultural Finance provides finance to small-scale sugarcane growers who do not have access to normal credit facilities and has advanced a total of R344 million in loans (Bates and Sokhela, 2003). The Land and Agricultural Bank of South Africa (Land Bank) has also entered the development finance arena and has provided loan finance to more than 90 000 small-scale farmers and rural households since 1995 (Coetzee, 2003). Providing financial services to SMMEs and low-income urban households remains a challenge with few microfinance organisations penetrating this segment on a large-scale. Commercial banks remain hesitant given the risks and the costs while NGOs such as the Get Ahead Foundation (provides finance to SMMEs using group loans) have been plagued by administrative problems. To better understand the mechanisms that have shaped the microfinance landscape in SA and the challenges and current issues that SA microfinance institutions face, it is important to review the laws and recent amendments to laws that govern the microfinance policy environment in SA.

3.3 The Microfinance Policy Environment

A number of laws relating to banking, consumer protection and customary law have directly or indirectly affect the operation microfinance institutions. The Banks Act provides the necessary framework for the regulation and supervision of businesses accepting deposits from the general public. The Act focuses on risk management and has stringent capital adequacy and liquidity requirements, which makes it difficult for MFOs to comply with its

requirements. The provision of credit to high-risk borrowers with low incomes and little security is, therefore, not its main focus, while it also prohibits deposit mobilisation by any institution unless registered under the Banks Act. Certain institutions such as Stokvels and Credit Unions have been exempted from the provisions of the Banks Act provided that they belong to an umbrella body, while non-government organisations and other private lenders have not been exempted (Strauss Commission, 1996a).

The Banks Act, therefore, largely limits the ability of MFOs to become formal financial institutions with deposit mobilisation capability. The Mutual Banks Act, although making provision for non-traditional lenders through less stringent capital adequacy requirements and allowing for deposit mobilisation, has not evoked much support from non-traditional lenders. Unwillingness to compromise independence, the perception by low-income clients that banks are not client-friendly, staffing, reporting, capital adequacy and liquidity requirements, and the formality of the banking culture were reasons given by non-traditional lenders for this (Strauss Commission, 1996a).

Other legislation includes the Reserve Bank Act and Financial Services Board Act pertaining to the supervision of financial institutions, which, although important in maintaining credibility within the financial service sector, may induce inflexibility and high transaction costs on the operations of MFOs. Thus, most non-traditional lending institutions cannot take deposits from the general public and have mostly registered as companies or as associations not for gain (section 21 companies). Various provincial development corporations have been established in the former self-governing territories in terms of legislation adopted by the provinces (Strauss Commission, 1996a). While this legislation prevents these institutions from operating outside their respective provinces, thereby affecting outreach potential,

amendments to the legislation have allowed some institutions to mobilise savings – notably Ithala.

There are also several laws relating to consumer protection that affect the operations of MFOs. The Usury Act, which applies to all money-lending transactions, requires disclosure of information on certain lending transactions and also places limits on finance charges that may be recovered. The disclosure requirements relate to the loan amounts, interest rate, total finance charges and reporting obligations to the borrower. A maximum amount on the finance charges recovered was set at 29% for any money-lending transactions over R6000, and 31% for money-lending transactions under R6000 at the time of the survey in 1997. The interest rates changed several times during the study period. In April 2000 the limits were revised downward to 25% per annum for loans of R6000 or less and 22% for loans greater than R6000. Toward the end of 2002, the rates were 29% in respect of loans below R10000 and 26% for loans above R10000. This interest rate cap affects those MFOs that operate within the bounds of the Usury Act and may impact on their ability to reach full financial self-sustainability. Interest rate caps elsewhere in the developing world have generally not worked and evidence suggests that the individuals they try to protect are generally worse off (Gonzalez-Vega, 1984).

With growing concern in government that specifically micro entrepreneurs were not gaining access to formal financial services and concerns amongst financial institutions about high costs and risks of servicing this sector, an exemption was introduced into the Usury Act of 1968 in 1992. In terms of the exemption, the following money lending transactions were exempt from the Usury Act: 1) the loan term did not exceed 36 months; 2) the loan was not paid out in terms of a credit card scheme; 3) the loan was not withdrawn from a cheque

account held at a deposit-taking institution; 4) the loan amount did not exceed R6000. The loans were also subject to a three-day 'cooling-off' period during which the lender was not to levy any fees should the borrower wish to terminate the loan contract (Mlambo-Ngcuka, 1997).

These exemptions were initially created to promote financial intermediation and, specifically, lending activities aimed at high-risk, rural and urban micro-enterprise activities. However, the viability of lenders providing larger, relatively high-risk, long-term rural credit was still affected by the interest rate restrictions imposed by the Usury Act as they could not comply with the exemptions. Exemptions from the Act also tended to favour micro-lenders operating in an urban environment offering small, short-term loans, rather than agricultural lending where relatively larger loans are required to cover establishment and operating costs of agricultural investments. While the Usury Act may place ceilings on interest rates, international evidence suggests that lenders are able to recover costs through non-financial charges, while *access* to credit - and not its cost - is what matters to small borrowers (Ladman, 1984).

With the promulgation of the exemption to the Usury Act of 1968, micro-lending institutions providing consumption credit to formally employed, low-income earners, rather than financing small business, grew rapidly. This rapid growth in the provision of consumption credit sets South Africa apart from other developing countries where the microfinance landscape is characterised by financial institutions that provide financial services to mostly small businesses. This can be linked to the type of financial innovations that evolved amongst MFOs with regard to assessing and managing the risk of lending to micro entrepreneurs. It was much easier and cost effective for microfinance institutions to provide consumption

finance to the very prevalent and well-developed formally employed sector. Slow economic growth, unstable exchange rates and high nominal and real interest rates may have also hampered small business from showing suitable growth and thus the potential to be offered financial services such as loans. In other developing economies such as Bolivia, Bangladesh, Kenya, and Uganda, the formally employed sector is largely absent, with their economies being characterised by informal businesses. Hence the financial technologies of MFOs operating in these economies had to focus on servicing this sector.

Large increases in the supply of consumption credit and concern in government that low-income employed individuals were being exploited resulted in the exemption to the Usury Act being amended in June 1999. The amendments increased the threshold of loans being exempt from the Act from R6000 to R10000. Importantly the government added a requirement that in order for a MFO to conduct financial transactions under the revised exemption notice, such an MFO had to be registered with the Micro Finance Regulatory Council (MFRC) (Government Gazette Notice No. 713, 1999).

The MFRC was mandated to monitor financial institutions conducting business in terms of the exemption, to ensure that borrowers were not being over-indebted and charged unduly high finance charges, and that the MFO sector remained sustainable to serve the financial needs of individuals not qualifying for commercial credit (MFRC, 2003). An important compliance rule that was introduced by the MFRC to better monitor financial transactions was the National Loans Register (NLR) in November 2000. In terms of the regulation all MFOs registered with the MFRC have to submit data with respect to the inquiries made by loan applicants, loans granted, the finance charges levied and the performance of the loans granted to each borrower. This data would then be made available to all registered MFOs to

assist in the risk assessment of credit granting decisions, and to obtain an overall indication of the indebtedness of the loan applicant. The NLR is thus effectively a credit bureau, but the most important thrust was to make MFOs aware of the *total debt situation* of loan applicants in order to prevent borrowers being over-indebted.

This legislation can have far reaching credit sales implications for MFOs in a sector that is already highly competitive. The added administration costs of the regulation may also put pressure on financial margins in a relatively competitive environment. Two issues with this legislation remain: Firstly only registered MFOs have to comply. MFOs can deregister and then fall under the ambits of the Department of Trade and Industry (DTI) in terms of supervision. The DTI has minimal policing capabilities; Second, most of the MFOs at the time of this study were not able to submit data to the NLR, which defeats the object of information-sharing.

With further reference to credit bureaus, the DTI has proposed amendments to the Consumer Affairs Act in as far as information submitted to and held by the credit bureaus is concerned. The DTI proposals focus on four key areas: the correct submission of information to credit bureaus; informing loan applicants of adverse data on the bureau if this was the reason for rejecting the loan application; providing a mechanism for individuals to query the information on credit bureaux and that this information may not be published while it is being contested; and that the existing limits on how long information is retained by the bureaux be maintained (Personal Finance, May 2003). A positive outcome of these proposals is that the length of time for which default data is held by the credit bureaux remains unchanged. Changing this period can have far reaching implications for the use of reputational capital in the credit market. Focusing more on the correct provision of consistent credit data is imperative as the

lack of consistent data is a problem in the SA microfinance industry. This was very evident when the author analysed the data provided by credit bureaux for the loan default analysis in Chapter 6 and Chapter 7.

Different lenders have different ways of calculating loan delinquency with some having low tolerance levels and some high tolerance levels (clothing and furniture retailers regard a payment as low as 60% of the instalment to be a full payment). Some lenders will list a default much earlier in the loan cycle than others. With such inconsistency in the information it becomes difficult to make a true and objective assessment of the borrowers credit history. Increasing competition in the credit market has also prompted lenders to become more lax in their granting criteria. These phenomena reduce the powerful incentives of reputational capital and present a unique challenge to lenders going forward (Gonzalez-Vega, 1998).

The Credit Agreements Act and Lay-By Regulations further regulate instalment sale and lay-by agreements in terms of disclosure requirements, rights of ownership and imposition of duties and duration of agreement in the case of lay-bys (Strauss Commission, 1996a). The Security by Means of Moveable Property Act allows moveable property to be used as security if a notarial bond is passed over it, while the law pertaining to the provision of security of money-lending transactions in terms of cessions (including insurance), suretyship and pledges is largely contained in common law which is based on Roman Dutch Law. The Pension Funds Act allows the withdrawal benefit of a member to be used as loan security for housing purposes only (Strauss Commission, 1996a).

The Development of Trust and Land Act 18 of 1936, which vests authority over the land in the chief acting on behalf of the tribe, governs land tenure in the former homeland areas of

KwaZulu-Natal. In addition, two State President proclamations, R293 of 1962 and R188 of 1969, also govern land tenure with proclamation R188 specifically relating to land outside townships. The latter provides for quitrent tenure and permission to occupy (PTO) (Thomson and Lyne, 1993). These forms of tenure are recognised by national law, and individuals living on land allotments in tribal areas may obtain PTO certificates sanctioned by national law to show proof of residential right to the land.

Tribal authorities cannot formally evict a household from its allotment unless permission has been obtained from a magistrate's court. However, in addition to national law, customary law is also applicable to tribal areas with the 1988 KwaZulu Land Bill and the KwaZulu Chief and Headmen's Act of 1974 ensuring allegiance towards the tribal authority by the tribe. In terms of customary law, an individual is only given usufruct rights to the land and may not mortgage or sell the property (Lyne and Nieuwoudt, 1991). If allegiance is not shown, the tribal authorities may dispossess households from their land. Thus, while national law may support PTOs as a form of collateral, research by Thomson and Lyne (1993) shows that tribal authorities still exercise sovereign control over tribal land. Hence, usufruct rights apply to land, and reversals of PTO certificates have been common, nullifying their use as collateral.

The contractual capacity of women subject to customary law is also limited in SA since they do not have legal capacity to receive a loan or to offer family property as collateral. In terms of customary law, the male household head represents the family, and women have generally been deprived of proprietary and contractual capacity. While black women married by civil law after October 1988 may choose to enter into certain contracts, there are restrictions in terms of acquiring immovable property and entering into credit agreements. Permission from and signatures by the husband are generally required, which may limit access by these women

to rural financial services, including savings mobilisation, while potentially also increasing the transaction costs of enforcing loan contracts (Strauss Commission, 1996a). Given the legal framework and institutional constraints, the following section outlines key challenges of the microfinance sector in SA.

3.4 Current Microfinance Issues in South Africa

The emergence of the SA micro-lending sector and its considerable growth within a short period of time has had major implications for access to credit, particularly by employed low-income individuals. The combined balances outstanding of all registered lenders totalled R15.2 billion at the end of 2002 with a total clientele of 4.898 million. A total of 2.7 million loans had been disbursed during 2002 totalling R3.03 billion. The total number of branches of registered micro-lending institutions was 6798 (Micro Lending Industry Statistics, December 2002). By outreach standards, these levels are relatively high. The funds borrowed by these clientele are mostly used for buying food, consolidating debts, paying for school fees and traditional ceremonies, and providing working capital for small businesses (du Plessis, 1997). The extent to which the funds are used to finance small business is difficult to establish, but the consumption and liquidity management needs of low-income individuals were met by the (legal) emergence of this sector.

The financial technologies used by micro-lenders were collateral-based and relied heavily on a collateral substitute – the individual's bankcard. These cards, together with the individual's PIN numbers were retained by micro-lenders, and money for the loan repayment withdrawn on the due date (du Plessis, 1997). Although loan repayments were almost guaranteed, borrowers could always change bank accounts. Term lenders also negotiated with employers

to deduct the loan repayment directly from borrowers' salaries. This mechanism of loan collection became particularly popular for government employees and resulted in considerable debt accumulation which led the SA government to limit the amount of debt that could be deducted from a government employee's salary to 25% of basic salary (Makhari, 2002). This resulted in many micro-lenders having to refocus their collection mechanisms to rely on preferred debit orders on clients accounts.

Financial technologies did not focus on gathering and processing information on loan applicants nor on developing suitable incentive mechanisms into loan contracts to encourage borrowers to repay the debt. Although formalisation of the micro-lending industry through the MFRC helped improve the image, there were still concerns that the high interest rates charged (ranged between 60% and 1000% effective per annum) were resulting in borrower over indebtedness (DTI Interest Rate Study, 2000). A study commissioned by the Department of Trade and Industry (DTI) recommended against imposing interest rate restrictions, as higher interest rates were required to cover costs and risks associated with operating in a relatively high-risk sector (DTI Interest Rate Study, 2000). The study also concluded that an interest rate cap would harm low-income borrowers the most, as they would be the first to be rationed out of the credit market under such a scenario.

A study on borrower indebtedness conducted by Ebony Consulting International and the University of Cape Town Development Policy Research Unit in 2001 found that the level of indebtedness of low-income households was relatively low when compared to high-income households. While low-income households had relatively lower levels of debt, the study found that these groups have low levels of liquidity which limit debt repayment capacity. This increases the vulnerability of these groups and the likelihood that they could fall into a debt

trap – continually borrow more to repay existing debt (ECI and DPRU, 2001). Hence, rather than being over indebted, borrowers were more likely to be caught in a debt trap as a result of low levels of liquidity where liquidity impacts on ability to repay. Although the NLR was put in place to monitor debt levels, the current information on the NLR is not reflective of all the micro-lending debt in SA.

Growth rates in the level of service provision to SMMEs and small emerging farmers have not matched those for the micro-lending sector in SA. The SMME sector is regarded as an important employment-generator, supporting a large portion of previously disadvantaged communities. The growth and sustainability of this sector is thus regarded as vital by the SA government (Schoombe, 1999; DTI, 1998). While informal financial institutions and NGOs were seen to play a role, commercial banks were regarded as key players in the provision of financial services on a sustainable basis due to their ability to provide savings and their existing extensive branch network (Schoombe, 1998; 1999).

Several options of how to involve the commercial banking sector in SMME finance were explored by Schoombe (1998; 1999). These included establishing specialised micro-banking institutions like BancoSol in Bolivia, establishing specialised micro-lending divisions within banks, and interlinkages with informal financial institutions. Building a specialised microfinance institution was not considered viable although the conversion of an existing NGO or private lending institution was an option. Several commercial banks, notably ABSA, Nedcor and Standard Bank have established specialised divisions. ABSA has Nubank, Nedcor established People's Bank and Standard Bank, E-Plan. These divisions, however, focused mainly on lending to individuals earning a fixed salary.

Standard Bank established a small pilot project in four townships where small loans were granted to SMMEs in 1993. This project was abandoned in 1996 due to high administration costs and the unwillingness of the bank to charge higher interest rates that attract unfavourable publicity. Nubank was the only specialised division that charged high interest rates to cover the cost spread. Schoombe (1998) concluded that for specialised banking divisions to be successful they must charge appropriate interest rates. Trading under the same name as the parent company may hamper this process as both Standard Bank and People's Bank have found out.

Schoombe (1998; 1999) strongly recommends the linking of commercial banks with informal financial institutions such as self-help groups. The advantages are that the bank does not bear the responsibility of screening and monitoring borrowers, which has been regarded as a major impediment to commercial banks becoming involved in the SA microfinance sector. First National Bank established the People's Benefit Scheme in 1992, which was a linkage system to stokvels. While this scheme successfully mobilised savings, it disbursed very few loans. Schoombe (1998; 1999) attributes this to the absence of an intermediary between the stokvels and the bank to assist in locating SMMEs and introducing these to the scheme. First National Bank (FNB) subsequently abandoned the People's Benefit Scheme in 1997.

Schoombe (1999) attributed the failure of the commercial banking ventures to the unwillingness of banks to charge higher interest rates due to political risk, the low loan size at which the Usury Exemption becomes applicable and the lack of exploring suitable financial technologies to become better facilitate financial service provision. The DTI interest rate study (2000) came to similar conclusions citing the lack of suitable financial technologies to extend financial services to SMMEs and emerging farmers as a potential problem in the

micro finance market in South Africa. Both Schoombe (1999) and the DTI interest rate study (2000) proposed an increase in the Usury Act exemption loan limit to possible R25 000 as a mechanism to further incentivise commercial banks to provide finance to the SMME sector.

While commercial banks have been less successful in extending financial services to SMMEs, their interest in the micro lending sector increased markedly after the establishment of the MFRC. Commercial banks embarked on acquisitions, purchasing many of the micro-lenders that were very profitable. ABSA acquired Lantern and Unibank, African Bank purchased Altfin and King Finance, the Board of Executors (BOE) purchased Capitec, and Saambou acquired Thuthukani Financial Services. The profitability of the micro-lending sector encouraged these acquisitions and increased the level of lending and competition in this sector.

In the agricultural sector of SA the Land Bank has adopted a new mandate which places specific emphasis on broadening the activities of the bank to serve historically excluded black small-scale farmers, rural women, land reform beneficiaries and rural farming communities, while not ignoring the needs of the white commercial farmers (Land Bank Prospectus, 1998). The bank wants to achieve greater outreach by extending its branch network while remaining financially viable through the appropriate pricing of financial products. Silver and bronze loan product ranges have been designed to meet the needs of the rural poor, offering small, graduated short-term loans as and medium- and long-term loans for the purchase of land, equipment and livestock. By 2002, the Land Bank had granted loans to more than 90 000 small-scale farmers and rural, low-income individuals. However, improving the type and range of financial products remains a challenge for the bank (Coetzee, 2003).

A rural financial services organisation (RFSO), Finasol, has been established under the mentorship of Dr Richard Bates to provide necessary services to savings-based financial service co-operatives (FSC) operating on the demand-driven rather than supply-driven finance principle. The RFSO would then provide the necessary financial services such as information systems, risk management, training and auditing to the FSCs (Bates, 1997a). The growth of this village banking type system has been limited due to difficulty in establishing an appropriate linkage base with a commercial banking institution on whose co-operation such a village banking system depends.

Ithala has also developed an innovative financing package that enables emerging medium-scale farmers (on 55 – 260 hectare farms) to access funds to purchase commercial farmland. The financial product relies on the seller of the land (in this case the sugar millers) sacrificing part of the selling price. The sacrificed funds are then invested in a deposit account with Ithala. The interest from the deposit account is used to subsidise the interest rate on the mortgage bond. The buyer, while still paying the full price of the commercial farmland, benefits from the reduced interest rate and makes graduated, increasing loan repayments that reach the original loan repayment level by year seven of the scheme (Simms, 1996; Lyne and Darroch, 2003).

The Land Reform Credit Facility (LRCF), established in 1999, was another post Strauss Commission innovation to improve access of finance for commercially viable land reform and equity sharing projects. Similar to the Ithala land finance product, the LRCF provides a partial solution to the liquidity problem associated with conventional mortgage loans through a system of deferred or graduated loan repayments for the first three years of the loan (Lyne and Darroch, 2003). Unlike the Ithala land finance product, the LRCF on-lends funds to

commercial lending institutions who are expected to pass on the benefits of the deferred payments to clients. In addition, the LRCF product is available to a much broader client base than the land finance product offered by Ithala. The LRCF is thus administratively relatively cost effective since the commercial lenders are expected to do all the necessary risk assessments of borrowers, allowing the LRCF to operate with minimal staff. By April 2001, the LRCF had approved loans worth R32 million (Lyne and Darroch, 2003). These innovations, particularly in the rural finance sector, have been encouraging and have extended the microfinance frontier. However, some key challenges discussed in the following section, remain for the microfinance sector in SA.

3.5 Key Future Challenges for the Microfinance Sector in South Africa

Several key challenges confront the microfinance sector in SA: Firstly, while the microlending industry has grown rapidly, resulting in increasing levels of outreach, the financial technologies of the organisations have not been able to effectively improve the access of SMMEs to finance. The challenge is to develop financial technologies that allow the successful extension of credit to this sector. The slow response of commercial banks in SA to support such ventures necessarily resulted from cost pressures. Rather than focusing on developing interlinking systems, existing large micro-lending organisations could be encouraged to try new technologies to enter this sector as they are closer to the market and have branches where it matters. Exploring and learning about existing and potential new financial technologies is thus vital to the process.

Several SA studies have explored the financial technologies used by microfinance institutions that have made important contributions to better understanding the constraints and successes

of financial technologies (Coetzee and Vink, 1996; Coetzee, 1998; Christodoulou *et al.*, 1993; Churchill, 1998; Reinke, 1998; Bates, 1997b). However, few of these studies have monitored the change of financial technologies over a period of time and the impact that this has on the ability of SA MFOs to extend their outreach to low-income individuals on a sustainable basis. In addition, these studies have either focused on MFOs only providing finance to urban or rural low-income individuals.

The Strauss Commission (1996b) and Coetzee (1998) highlight the importance of continued research into understanding both the demand and supply of microfinance services to low-income individuals as existing development finance, NGO and commercial banking institutions require innovative technologies to operate in this market. By reviewing the financial technologies of four SA MFOs that provide financial services to different segments (rural vs urban and farming vs micro enterprise) of low-income households, over a period of 6 years, this study aims to provide better insights into the success and constraints of financial technologies required by MFOs to operate in both urban and rural environments. Monitoring changes in financial technologies over time may highlight important adaptive strategies that these MFOs have undertaken to better service low-income clientele. This can provide policy makers and practitioners with a better understanding of 'best practice' microfinance technologies that are important to extending the frontier of microfinance in SA.

This study will further focus in detail on mechanisms to reduce information asymmetries that are particularly prevalent in microfinance markets. Information asymmetries need to be reduced and contracts designed with the necessary incentives to encourage loan repayment. An increasingly competitive SA micro-lending sector makes this a challenging process as the effect of reputational capital and loan sequencing is being diminished. Studies by Reinke

(1998), Lugemwa and Darroch (1995), Ortmann and Lyne (1995) have explored factors that affect loan repayment. However, none of these studies have investigated the effectiveness of the loan screening mechanism. This is important since a borrower screening mechanism that is not able to adequately distinguish between high- and low-risk loan applicants can be detrimental to a MFOs sustainability (Hunte, 1993). This study, using data from two of the study MFOs, aims to identify factors that influence loan default and tests the screening mechanism of one of the study MFOs. This will fill an important gap in both the SA and international microfinance literature and help MFOs to refine the loan applicant risk assessment component of their financial technologies. This is important in extending financial services to low-income individuals where information asymmetries are very prevalent. Chapter 4 outlines the study methodology, and results obtained from the analysis of the lending technologies of the four MFOs in KwaZulu-Natal.

CHAPTER FOUR

AN ASSESSMENT OF THE FINANCIAL TECHNOLOGIES, OUTREACH AND FINANCIAL SUSTAINABILITY OF FOUR SOUTH AFRICAN MICRO FINANCE ORGANISATIONS

The chapter reviews the financial technologies, outreach and self-sustainability of four MFOs in KwaZulu-Natal (KZN), South Africa over the period 1997 to 2002. This chapter is organized as follows: Section 4.1 outlines the evaluation framework use to assess the four study MFOs. Sections 4.2 and 4.3 define the performance measures of outreach and self-sustainability with section 4.3 detailing the framework used to evaluate the financial technologies. Section 4.5 reviews the importance of the legal and regulatory framework in which MFOs operate to enable them to achieve outreach and self-sustainability. Section 4.6 outlines the survey design and data collection methodology. The general characteristics of the study MFOs are discussed in section 4.7 with the assessment of the financial technologies of the four study MFOs given in section 4.8. The outreach and financial self-sustainability achieved by the four study MFOs is reviewed in sections 4.9 and 4.10 while section 4.11 highlights some key future issues for the four study MFOs and the provision of microfinance in SA.

4.1 The Evaluation Framework

The evaluation framework used to assess the performance of the four MFOs in KZN follows those of Yaron (1992), Christen *et al.*, (1994), Schreiner (1997), Gonzalez-Vega *et al.*, (1997) and Navajas *et al.*, (2000). These frameworks try to answer the important question of whether the development funds used to support the MFOs could not have been used to subsidize an

alternative project that would help low-income households more. Since it is difficult to measure the direct impacts of credit programmes, the framework to answer this question has evolved into a measure of the performance of MFOs. Performance issues in this context revolve around the number of clients that are serviced, whether those clients have benefited from the service, and whether the MFO can provide financial services in the long term. Performance is linked to financial innovation, particularly in the areas of developing cost effective financial technologies for processing and monitoring loans, mobilising and servicing voluntary savings, screening loan applicants to reduce information asymmetries, and achieving adequate loan collections in the absence of formal collateral and the lack of complementary institutions (Hoff and Stiglitz, 1990; Yaron, 1994; Gonzalez-Vega *et al.*, 1997). High levels of performance and financial innovation within given institutional environments extend the production frontier of micro-finance and in so doing assist the poor (Yaron *et al.*, 1998; Meyer and Nagarajan, 1997). The following sections develop the performance evaluation framework for this study, starting with performance definitions, performance measures and an evaluation framework for financial technologies.

4.2 Defining Performance and Performance Measures

Schreiner (1997) defines performance as meeting a goal. The goal of many development institutions and MFOs has been to help the poor, reduce poverty and induce development by lifting the binding capital constraint experienced by many low-income individuals (Gonzalez-Vega, 1993; Yaron *et al.*, 1998). Evaluating the effects of microfinance credit programmes on incomes and poverty alleviation is difficult because it is not always evident what individuals would have done and what their poverty levels would have been in the absence of these credit programmes (Yaron *et al.*, 1998). The ensuing demise of many targeted credit

programmes, because of weak institutions, has resulted in serving very few individuals in the target market and recovering low amounts little of the debt. Such programmes were also heavily dependent on subsidies in one form or another, resulting in reviewing the functions of these institutions as vehicles of poverty alleviation.

Rather than focus on the impact that development and microfinance programmes had on the target clientele, micro-finance practitioners have developed a framework for assessing the performance of such programmes based on outreach and financial self-sustainability. This methodology, formalized by Yarron (1992), is based on the premise that providing a broad range of financial services to targeted clientele in an efficient manner is likely to achieve the desired impact of expanding incomes and reducing poverty. Schreiner (1997) and Navajas *et al.*, (2000) expand on this framework by more explicitly defining the performance measures in the context of further exploring the critical issue of whether development funds have been put to their best alternative use in financing MFOs with the objective of poverty alleviation. Schreiner (1997) highlights six groups of stakeholders that are affected by performance of MFOs namely: society, poor customers, the poor in general, donors, workers and investors. A measure based on cost-effectiveness analysis for assessing the performance of MFOs is developed for each of the stakeholders. The cost effectiveness analysis focuses on the cost versus the output of micro finance institutions where the output can be broadly defined as outreach and where the cost effectiveness is a function of the financial technology used and financial sustainability.

4.2.1 The Outreach Concept

Navajas *et al.*, (2000) define outreach as the social value of the output of a MFO and identify six dimensions along which outreach is measured: depth, worth to users, cost to users, breadth, length and scope. This definition builds on that originally used by Yarron (1992) who defined outreach by the number and type of clientele served and the variety of financial services offered. Christen *et al.*, (1994) defined outreach along three dimensions: quality of service, level of poverty and scale, with high outreach requiring some level of success along all three dimensions.

4.2.1.1 Depth of Outreach

Depth of outreach is the value that society attaches to the net gain from the use of micro-financial services by the poor. Navajas *et al.*, (2000) argue that since society places more weight on improving the welfare of the poor than on the rich, the poverty of clients serviced by MFOs is a good measure of depth. The definition of poverty can, however, be subjective and can thus positively or negatively influence this measure (Christen *et al.*, 1994).

4.2.1.2 Worth to User

The worth of access to financial services is measured by the cost that a low-income individual is willing to incur in order to get access to financial services. Worth to the user can be proxied by repeated use of financial services by both borrowers and savers, since if the gain from borrowing or saving is greater than the cost, repeat use is more likely (Schreiner, 1997).

4.2.1.3 Cost to Users

The cost to a user is defined as the cost of a loan to a borrower, or the cost of saving to a saver (Navajas *et al.*, 2000). These costs do not only explicitly focus on interest and transaction charges, but also on non-price transaction costs incurred by users accessing financial services. Important transaction costs are the time and expense incurred in getting to the offices of the MFO, and in compiling relevant information for the lender.

4.2.1.4 Breadth of Outreach

Breadth of outreach is the number of individuals that use the financial services. Christen *et al.*, (1994) refer to this concept as the scale of outreach represented by the number of low-income individuals having access to financial services. Schreiner (1997) and Navajas *et al.*, (2000) argue that breadth matters, since there are many poor individuals but limited aid funds to service all of these poor people.

4.2.1.5 Length of Outreach

This refers to the time frame in which the MFOs can supply loans. This aspect is important since access to financial services by the poor matters both now and in the future (Navajas *et al.*, 2000). This dimension of outreach is arguably closely linked to the sustainability of the MFO.

4.2.1.6 Scope of Outreach

This dimension refers to the number of types of financial contracts offered, and has particular reference to whether both savings and loan facilities are offered since not all poor individuals are creditworthy and thus may not all qualify to borrow, but most poor individuals are deposit-worthy (Navajas *et al.*, 2000).

The above six dimensions of outreach are closely inter-related and also depend on the sustainability and objectives and goals of the MFOs and the donors that support these organizations (Schmidt and Winkler, 1999). Since direct measures of social value are expensive to obtain as these require detailed cost-benefit analyses, these indirect measures are particularly useful. Navajas *et al.*, (2000) sum up outreach as being the worth minus cost, weighted by depth, summed across breadth of users and scope of contracts, and discounted by length.

4.2.2 Sustainability of Performance

Schreiner (1997) defined performance as meeting goals. Sustainability is being able to meet these goals in the long-term, and it matters since an unsustainable MFO often has negative connotations both for mobilizing savings and providing loan facilities. Without sustainability, borrowers may be more loath to repay debt, while potential savers may be averse to depositing money (Gonzalez-Vega, 1993; Schreiner, 1997; Navajas *et al.*, 2000). In addition, sustainability is important if MFOs want to survive fluctuating support levels from donors and governments that are often driven by political agendas. Sustainability, however must be seen in the context of the specific performance criteria of financial institutions and the social goals it is trying to achieve. A MFO may be unsustainable yet still be the best way and means of fund utilization to help the poor. Experience has, however, proven to some degree that sustainable MFOs can help to improve the welfare of low-income individuals (Navajas *et al.*, 2000). Sustainability requires profitability, but profitability alone is not sufficient to ensure sustainability.

Long-term sustainability is strongly linked to a broader set of structures and meta rules that govern the management of costs and risks, the positioning of the institution in the market place and the ability to respond to changing market conditions (Zander, 1997). The microfinance literature defines several levels of sustainability. Firstly, a distinction is made between sustainability and self-sustainability. Sustainable MFOs are able to meet long-term objectives but cannot do so without the support of donor money (Schreiner, 1997). Within this context, Christen *et al.*, (1994) define MFOs as having reached some level of operational sustainability such that operational expenses can be covered from lending and savings activities. A self-sustainable MFO is able to meet long-term objectives without a subsidy. This is the point where the return on equity net of any subsidy exceeds the opportunity cost of funds, and hence revenues cover both non-financial and financial costs (Yaron, 1994; Schreiner, 1997; Christen *et al.*, 1994). Dependence on subsidies is the inverse of financial self-sustainability. Of importance is whether the MFO can achieve self-sustainability without having to abandon its target clientele. True financial self-sustainability means that the MFO becomes self-sustainable while keeping its mission (Gonzalez-Vega *et al.*, 1997).

Obtaining some degree of sustainability is important for several reasons: First, it provides some indication of the cost to society in the form of subsidies to keep the MFO sustainable. This is an important component in the equation, together with outreach, to weigh up the benefits of the organisation to society, the poor, the clientele, the donors and investors. Given this information, a decision can be made as to whether the funds can be better utilized in an alternative programme (Schreiner, 1997). Second, permanence in the financial market is an important condition to encourage responsible and greater use of the financial services offered by a MFO.

A greater incentive exists to repay debt if the MFO is deemed permanent. Similarly, the rural poor may have a greater incentive to save if they know the funds are going to be secure and available in the future. Third, sustainability, and particularly self-sustainability, is important if the MFO wants to attract investors and deposits. This, in turn, positively enhances the ability of the MFO to leverage more funds to broaden its outreach (Christen *et al.*, 1994; Navajas *et al.*, 2000). Fourth, sustainability affects outreach since permanency leads to structures of incentives and constraints that prompt all stakeholders in MFO to increase the difference between social value and social cost.

The above definitions of outreach and sustainability necessarily imply a complex set of measures to assess the extent of an MFO's outreach and sustainability. However, the intention of the assessment framework is to obtain measures for outreach and sustainability at minimal cost while still being able to accurately reflect MFO performance. Section 4.3 will review some of the proxies used to estimate the outreach and sustainability of MFOs.

4.3 Measures of Outreach and Sustainability

4.3.1 Outreach Dimensions

Outreach should always be considered in the context of the stated objectives and the policy environment in which MFOs operate. Differences in objectives, working definitions of target clientele and legislation governing different MFO, make it difficult to compare achievements between institutions, but do still provide some qualitative assessment of outreach achieved (Yaron, 1994).

4.3.1.1 Depth of Outreach

Depth of outreach can be estimated by assessing how low down the poverty chain clients serviced by MFOs are, and whether they belong to any specifically disadvantaged or difficult to reach groups, such as women. Navajas *et al.*, (2000) used an index of the fulfillment of basic needs to assess the poverty level of clients of several Bolivian MFOs. This index was based on housing, access to public services, levels of education and access to health services, and was compared to a similar index for all urban and rural households in parts of Bolivia. This type of analysis requires a detailed survey of the clientele of MFOs, which was beyond the scope of this study of four MFOs in KZN.

Yaron (1992) and Christen *et al.*, (1994) suggest several proxy measures to assess the depth of outreach. These are based on average loan size, percentage of rural clients and percentage of a specifically disadvantaged group of individuals in the portfolio of the MFO. Average loan size is used as a primary indicator of depth of outreach since it is a readily available proxy for income level. Previous research has shown that MFOs offering small loans tend to serve the very poor clients and that larger loans correlate with higher-income clients.

The loan size proxy assumes that loan size is determined by cash flow, with poor borrowers having low incomes and hence small cash flows, enabling them to only service small loans (Christen *et al.*, 1994). There are, however, some precautions to interpreting small loan size, as loan size may reflect the status of the *lender* rather than the borrower. If MFOs have funding constraints, they often restrict the money that they lend to each client (Christen *et al.*, 1994). Navajas *et al.*, (2000) found that the Bolivian MFOs lend to the higher-earning poor as defined by the index of fulfillment of needs. This may distort the measure of average loan size. But when compared to financial organisations that do not provide financial services to

low-income individuals, average loan size may be a reasonable indication of depth of outreach.

In assessing depth of outreach an important caveat is that individuals that access loans must be credit-worthy. Credit-worthy poor individuals may have relatively higher incomes than the poorest of the poor and thus would have higher average loans. The ultimate measure of depth of outreach is to assess whether MFOs have reached the poorest of the poor, those that demand loans and that are credit-worthy. The study by Navajas *et al.*, (2000) was not able to do this. Navajas *et al.*, (2000) found that rural borrowers were poorer than urban borrowers, and hence that the percentage distribution of rural clients was a proxy for depth of outreach. A similar premise holds of the percentage of women clients in a portfolio. Norms of female seclusion in rural areas are common, giving women limited access to financial services and material and human resources (Yaron, 1994). Savings facilities can potentially reach a far greater number of poor clients than lending, with international research showing that the average deposit size is much smaller than the average size of the loan extended (Yaron, 1994). A similar premise relating savings to income holds as that for loans. The average balance in a savings account may to some extent be a better indicator of depth of outreach than average loan size. The only problem is that not all MFOs offer savings facilities.

4.3.1.2 Worth to Users

Worth to users can be measured by repeat use of financial services by poor borrowers. Repeat use can answer the question of whether the gains for poor customers exceed the costs (Schreiner, 1997). Schreiner (1997) suggests two measures for repeated use of loans. The first measures loans per borrower since birth, and the second measures the drop-out rate. Both measures are relatively simple to compute and provide a relatively quick answer to a complex

question. However, there are important caveats to these measures, the first being that of defining 'good' and 'bad' ranges for these measures. Secondly, the drop-out rate of an organisation can grow without signaling worse performance. Thirdly, a fast growing client base and increasing term can distort both measures since existing borrowers are swamped by new borrowers. Finally, the drop-out rate does not indicate whether a borrower has just rested, defaulted or quit borrowing from the organisation. Data for computing a drop-out rate were not readily available from the KZN MFOs and will thus not be reported on in detail.

4.3.1.3 Cost to Users

Cost to users is intimately linked not only to the cost of financial services but also to transaction costs incurred by borrowers in accessing financial services. The direct costs of financial services are measured by interest charges, non-interest costs and deposit transaction fees. Transaction costs in the KZN study are not measured directly, but are proxied by the proximity of branches to the customer base and time taken to interact with the financial services (loan approval times, time taken to withdraw deposits, mechanisms used to disperse the funds). Group loans may impose costs on borrowers through peer monitoring efforts required by the joint liability rules (Yaron, 1992; Gonzalez-Vega *et al.*, 1997). The pledging of collateral can impose certain costs on borrowers such as bond registration costs, maintenance of the value of the asset and forfeited use of the asset. Similarly, deposit technologies can impose transaction costs on savers if the process of accessing savings is bureaucratic and time-consuming, and if the deposits are not paid out immediately or are not in cash, but in kind (Gonzalez-Vega *et al.*, 1997). Since transaction costs for borrowers and savers are closely linked to the financial technology used by MFOs, this will be covered in the evaluation of financial technologies.

4.3.1.4 Breadth of Outreach

Breadth of outreach can be proxied by the growth in the loan portfolio, number of loans disbursed, number of loans disbursed to first-time borrowers, volume of loans disbursed, number of active borrowers, number of active savers and number of savings accounts opened (Yaron, 1992; Gonzalez-Vega *et al.*, 1997; Yaron *et al.*, 1998).

4.3.1.5 Length of Outreach

Length of outreach can be proxied by the number of years the MFO has been in operation to get an indication of the degree of permanency. Length of outreach is invariably linked to sustainability of a MFO, as sustainable MFOs will be able to provide financial services over a longer period of time (Navajas *et al.*, 2000).

4.3.1.6 Scope of Outreach

Scope of outreach is proxied by the number and types of financial contracts offered by MFOs. Typically aspects such as minimum loan size, loan term, repayment regimes, and collateral requirements are reviewed. Furthermore, specific dynamics of loan contracts such as graduated loan terms and amounts, and compensating balance requirements, are reviewed. Loans that pay out with relatively few restrictions in use, that require minimal physical collateral and that offer repeat borrowers the potential of bigger loans over the longer term have more value to low-income borrowers (Yaron, 1994; Gonzalez-Vega *et al.*, 1997; Navajas *et al.*, 2000). The provision of savings facilities expands the scope of outreach since more low-income households could save than potentially qualify for loans. However, the savings must be accessible and liquid to allow individuals to access these funds to smooth consumption or capitalize on investment opportunities (Christen *et al.*, 1994).

4.3.2 Financial Sustainability Measures

As outlined in Chapter 2, MFOs were often not designed to function as true financial intermediaries, but were vehicles that channeled government funds to the poor. These organisations mostly did not function under financial viability constraints that led to inefficient operations, injudicious credit granting decisions and limited accountability. Poor financial reporting often resulted in optimistic pictures of financial performance being presented to donors, governments and other stake holders (Yaron, 1997). However, the important issue is to assess whether public and donor funds used to finance MFOs have been put to their best alternative use. Cost-benefit analyses are often expensive to conduct, while simple measures of cost efficiencies, collection rates, and interest rates charged by MFOs do not provide an in-depth view of the cost to society of MFOs (Yaron, 1994; Schreiner and Yaron, 1999).

The subsidy dependence index (SDI) is a less expensive and relatively easy to calculate measure of social cost, where social cost is the opportunity cost of the public funds used by the MFO less what the MFO could pay back and still break-even in a given time frame. An MFO with no social cost is subsidy-independent (Schreiner and Yaron, 1999). Where possible the SDI will be computed for the KZN study MFOs. In addition, information on interest charged, costs and loan collections will be reviewed as these all contribute to the overall financial well-being of an MFO (Yaron, 1994; Christen *et al.*, 1994; Riley, 1996).

4.3.2.1 The Subsidy Dependence Index (SDI)

Standard accounting measures such as profit, rate of return on equity and rate of return on assets are of limited use as an indicator of self-sustainability as MFOs may have benefited

from some form of subsidy not captured in the income statement. The standard SDI as developed by Yaron (1992) measures the percentage increase in the average on-lending interest rate that is required to compensate the MFO for eliminating all subsidies in a given year. The important underpinning of the SDI is that an opportunity cost is attached to the equity in the MFO's balance sheet (Yaron, 1994). Such a measure is useful and enhances the financial analysis of a MFO in three ways: firstly, subsidies received by the MFO are quantified. Secondly, it computes a measure that relates the subsidy received to an MFO's main income – interest, and thirdly, it resolves the problem of costless equity. Knowledge of this cost is important to all stakeholders in the continued evaluation of whether development funds have been put to their best alternative use (Yaron, 1997; Schreiner and Yaron, 1999).

Following Yaron (1992), Schreiner (1997) and Schreiner and Yaron (1999), the SDI is computed in the form of a ratio where the numerator is the subsidy in a given year and denominator is the revenue from lending (see equation (4.1)).

$$SDI = \frac{S}{LP * i} \quad (4.1)$$

where S = subsidy and LP = average outstanding loan portfolio and i is the average interest rate. The subsidy (S) consists of six components, three of which are equity grants that affect the balance sheet, but not the profits; and three are profit grants that are reflected in the income statement. Profit grants do ultimately affect equity in the balance sheet (Schreiner, 1997; Schreiner and Yaron, 1999).

Equity grants form the first two components of the subsidy and consist of direct grants and paid-in capital. Direct grants are cash gifts and gifts in-kind such as equipment. Paid-in capital is obtained by selling shares to governments and donors. Profit grants make up the

next three forms of subsidy and are the sum of revenue grants, discounts on debt and discounts on expenses (see equation (4.2)).

$$PG = RG + A(m - c) + DX \quad (4.2)$$

where PG = Profit grant
 RG = Revenue grant
 A = Average public debt
 m = Opportunity cost of public debt to society
 c = Price that MFO paid for debt, and
 DX = Discount on expenses.;

Revenue grants are cash gifts similar to equity grants except for recording them in the income statement. Revenue grants can influence profitability, albeit in a misleading way since the revenue is not generated from normal operations. The discount in public debt $A(m - c)$ is the opportunity cost of public debt which can again inflate profits. Discounts on expenses are costs absorbed by third parties such as donors. These do not necessarily need to be recorded as expenses in the income statement of the MFO. True profit is the last form of subsidy that reflects the change in retained earnings in the absence of profit grants (Schreiner and Yaron, 1999). Finally, S can be summed as follows:

$$S = (m \cdot E) + A(m - c) + K - P \quad (4.3)$$

where S = Subsidy
 m = Opportunity cost of equity
 E = Average equity
 A = Average subsidized debt borrowed from governments and donors
 c = Interest paid on subsidized debt
 K = Revenue grants and discounts on expenses, and
 P = Accounting profit.

Equation (4.3) shows that the SDI accounts for implicit cost of equity capital and provides a measure of the true cost of a donor or government funded MFO. The underlying assumption of the SDI is that an increase in interest rate is the only change that is required for an MFO to become self-sustainable (Yaron, 1992). This may not necessarily be so, since improved cost

efficiencies and financial technologies may also contribute to this process. The increase in interest rates required may also not be accepted by clients in the market.

Schreiner (1997) shows that subsidies would not be entirely eliminated even if the on-lending interest rate was increased by the requirement of the subsidy. This is because increased revenue from higher interest rates increases profits. This increases equity and thus increases the opportunity cost of the equity in the SDI calculation. The SDI also does not account for income tax since the formulation by Yaron (1992) uses before-tax profits. However, a profit maximizing institution will pay tax. Schreiner (1997) argues that taxes are important, particularly for private investors since in their assessment of returns they are likely to account for taxes – he thus adjusts the SDI to account for tax.

The SDI was designed as a tool to measure social costs, yet the assumption made by Yaron (1992) is that self-sustainability implies profit maximization. Schreiner (1997) argues that investors want to maximize profit, whereas society would want improved welfare. The opportunity cost of equity is based on that of investors and not for society. Another shortcoming of the SDI is that it equates subsidy-independence, which equates to self-sustainability. However, there may be more to self-sustainability than just generating profits. Self-sustainability requires strong organisations with good structures in place that can adapt to changing environments while not losing their core mission and objective (Gonzalez-Vega *et al.*, 1997). A profitable organisation may change markets, develop worse rather than better products, or charge interest rates that reduce the overall welfare of those that it serves. Finally, the SDI is not a flow concept and cannot be computed over long time frames (Schreiner, 1997).

For all its short-comings, the SDI has provided analysts and microfinance practitioners with a tool to evaluate the true cost of microfinance programmes without incurring huge expenses in doing so (Schreiner and Yaron, 1999). A subsidy dependent organisation may still be sustainable - this is not necessarily a poor allocation of resources, as long as the funds could not have been applied in a better alternative development use. Subsidy independent organisations may not necessarily improve welfare if they impart huge costs to users of the financial services. Data permitting, the SDI will be computed in this KZN study for the MFOs that are subsidized. The simplest form of the SDI calculation will be used since data collected from the financial organisations are very much at an aggregated level.

4.3.2.2 Appropriate Interest Rates

Charging interest rates that allow for improved coverage of operating costs, loan losses and the generation of profit is an integral part of an MFO's ability to become self-sustainable (Yaron, 1994). This is strongly linked to the SDI that computes the increase in on-lending rates required to become self-sustainable. The interest rates charged by MFOs in this KZN study will be documented over time. However, controlling prices is not the only aspect of financial viability, as controlling costs and loan losses are just as important (Riley, 1996).

4.3.2.3 Costs Control

Controlling costs, be it administrative, operational or loan losses, is imperative for a well-run sustainable MFO organisation. Even those that rely on subsidies should endeavour to have a cost effective organisation, since it is public funds that such organisations rely on. Better use of public funds may in part improve the benefits derived from such funds. Successful MFOs have managed to contain costs by controlling administrative expenses and loan losses, and

using cost effective financial technologies to screen loan applicants, enforce loan contracts and to service savings (Yaron, 1994; Riley, 1996).

4.3.2.3.1 Administrative Costs

Christen *et al.*, (1994) and Riley (1996) suggest several measures of cost-effectiveness that will also be used in this study, where possible, including:

- Administrative costs as a % of annual average loan portfolio
- Number of loans per staff member
- Number of loans per branch
- Average loan portfolio per staff member
- Average loan portfolio per branch
- Personnel costs as % of average loan portfolio
- Personnel costs as a % of total administrative costs

Best practice MFOs maintain high levels of productivity. However, controlling costs is also a relative issue since some financial technologies, together with the target market that MFOs service, may necessarily imply slightly higher operational costs. Operational costs are also strongly linked to scale and loan size, with larger MFOs being able to spread fixed costs over a bigger client base. Administrative costs are thus a complicated mixture of scale of operations, loan size and administrative efficiency, and these need to be analysed holistically to obtain a true understanding of cost-effectiveness (Riley, 1996; Gonzalez-Vega *et al.*, 1997).

4.3.2.3.2 Loan Losses

Best practice MFOs control loan losses, which are a function of the financial technology that is able to effectively screen loan applicants and create the necessary incentive for borrowers to repay their debt. Several measures have been used in studies by Christen *et al.*, (1994) and Yaron (1994). Rosenberg (1999) provides a concise set of measurement tools to measure delinquency rates in MFOs, including collection rates, arrears rates and portfolio-at-risk (defined as the ratio of outstanding balance of loans with overdue payments to total outstanding balance). An important aspect of arrears monitoring is that arrear measures must highlight repayment problems early, indicate when delinquency levels have reached viability threatening levels, help predict how much of the portfolio will eventually be lost, and not be open to manipulation to hide the true level of arrears.

Collection rates are a common measure of delinquency. Of critical importance is the composition of the numerator and the denominator. Rosenberg (1999) argues that the traditional collection rate (also known as the Asian collection rate – where it was first used) where the numerator incorporates all money received and the denominator incorporates all amounts due in a period can give erroneous information if bad debt is not written off, since amounts due then accumulate in the denominator. This makes it difficult to accurately collections on installments due in the current period not alerting the MFO to any immediate collection problems. Instead, revised collection rates are proposed that firstly measure the amounts collected on-time and in cash in the current period (excludes arrears and advance payments) relative to the amounts due for the first time in the current period (referred to as the on-time collection rate). A second collection rate measures the amounts collected in cash in the current period (arrears and advance payments included) relative to the amount due for

the first time in the current period (current collection rate). Both of these collection measures give a better reflection of what the true loan collection rates for the MFO are.

In this KZN study, the collections as computed by the study MFOs will be documented and then adjusted. Collection rates will be estimated to establish whether existing measures deviate substantially from recommended measures. The arrears rate, measured as late payments over balance outstanding, is also a common measure and will be computed in this study where possible. Rosenberg (1999) cautions against this measure since it has a tendency to create an overly-optimistic view of arrears, particularly in a rapidly growing portfolio. Portfolio-at-risk, calculated as the outstanding balance of loans with late payments over total outstanding balance, is the third measure that will be used in this study. The numerator of this measure can be pegged to any degree of lateness, with MFOs arguably having a tighter definition of loans, as terms are relatively short.

It is important when assessing the outreach and sustainability of MFOs that the financial technology plays a pivotal role in enabling MFOs to achieve substantial levels of outreach on a sustainable basis (Gonzalez-Vega *et al.*, 1997). Zander (1997) reports three dimensions of innovations: financial system innovations, process innovations, and product innovations. Financial system innovations affect the financial system as a whole and include the establishment of new types of intermediaries and changes to the legislative framework. Process innovations cover the introduction of new business processes leading to increased efficiency or market expansion. Product innovations include the introduction of new products in response to specific market conditions or to be able to better serve a specific niche clientele.

Best practice MFOs have successfully introduced process and product innovations within a given legal and regulatory framework to achieve high levels of outreach on a sustainable basis. This has enabled these institutions to shift the production possibilities frontier outward through financial innovation (Gonzalez-Vega, 1993; Meyer and Nagarajan, 1997). Process and product innovations have occurred in several different ways and have enabled MFOs to effectively service different niche markets (Navajas, 1999). The most notable innovations have been in the area of loan applicant screening and loan contract enforcement. Numerous examples exist in Bolivia, Bangladesh and Indonesia where MFOs have cost-effectively reduced the problem of asymmetric information and divergent incentives between borrower and lender (Christen *et al.*, 1994; Yaron, 1994; Chaves and Gonzalez-Vega, 1996; Gonzalez-Vega *et al.*, 1997).

In this study, the evaluation framework will document financial technologies used by KZN MFOs, and how these technologies have changed over time to make a qualitative assessment of their relative success. Section 4.4 briefly outlines some of the aspects covered in the analysis of MFO financial technologies.

4.4 The Framework for Evaluating Financial Technologies

The evaluation frameworks for MFOs, first document the general characteristics of the study MFOs, detailing the year of establishment, the type of institution, the target clientele, areas of operation, number of staff and branches, lender objectives and the provision of savings, loans and non-financial services. See Table 4.1 on page 116 which outlines the framework for the evaluation of MFO financial technologies.

Providing both savings and loans facilities improves both clients' and lenders' individuals' decision-making options and thus contributes to improved rural financial intermediation. Traditional development-orientated MFOs may provide financial and non-financial services which may negatively influence their financial self-sustainability. Development-orientated MFOs may also not set financial self-sustainability as their objective. The number of years of operation influences the MFOs' ability to achieve a large scale of operations, which may improve outreach and reduce operating costs (fixed costs are spread over a greater number of clients) (Riley, 1996). The number of branches and areas of operation influence the accessibility of financial services and hence outreach, and the geographic portfolio diversification of lenders, which improves lender risk management (Yaron *et al.*, 1997).

Quality financial services do not only facilitate the intermediation of funds between surplus and deficit units, but also provide funds for consumption smoothing and act as a store of value. In addition, transaction costs can be a high proportion of the rural individual's total costs of accessing and using financial services. As shown in Chapter 2, borrower transaction costs include out-of-pocket costs to access financial services, legal fees and opportunity costs of time. The ability of lenders to minimise these costs is a key feature of quality financial services (Rhyne, 1994). Lenders also incur transaction costs in providing loans and savings facilities, such as the processing and monitoring of loans, information gathering and screening of loan applicants, loan contract enforcement and mobilising and servicing voluntary savings. Controlling these transaction costs can improve lender financial self-sustainability (Yaron, 1994). The evaluation framework thus documents how the loan technologies accommodate the client's financial management process and overcome information asymmetries and contract enforcement problems while containing both borrower and lender transaction costs.

Table 4.1 Evaluation Framework for Financial Technologies

1.	General Characteristics of Study Rural Finance Institutions
-	Years of operation
-	Objectives
-	Type of institution
-	Ownership
-	Financial services offered
-	Target clientele
-	Number of staff
-	Number of branches (main and satellite branches)
2.	Loan Technologies
2.1	Client-Service Relationship
-	Types of activities financed
-	Loan size
-	Lending to groups
-	Group size
-	Group formation
-	Place of loan application
-	Loan application process
-	Loan application processing times
-	First time borrowers
-	Repeat borrowers
-	Loan approval process
-	Decentralisation of decision-making power to branches
-	Loan disbursement
-	Loan repayment frequency
-	Loan collection
-	Staff incentives
-	Management information system
2.2	Client Screening, Incentive and Loan Contract Enforcement Technologies
-	Loan applicant screening technologies
-	Use of local individuals or leaders in loan approval
-	Client self-selection
-	Use of formal credit scoring models
-	Supervision and monitoring of loans
-	Client incentives and penalties
-	Collateral
-	Borrower collateralisation costs
-	Collateral specific risks
-	Asset appropriability
-	Asset marketability
2.3	Loan Interest Rates
-	Nominal quoted annual interest rate
-	Effective annual interest rate
3	Savings Technologies
-	Voluntary or compulsory savings
-	Types of savings products
-	Accessibility
-	Ease of withdrawal
-	Restrictions on use
-	Interest rates

Source: Adapted from Yaron (1992), Christen *et al.*, (1994), Yaron (1994), Gurgand *et al.*, (1994)

For loan products such technologies include flexibility of loan sizes and loan repayment terms, eligibility and collateral requirements. Flexible loan sizes and loan repayment terms permit a wide variety of agricultural, non-agricultural and consumption activities to be financed which improve the individual's financial management decision-making process (Table 4.1). They also enable MFOs to better manage risk through portfolio diversification across sectors (Gonzalez-Vega, 1994). Some best practice MFOs (e.g. Grameen Bank, BAAC), however, have introduced fixed repayment structures to promote regular lender-borrower contact that promotes borrower discipline and loan repayment amongst small, relatively uneducated borrowers. Flexible loan products may also impose higher administration costs on lenders.

Stringent collateral requirements may also negatively influence the accessibility of credit for small, low wealth rural borrowers (Yaron, 1994). While the use of group loans may alleviate the collateral problem, they necessarily impose high transaction costs on both lenders and borrowers, depending on how the group formation costs are divided between the two contracting parties. Lenders may impose all the group formation costs on borrowers. Group homogeneity, group size and proximity of members may reduce borrower transaction costs in group formation and peer monitoring (Graham and von Pischke, 1994).

Financial services should also consider geographic, time, mobility, literacy and numeracy constraints. A poorly-developed branch network, complicated loan application procedures and contract documents, and social constraints (such as rural women married under communal law) may impose high transaction costs on borrowers in accessing financial services (Yaron *et al.*, 1998). Quality financial services should take the constraints faced by potential clients into account and make the services as accessible as possible. However,

establishing branches may come at a considerable cost to the lender. A suitable balance should be maintained between information required from individuals to make appropriate decisions on loan risk, and the cost of the additional information.

Streamlining the paperwork involved in loan applications and loan disbursements may reduce administrative costs for financial intermediaries, while reducing loan application times for borrowers (Gonzalez-Vega, 1984; Riley, 1996). Centralised and bureaucratic decision-making structures contribute to long loan approval times. Opportunities for which clients borrow are frequently time sensitive, increasing transaction costs in accessing loans. Decentralised decision-making structures, possibly including local leadership in the decision making process, may reduce loan approval times and cut the time taken to gather information from loan applicants, reducing borrower and lender transaction costs (Chaves and Gonzalez-Vega, 1996). In-kind loan disbursements through input suppliers necessarily increase borrower transaction costs (increased time required to access the loan), while reducing flexibility of loan products (borrowers may require loans for consumption smoothing purposes). Borrowers may thus find cash loan disbursements more desirable.

Information is critical to the functioning and viability of MFOs. If key data are maintained are not manipulated and presented coherently as information on which decisions can be based, the information will remain just data. A good management information system can effectively manipulate data and present useful and coherent information in the form of reports. Mainhart (1999) provides a detailed framework for analyzing management information systems (MIS), and outlines several important categories for the evaluation of an MIS. As far as possible these will be documented in this study with specific focus on the first

three categories: functionality and expandability, usability, reporting, standards and compliance, and administrative support and technical specifications.

Functionality measures the extent to which a software product meets the requirements of different types of micro-finance programmes, and whether the software has the capacity to expand as the MFO evolves. This forms the heart of the MIS and can often constrain the expansion of the organisation in many ways. Usability refers to the extent to which users are able to perform daily tasks effectively using the system, while reporting examines the extent to which 'built-in' reports cover management and operational requirements (Mainhart, 1999). The assessment in this study will provide some indication of the suitability of the MIS used by the four KZN study lenders.

Most challenges in rural financial intermediation arise from the promissory and inter-temporal nature of financial contracts. As Chapter 2 shows, asymmetric information between borrower and lender (adverse selection and moral hazard), and loan contract enforcement problems in rural financial markets, have frequently led to poor rural individuals being rationed out of formal credit markets (Hoff and Stiglitz, 1990). Hence, successful rural financial intermediation not only requires lending technologies that reduce both borrower and lender transaction costs, but which are also able to reduce information asymmetries between borrowers and lenders and also provide the necessary incentives for borrowers to repay loans (Carter, 1988; Gonzalez-Vega *et al.*, 1997).

Reducing default risk through careful client screening, and providing adequate incentives, will also assist the financial intermediary in achieving financial self-sustainability and facilitate the transfer of resources to productive investment (Gonzalez-Vega, 1994). The

evaluation framework, therefore, focuses on the technologies used to screen loan applicants and enforce loan contracts. The ease and accuracy with which screening technologies reduce geographic, cultural and occupational distances between borrower and lender influence the length, detail and cost of the loan applicant screening procedure. Long and complicated screening procedures may increase loan approval and borrower waiting times, while the use of local individuals (prominent village leaders as in the case of the Indonesian MFOs or self-selection in group loans) and loan applicant scoring models may improve the accuracy and speed of the screening process (Chaves and Gonzalez-Vega, 1996).

The use of joint liability groups and loan officers who make detailed personal and financial evaluations of individual loan applicants and their homes, businesses and collateral (relying on the loan officer's localized knowledge) have been important mechanisms by which MFOs have reduced information asymmetries (Schreiner, 2001). However, not many MFOs have used statistical scoring models on the scale that commercial finance institutions do, mainly because of the lack of suitable data required to build such models. Credit scoring models work on the premise that the past predicts the future. Statistical models (such as logistic regression) use historic information on loan applicants to predict a future outcome (mostly the probability of the loan applicant repaying the loan) (Bailey, 2001). Scoring models have many applications within the lending industry of which the most important are first-time loan application and behavioural credit scoring models.

A first-time loan application scoring model is used to predict the risk of a first-time loan applicant defaulting at future point in time while a behavioural scoring model is used to predict the risk of an existing borrower applying to take a repeat loan. Schreiner (1999; 2001) has explored the application of scoring in microfinance and concludes that while credit

scoring will not replace the important function of loan officers in the screening process, it can expand the financial technology frontier of those MFOs who can use it. A scoring model that predicts loan repayment risk relatively accurately can be an important tool in the loan granting decision process. Better credit granting decision result in fewer borrowers defaulting which improves loan collections and reduces costs associated with loan default (Schreiner, 2001). The evaluation framework will review the screening technologies used by the four KZN MFOs focusing on the mechanisms used to screen loan applicants and how these have evolved over time. Specific focus will be given to the adoption of scoring models and how these have helped the study MFOs to improve the credit granting process.

The evaluation framework will also document the degree to which lenders monitor borrowers' activities. The cost and quality of information obtained from monitoring depends on the resources committed to monitoring and the monitoring technology. Geographic dispersion of rural clients and the seasonal nature of agricultural loan repayments reduce borrower and lender contact while making monitoring costly. More densely populated urban areas and more frequent incomes of micro-entrepreneurs and employed individuals promote frequent borrower-lender contact, thereby improving loan monitoring. Using local individuals in loan approval procedures, as is done by best practice lenders, may also be a cost-effective way to monitoring borrowers, since information is a by-product of living in the area. Well-developed MISs capable of tracking loan repayment performance are also important in borrower monitoring to allow early identification of problem loans. The MISs may also reduce the administrative burden of loan tracking, potentially lowering lender transaction costs (Chaves and Gonzalez-Vega, 1996; Yaron *et al.*, 1998).

Collateral is also an important incentive and contract enforcement device. To act as an enforcement device collateral should reduce the lender's default loss and/or make it costly for the borrower to default (borrower must incur collateralisation costs in pledging collateral). This requires that collateral assets have well-established and transferable property rights, and a legal environment that facilitates loan contract enforcement such that the lender can foreclose and attach the collateral (good appropriability). Asset liquidation costs should also be low, and marketability good, to enable the lender to recover sufficient funds from liquidating the collateral to cover loan losses (Barro, 1976; Nagarajan and Meyer, 1995).

Collateral assets should also not be prone to high collateral specific risks such as theft, damage by fire or accident and poor maintenance (Binswanger and Rosenzweig, 1986). Borrower collateralisation costs include potential loss of pledged assets if the investment fails, costs incurred in pledging the collateral (such as group formation costs and legal costs) and foregone opportunities to use the collateral to secure additional debt. Although excessive borrower collateralisation costs may discourage borrowers from using formal financial services, these costs are important if collateral is to be as an effective enforcement device (Chan and Kanatas, 1985; Feder *et al.*, 1988).

Financial intermediaries involved in rural and micro-business finance often face high transaction costs in liquidating collateral due to the often poor condition of the assets, institutional constraints (such as title to land not secure and transferable), the geographic dispersion of borrowers, poor rural infrastructure, low-wealth borrowers unable to pledge suitable collateral, and a costly and/or ineffective legal system (Nagarajan and Meyer, 1995). Rural financial intermediaries have thus resorted to using collateral substitutes such as group loans, savings, guarantee funds, reputational capital and interlinked contracts.

While these collateral substitutes may alleviate the problem of suitable collateral, they are also subject to borrower collateralisation and lender transaction costs, potentially reducing their efficacy (collateral use may, therefore, differ for lenders operating in different markets subject to borrower transaction costs, liquidation costs, collateral-specific risks and institutional arrangements. The evaluation framework will thus document the collateral types used by the four KZN study lenders and qualitatively assess the efficacy of the different collateral types based on borrower collateralisation costs, collateral-specific risks, asset appropriability and marketability (Table 4.1). Staff remuneration incentives linked to loan collections is also important in reducing default rates since loan officers take more effort in granting loans to credit worthy borrowers where the probability of loan repayment is high. Remuneration linked to loan collections will also incentivise loan staff to rigorously follow-up those borrowers whose loan repayments are in arrears.

Collateral may also serve as a signaling device. However, to determine the use of collateral as a signaling device, information on collateralisation costs of low-risk relative to high-risk borrowers is required. Low-risk borrowers must also have suitable assets to pledge as collateral (Bester, 1985). Since rural individuals frequently do not have sufficient collateralisable wealth, and information on the relative costs of collateralisation for high- and low-risk borrowers is difficult to obtain, the evaluation framework will only focus on the enforcement properties of collateral types used by the four KZN study lenders.

Interest rates charged by lenders as noted in Chapter 2, affect the ability to cover operational costs and loan losses. Achieving a suitable interest rate spread combined with improved operating efficiency can reduce dependence on subsidies (Yaron, 1994). Both quoted

nominal, and effective annual interest rates will be documented in the evaluation framework to qualify the study MFOs' ability to achieve financial self-sustainability. The annual effective interest rates are all computed on the remaining-balance method to facilitate interest rate comparability between institutions (Rosenberg, 1999).

Access to financial services allow individuals to protect themselves against income shocks by accumulating monetary reserves, synchronise income-generating and consumption activities, and use funds for productive investment. Both savings and credit can fulfill these functions. Individuals may prefer to save rather than to borrow. Thus savings mobilisation in rural financial markets is potentially more important than the provision of credit (Rhyne, 1994). Since savings can facilitate investment decisions, and consumption smoothing, it is important that quality savings services are provided that improve the individual's decision-making options (Rhyne, 1994).

Ready access to savings may hence be important both in terms of a well-distributed lender branch network, and ease of depositing and withdrawal of funds. In addition, savings should allow the individual to use those savings to satisfy consumption and investment decisions (Yaron, 1994). Savings can also serve as a form of collateral and information on potential borrowers. It is thus important that savings form part of multi-function financial intermediaries offering both savings and credit facilities. Accessing both services at one lender can help to reduce borrower transaction costs.

This study also aims to determine whether these savings facilities are voluntary or compulsory, as compulsory savings are less flexible in use and are more difficult to access, serving as a form of collateral or contingency fund when individuals do not repay loans. For

group loans this avoids the use of peer pressure, which may generate hostility amongst group members (Yaron *et al.*, 1998). Savings mobilisation may also reduce lenders' reliance on donor funds, improving financial self-sustainability. While real, positive interest rates offered by deposit accounts do affect individual's decisions to save, it is less clear whether an increase in the interest is the only motivating factor, which encourages savings mobilisation (Meyer, 1989). Evidence suggests that rural individuals tend to value access to savings highly (Gurgand *et al.*, 1994). Rural finance institutions may offer both savings and loan products. It is, however, important that these savings are accessible and flexible in use. The evaluation framework will thus document the type of savings products, access to savings and interest rates paid.

4.5 The Microfinance Policy Environment

Having the 'right' policy environment to develop in may assist MFOs in expanding their outreach on a sustainable basis. Financial institutions need a credible legal and regulatory environment that facilitates proper enforcement of commercial contracts (Zander, 1997; Yaron *et al.*, 1998). Aspects include a framework of secure and transferable property rights and lowering the costs of securing collateral and foreclosure. A regulatory framework is also beneficial if it provides rules and guidelines for deposit mobilization, which can increase the leverage of MFOs considerably (Christen *et al.*, 1994). However, if such legislation is too stringent then it may discourage savings mobilization. Financial sector policies that affect the determination of interest rates affect the extent to which marginally creditworthy individuals can access financial services, particularly credit. Interest rate ceilings have often had the opposite effect, with wealthier, less risky individuals often benefiting more than the intended

target clientele (Zander, 1997). They may also prevent financial institutions from providing services to a costlier, low-income segment of the population.

The existence of targeted credit programmes that provide credit at subsidized interest rates may make it difficult for MFOs to enter the market on a sustainable basis. Stable macro-economic conditions are also conducive to the improved provision of financial services. An economy with relatively good growth and stable inflation makes it easier for micro-enterprise to operate. Well-functioning and sustainable micro-enterprises make it easier for financial institutions to penetrate this market and improve outreach (Christen *et al.*, 1994; Zander, 1997). The following section reviews the survey design and data collection methodology used to assess the financial technologies, outreach and self-sustainability of the four KZN study MFOs.

4.6 Survey Design and Data Collection

Data for the study were gathered by using interview surveys of key personnel at four KZN lending institutions (MFO1 to MFO4) providing agricultural, micro-enterprise and consumption loans. For confidentiality purposes, in order to gain their participation, the four MFOs were selected on the basis of 1) providing financial services in both urban and rural areas, 2) being part of the baseline survey conducted by the Strauss Commission in 1995, 3) using different financial technologies to reach their target clientele (MFOs targeting urban clientele used different technologies to those targeting rural clientele), and 4) being some of the major providers of rural financial services in KZN (in particular MFO2 and MFO3).

Commercial banks, co-operatives and several other micro-lenders did not want to participate in this study due to the perceived sensitivity of some of the information required. Data were collected through personal interviews of staff at head office, regional and branch level. Two questionnaires (see appendix A and appendix B) were designed following guidelines provided by Graham (1995b), Darroch (1995), Schreiner (1995), the Inter-American Development Bank (1994) and Yaron (1992). The author personally interviewed the relevant staff employed by each MFO. Two interviews were conducted in each case: The first interview in 1997 to establish a base-line of information on financial technologies, outreach and sustainability indicators. The questionnaire in appendix B was used for the base-line survey. A second interview conducted in June 2000 then aimed to document any changes to financial technologies and organizational structures, and to track trends in MFO outreach and sustainability indicators. The questionnaire in appendix A was used in the second survey.

Setting up the interviews and gaining access to MFO financial data was extremely difficult. Much time was spent in developing a relationship with the MFOs to gain their trust and confidence to participate in the survey and provide financial information. Outreach and sustainability information was particularly difficult to obtain, as of the MFOs' MISs either did not store the information historically or the particular indicators required were unavailable. Encouragingly, the MIS systems at three of the MFOs had evolved to such an extent that by the end of 2002 some information on outreach and sustainability was available. Unfortunately, MFO4 had run into severe financial difficulty during June 2000. This was the only MFO in the study that used the group lending technology. Poor organizational control, loan officers not following procedures and badly structured groups resulted in high default rates, poor productivity and the ultimate demise of MFO4. This was not the first time that MFO4 had experienced financial and operational difficulties, and underlines the need for

proper organizational design when using an innovative technology. For completeness, the baseline information on MFO4 is, however, included in this study.

4.7 General Characteristics of the Four Study MFOs

The four MFOs interviewed had a range of objectives and target clientele, and differed in the years of experience in providing financial services. MFO2 and MFO3 are involved in agricultural finance, while MFO1 is a micro-lender providing consumption credit, and MFO4 finances small micro-entrepreneurs. Lender MFO2 was registered as a statutory development corporation established by proclamation R73 of 1978, in terms of the Promotion of Economic Development of National States Act, No 46 of 1968, as amended by the KwaZulu Corporations Act, No 14 of 1984 (Table 4.2). Both MFO3 and MFO4 are non-government, non-profit institutions registered under section 21 of the Companies Act.

MFO2, although not a registered bank, may mobilise savings due to its exemption from the provisions of the Banks Act by virtue of Government Notice GG 13631 published on 12 November 1991, and Government Notice GG 15677 published on 25 April 1994. However, in the interests of investor protection, MFO2 maintains a capital-to-asset ratio in excess of the minimum statutory requirement for registered banks. MFO1 is the only private organisation in this study, operating as a close corporation at the time of the first survey in 1997. One the largest MFOs in SA acquired a 100% stake in MFO1 in 1998 (Table 4.2). The legal status has important implications for deposit mobilization, since the Banks Act does not permit any institution not registered under the Act to engage in savings mobilisation. MFO1 has effectively overcome two constraints in the process of being acquired and divisionalised by a commercial Bank.

Table 4.2 Legal Status of the Four Study MFOs

Institution	Year of Establishment	Type of Institution
MFO1	1978	Registered close corporation
	1998	Wholly-owned subsidiary of a commercial bank
	2003	Division of the commercial bank
MFO2	1978	Statutory Development Corporation
	1991	Given statutory authority to mobilize savings
MFO3	1973	NGO registered as a section 21 company
MFO4	1987	NGO registered as a section 21 company

Source: Survey Data

First, the ability to leverage capital for growth was greatly enhanced, since the commercial Bank could provide large amounts of capital at relatively good rates. Secondly, the commercial Bank had a banking license and with divisionalisation, MFO1 can, if it so wished, begin to mobilize savings. The downside to shareholder control is that it influences the strategic direction of an organisation. This has become particularly apparent in MFO1 where a desire for greater flexibility in experimenting with different financial products and pricing structures has been countered by the shareholders desire to maximize profits in the short-term.

Lender MFO2, with the authority to mobilize savings, could leverage additional capital and expand outreach beyond its existing capacity, since more low-income individuals can save than borrow. The mainly developmental and/or non-profit nature of MFO2, and MFO3 and MFO4 as NGOs, may also influence their strategic direction and performance as profitability is not as strong a driving force as for MFO1. At the time of the base line survey in 1997, MFO1 was a private, semi-formal money lending institution established in 1978 in the KwaZulu-Natal midlands area (Table 4.3). Financial self-sustainability, through sustainable growth in equity while serving the needs of the community, was the main objective of MFO1. The financial technology developed by MFO1 only allows it to offer consumption loans to

individuals who earn a fixed salary. No savings facilities were provided given the Banks Act regulations, thereby preventing MFO1 from accessing deposits.

Table 4.3 Coverage, Target Clientele and Activities of MFO1

Variable	Time period				
	Baseline Survey (1996/97)	1998/99	1999/00	2000/01	2001/02
Years of operation	19	21	22	23	24
Mission	Sustainable growth in equity while serving the needs of the community				To develop and roll-out an integrated banking system capable of delivering low-cost savings and loan products to the informal and low-income sector of the economy
Ownership	Shareholders	Theta Investments	Theta Investments	Theta Investments	African Bank
Financial services	Loans	Loans	Loans	Loans	Loans
Types of activities financed	Non-agricultural consumption loans				
Other services	No other services provided				
Areas of operation	KZN, Gauteng	All 9 provinces except Northern Cape	All 9 SA provinces		
Target clientele	Low- to medium-income consumers				
Total branches	10	53	78	107	118
Total staff	116	237	645	906	1072

Source: Survey data

At the time of the 1997 base line survey, funds for MFO1's lending operations were obtained from the SA money market at market-related interest rates. With its purchase of MFO1 by a commercial Bank, MFO1 embarked on an aggressive expansion path (Table 4.3). Access to additional capital and the need to meet specified profit warranties drove this expansion. The number of branches increased from 10 in 1997 to 118 by 2002, a total of 108 additional branches across SA. The largest concentration of branches are in KwaZulu-Natal and Gauteng, followed by Mpumalanga and the Western Cape. These provinces account for most of the industrial sector activity in SA and, since formal employment is a prerequisite for credit, these provinces were targeted. The expanding government sector in SA has also facilitated expansion into more rural areas where government was the major employer.

The growth in MFO1 has necessitated the employment of additional staff and within five years the staff complement increased from 116 to 1072 (approximately 230 are head office staff). Management staff increased from 10 to 42 (Table 4.3). The rapid expansion of MFO1 presents some important challenges, similar to those faced by BancoSol in Bolivia that embarked on an expansion path. These include staff training and management, maintaining control of systems and procedures in a rapidly expanding environment, and information assimilation and dissemination. Similar to BancoSol, MFO1 had a lending technology that was proven and refined over time. It also had a relatively experienced core staff, a strong commitment to its mission, and greater flexibility to mobilize funds through the commercial bank that supported the rapid expansion. From having branches in only two provinces in 1997, MFO1 now has branches in every province of SA. No non-financial services are provided, with the core focus being on the granting of credit using the established and refined financial technology. Importantly, the mission of MFO1 has changed substantially from merely providing credit facilities to developing a suite of financial products, including savings facilities. The experience built up in MFO1, an extensive branch network, together with a good MIS and established cash handling facilities, facilitate the expansion of financial services.

Lender MFO2 is an established development finance corporation serving as the local government's development agency in KZN. Its development objectives include stimulating, promoting and sustaining entrepreneurs in all sectors of KZN, contributing towards income and wealth generation and its distribution to the target population, and contributing to the provision of home ownership (MFO2 Annual Report, 1996). The emphasis changed somewhat in 1999 when MFO2 underwent a restructuring and re-naming process. The Act

governing the existence of MFO2 was amended accordingly. An important change as a result of the restructuring process was the shift in focus of the mission of MFO2 (Table 4.4). Prior to 1999 the main focus was on socio-economic development, while post-1999 increasing emphasis was placed on becoming a self-sustainable organisation. Declining financial support from government necessitated this shift in focus. To facilitate the shift toward self-sustainability, the Act as amended in 1999 allowed MFO2 to access private equity and so reduce the reliance on donor equity. This, together with the growing funds mobilized through savings, would enable MFO2 to continue and grow its operations in a more sustainable manner. The increased focus on self-sustainability can impact on the nature of financial services offered with the challenge being to continue providing financial services to the target clientele without “mission drift” (Gonzalez-Vega *et al.*, 1997). The provision of savings facilities in rural areas has greatly increased the potential outreach of MFO2.

While MFO2 funds both agricultural and non-agricultural activities and mobilizes savings, the focus of this study was on the agribusiness division (formerly known as the rural development division). Given the focus only on agribusiness, no full financial viability assessment will be conducted for MFO2. Funding for the agricultural activities of MFO2 are obtained at concessional rates from the KZN provincial government, the Development Bank of Southern Africa (DBSA) and the Directorate of Financial Assistance. The flow of concessional finance particularly to the agribusiness division began to slow considerably during 1999, and necessitated the sourcing of funding at more market-related interest rates. This resulted in the discontinuation of financing a number of lower profit activities that were considered to have a relatively high developmental impact (MFO2 Annual Report, 1999).

As the main shareholder is still the government, this will continue to influence the nature of MFO2 business and the target market, albeit on a more financially sustainable basis. Only income-generating activities are financed by MFO2, usually at subsidised interest rates. These consist predominantly of agricultural and related activities, and focus on working capital requirements, moveable asset acquisition and land and fixed improvement finance. The agricultural division forms part of a well-diversified institution comprising of the micro and small business, medium and large industries, commerce and tourism, and savings divisions. Thus the potential for cross-subsidisation of the agricultural division exists, with MFO2 not necessarily being profitable or cost-efficient although there is increased focus on achieving these features.

Table 4.4 Coverage, Target Clientele and Activities of MFO2

Variable	Time period				
	Baseline Survey (1996/97)	1998/99	1999/00	2000/01	2001/02
Years of operation	19	21	22	23	24
Mission	To contribute to the socio-economic empowerment of the people of KwaZulu-Natal	To contribute to socio-economic empowerment of the people of KwaZulu-Natal, with the objective of becoming financially sustainable through re-aligning financial structures		To be a financially sustainable organisation, being representative of the community it serves and promoting economic and socio-economic development.	
Ownership	Provincial government	Provincial government	Provincial government	Provincial government	Provincial government
Financial services	Loans and savings. Agribusiness only provides loans.				
Types of activities financed	Agribusiness (income generating). Note that other divisions of MFO2 finance property development, housing, and small commercial business.				
Other services	Do offer advisory services (also had a adult education training facility that closed down in 1999 as not able to achieve financial self-sustainability)				
Areas of operation	KwaZulu-Natal Province Only				
Agribusiness Target clientele	Low- to high-income rural entrepreneurs				
Agribusiness branches	7	7	7	5	5
Total MFO2 branches	39	39	N/A	N/A	N/A
Total agribusiness staff	72	N/A	88	16	13

Source: Survey data

By amendment of the governing Act, MFO2 was able to offer voluntary savings facilities since 1992. An increasing share of loanable funds is being obtained from deposits, and

reduces reliance on donor funds. The entire organisation of which MFO2 is part has a branch network of 39 branches well-distributed throughout KZN. Notably, 13 of these branches were in towns where there was no commercial bank presence in 1999. Only seven of these branches had the facility to process agricultural loans, although application for the agricultural loans could be made at any of the 39 branches. The agribusiness division had a total staff complement of 72 at the time of the 1997 baseline survey, and this increased to 88 in 2000 (Table 4.4).

The agribusiness division then underwent a major restructuring process that led to administrative staff being transferred to the operational support division and credit risk staff to a centralized credit risk division to possibly achieve greater operational efficiencies. Non-financial services were offered through partner organisations funded by MFO2, the main one being an adult training and education center that was closed in 1999 due to financial viability constraints. Other non-financial services provided are those of project support and project facilitation. However, there does seem to be an increased focus on the core activity, which is providing agricultural finance.

Lender MFO3 was established in 1973 to service the development needs of rural communities and, specifically, small-scale sugar growers delivering less than 450 tonnes of sucrose per annum. This is one of the few MFOs that are mainly privately funded by a large agricultural organisation. Lender MFO3 operates over large geographic area including KZN (bulk of its operations), Mpumalanga and the north-eastern regions of the former Transkei (now Eastern Cape). It has one central branch in Durban with its field operations being administered by the 14 sugar mills as stated in Table 4.5. Only income-generating agricultural production loans at mostly concessional interest rates are provided to small

sugarcane farmers. This focus only on small-scale sugarcane farmers subjects the loan portfolio of MFO3 to relatively high covariant risks and makes MFO3 less self-sustainable, although MFO3 is sustainable since the parent body which funds it will, in all likelihood, not abandon it. Savings are compulsory and are used by borrowers for post-establishment maintenance of their sugarcane crop. These savings are held at a commercial bank, since MFO3 is prevented by the Banks Act from providing voluntary savings facilities (Table 4.5).

Table 4.5 Coverage, Target Clientele and Activities of MFO3

Variable	Time period				
	Baseline Survey (1996/97)	1998/99	1999/00	2000/01	2001/02
Years of operation	24	26	27	28	29
Mission	Service the development needs of small-scale sugar cane farmers				
Ownership	Owned by the South African Sugar Association				
Financial services	Loans and Savings				
Types of activities financed	Establishment and maintenance of small-scale sugar cane farms				
Other services	No				
Areas of operation	Eastern Cape, KwaZulu-Natal and Mpumalanga				
Target clientele	Small-scale farmers				
Total branches	15	15	15	15	15
MFO3 staff	21	N/A	21	N/A	N/A

Source: Survey data

Lender MFO3 only employs 21 staff comprising of eight loan officers, 11 credit support staff and one senior manager. This had not changed by the second interview in 2000. However, a considerable number of mill staff are also involved in administering the lending operations of MFO3, raising the effective staff compliment to about 110. This has improved MFO3's outreach capabilities without incurring substantial administrative costs.

During 2001, MFO3 underwent a major restructuring programme that resulted in a number of fundamental changes. Although these were not initially discussed at the second interview, it is worth including them in the study. Firstly, MFO3 underwent a name change to try and eliminate the perception of being a charity organisation providing handouts. Second, MFO3

revamped its range of products and services to improve outreach and loan repayment performance. The range of products now includes a group loan product. Thirdly, MFO3 reduced its reliance on the sugar mills to perform administrative and loan processing duties to reduce loan approval times. The shift in emphasis has been mainly in the direction of outreach and improved client service. Focus has also been placed on improving loan recoveries, but the objective of MFO3 is not to achieve self-sustainability but to rather to maintain a level of operational sustainability (cover operating costs from revenues).

Lender MFO4 initiated its 'Stokvel' group lending programme in 1987 in the Gauteng Province with its head office in Pretoria (Table 4.6). While the initial objective of MFO4 was to empower black entrepreneurs who were denied access to resources under the apartheid system, rapid portfolio expansion and the resulting poor financial performance prompted a major restructuring of the lending programme in 1992. With emphasis still on promoting micro-business, the aim of MFO4 is to achieve this in a financially viable manner (Table 4.6).

Table 4.6 Coverage, Target Clientele and Activities of MFO4

Variable	Time Period				
	Baseline Survey (1996/97)	1998/99	1999/00	2000/01	2001/02
Years of operation	10	12	N/A	N/A	N/A-
Mission	Promoting micro-entrepreneurs, while achieving self-sustainability				
Ownership	NGO				
Financial services	Loans only (had a compulsory savings product)				
Types of activities financed	Micro-enterprise				
Other services	None				
Areas of operation	KZN, Mpumalanga, Eastern Cape, Western Cape				
Target clientele	Low-income micro entrepreneurs				
Total branches	22	17	N/A	N/A	N/A
MFO3 staff	114	94	N/A	N/A	N/A

Source: Survey data

The United States Agency for International Development (USAID) and the German Technical Development Agency (GTZ) provided initial concessional funding. However, with

increased emphasis on financial viability, the sourcing of funds has shifted to the commercial money market where funds are obtained at market related interest rates (Churchill, 1998). Lender MFO4 only provides loans for non-farm, micro-business income generating activities, targeting low-income individuals with approximately 90 per cent of the clients being women. Compulsory savings are required, with these savings being deposited by borrowers at commercial lending institutions (Banks Act restricts MFO4 from holding voluntary deposits). MFO4 had relatively few branches, which reduce its outreach capabilities (Table 4.6). During 1999, MFO4 experienced severe financial difficulties as a result of too rapid credit extension that resulted in groups not being properly set up. The compulsory savings mechanism was abolished, resulting in very poor recovery rates - all loan activities were suspended in 1999. Khula Enterprises launched an investigation into the activities of MFO4 with the result that the organisation was restructured, involving the liquidation of MFO4 and a merger with another MFO under a new name. The reduction in the total number of branches and staff indicate an organisation that was scaling down. No further information was obtainable from MFO4.

While MFO2, MFO3 and MFO4 had very clear development objectives at the time of the 1997 base-line survey, these have changed markedly to achieving greater levels of self-sustainability, improving service delivery and focusing very much on savings mobilization in the case of MFO2. Lender MFO1's mission has also clearly changed toward one of providing a broader range of financial services, including savings, via well-developed financial technology and cash handling facilities to introduce savings. The opportunity to mobilize savings has also been made possible through the divisionalisation process with a commercial bank that effectively gives MFO1 access to a banking license.

The differences between, and objectives of, these institutions are crucial to understanding the financial technologies that they employ and will influence their outreach and financial viability to varying extents. The financial technologies used by these four KZN MFOs are reviewed in section 4.9 below.

4.8 Financial Technologies used by the Four Study MFOs

4.8.1 Loan Products – Scope of Outreach

Two types of loan products were offered by MFOs: individual loans and group loans. MFO1, MFO2 and MFO3 only had individual loans at the time of the study, while MFO4 provided only group loans to small micro-entrepreneurs. Financial technologies focusing on individual loan products are likely to reach a different clientele than group loans. Navajas (1999) found that higher-income earning, more productive borrowers accessed individual loans; while group loans attracted lower-income individuals because of the less stringent loan qualifying criteria.

Lender MFO1 essentially offered one loan product with varying loan terms, and maximum loan sizes. The advantage of this is simplicity in managing the portfolio. It also allows for rapid expansion of the organisation since the rules of the product are simple and easy to replicate. The interest due is calculated on the entire outstanding capital when the loan is advanced and then added to the capital amount upfront. This amount is divided by the term of the loan to derive the monthly instalment. No formal collateral such as chattel or land assets is required, making the credit more accessible to low-income individuals. In addition, MFO1 does not charge any processing or administrative fees. The only qualifying criterion is that

the loan applicant must be formally employed. This does limit the scale of outreach since low-income individuals that need capital to establish or run a small business do not have access to this finance. This limitation is as a result of the financial technology that MFO1 uses. Since no collateral, compensating balances, or equity contributions are required, and no technology exists (savings, group loans) that could incentivise small entrepreneurs to repay the debt, MFO1 is restricted individuals that are formally employed. Within this market, however, the financial technology allows MFO1 to achieve considerable scale of outreach. In addition to no formal collateral, the loans are paid out in cash within one to two hours of the loan application.

This contributes to achieving greater levels of client satisfaction by reducing borrower transaction costs in terms of time spent in accessing the finance. As indicated by Christen *et al.*, (1994) and Gonzalez-Vega *et al.*, (1997) cash loans allow greater flexibility in use. Borrowers typically use the funds for emergency purposes, to pay for funerals, to pay for school fees, to finance extensions to their homes, to purchase stocks for their spasa shops and to consolidate debt. No exact distribution of the purpose of the loans was available since MFO1 does not typically ask loan applicants what they intend using the money for. The monthly instalments coincide well with the cash flow of the borrowers who are mostly paid on a monthly basis at the end of the month when the instalment becomes due. Since borrowers have to come to the branch to pay the cash instalment, this promotes the frequent contact between lender and borrower that is necessary in a screening and monitoring intensive technology (Gonzalez-Vega *et al.*, 1996).

Table 4.7 Loan Product Characteristics for MFO1

Date	Loan Products	Loan Terms and Conditions							Qualifying Criteria	Formal Collateral
		Loan value (Rand)		Maximum Instalment (% of gross salary)	Loan Term (months)	Interest Rate	Repayment Frequency			
		Minimum	Maximum							
Baseline Survey (1996/97)	4 month	R200	R4000	27%	4	7.5% pm	Monthly	All loans: - Must be formally employed - Older than 18 years	None	
	6 month	R1200	R4000	27%	6	7.5% pm	Monthly		None	
Repeat Survey (1999/2000)	2 months	R200	R4000	27%	2	14.5% pm	Monthly		None	
	4 months	R200	R4000	27%	4	8.5% pm	Monthly		None	
	6 months	R1200	R4000	27%	6	6.5% pm	Monthly		None	
Financial year end (2001/2002)	1 month (high-risk)	R200	R2000	20%	1	20% pm	Monthly		None	
	4 month (high-risk)	R200	R2000	20%	4	11.75% pm	Monthly		None	
	4 month (medium-risk)	R200	R4000	27%	4	9.75% pm	Monthly		None	
	4 month (low-risk)	R200	R6000	27%	4	7.75% pm	Monthly		None	
	6 month (medium-risk)	R1200	R8000	27%	6	9.5% pm	Monthly		None	
	6 month (low-risk)	R1200	R10000	35%	6	7.5% pm	Monthly	None		
	12 month (low-risk)	R1000	R10000	35%	12	5.5% pm	Monthly	None		

Note: pm = per month

There are no additional fees levied on the loans.

The low minimum loan amount makes this finance accessible to relatively low-income-earning clients, which improves both the depth and scale of outreach. At the time of the 1997 baseline survey, only 4 and 6 month loans were offered at a fixed interest rate irrespective of the credit risk of the loan applicant (Table 4.7). This had changed by 2002, since MFO1 had improved its risk assessment technology, particularly for repeat loan applicants. This allowed MFO1 to offer loans with better terms and conditions to lower risk borrowers. This markedly improved the quality of service, since borrowers that were repaying loans better are rewarded for doing so with less cross-subsidization taking place between high- and low-risk borrowers. Lender MFO1 does have an implicit loan graduation system in the loan policy where high-risk and first-time borrowers qualify for a lower maximum loan amount and loan term than repeat borrowers (although high-risk repeat borrowers would qualify for the same loan terms and conditions as first-time borrowers). There is no conscious effort to graduate a borrower's loan amount, since the loan size is determined by the borrower's affordability. The absolute maximum loan amount of R10000 is set by the rules of exemption to the Usury Act. This does not necessarily limit MFO1's outreach since the core focus is on supplying credit to low-income, formally employed individuals.

Lender MFO2 had four loan products aimed at meeting the financial needs of the small-scale and emerging agricultural sector. These included a short-term production loan, a group loan, medium-term equipment loan and a long-term loan for financing land acquisition and fixed improvements (Table 4.8). Initially the loans had no set minimum or maximum amounts. The loan terms for short-term production loans were set at 1 year, for medium-term equipment loans at 10 years and for long-term loans between 10 and 20 years. Interest rates on the products were marginally below the ruling bank rate, indicating the inherent subsidy in the debt. This is consistent with the development objectives of MFO2.

Table 4.8 Loan Product Characteristics for MFO2

Date	Loan Products	Loan Terms and Conditions							
		Loan value (Rand)		Maximum Loan Term (years)	Interest Rate (per annum)	Repayment Frequency	Administration Fee	Obligatory Deposit	Formal Collateral
		Minimum	Maximum						
Baseline Survey (1996/97)	Short-term production loan	None	None	1	14% - 16%	Monthly but flexible	2% of loan principal	Up to 30%	Asset financed and/or insurance policy
	Short-term production credit for groups	None	R50000 (per group)	1	14% - 16%	Seasonal	None	None	None
	Medium-term equipment loan	None	None	1 - 10	14% - 16%	Monthly but flexible	2% of loan principal	Up to 30%	Asset financed and/or insurance policy
	Long-term loan	None	None	> 10	14% - 16%	Monthly but flexible	2% of loan principal	Up to 30%	Asset financed and/or insurance policy
Repeat Survey (1999/2000)	Working capital	R5000	None	2 (6 years for sugarcane establishment)	Prime (adjusted for risk)	Monthly, quarterly, bi-annually or annually	2% of loan principal up to a maximum of R5700. Must be paid up front	None	At least 60% of the value of the loan principal outstanding
	Equipment finance	R5000	None	5				Up to 20%	
	Land and Fixed Improvements loans	R5000	None	20				Up to 20% (exception is made for medium-scale emerging farmers)	

Instalments on loans were due monthly, but flexibility was allowed so that instalments can be matched to the cash flow of the borrower's business. This does add value to the quality of services. Although flexibility for agricultural loans is important because of the irregular cash flows of small borrowers, repayment flexibility should not create perceptions of leniency amongst borrowers that MFO2 has a lenient policy towards defaulters. As noted in Chapter 2, the BAAC, while allowing seasonal repayments for agricultural loans, required prompt repayment of loans at the end of the loan term and expected borrowers to make up any shortfalls by borrowing from money lenders (Yaron, 1994).

The scope of financial products offered by MFO2 does accommodate most of the agricultural financing needs of the target population. Should individuals have other financing needs (such as consumption loans or savings), other divisions of the organisation of which MFO2 was part could service these. The administration fee and obligatory deposits of up to 30%, and the requirement of collateral potentially, reduced the scope of these financial products, since low-income individuals may not necessarily have the funds to meet the administration fee and obligatory deposit requirements (Table 4.8). Personnel interviewed at MFO2 did indicate that these requirements were not strictly adhered to and exceptions were made, depending on the deemed developmental impact that the finance would have.

Lender MFO2 has also developed an innovative long-term land finance product, to accommodate black commercial emerging farmers, which reduces dependence on subsidised government funds while trying to alleviate the initial cash-flow problems of borrowers (who still pay the full market price of the land) (Simms, 1997). This innovative financial product has enabled individuals from previously disadvantaged backgrounds to purchase medium-sized sugar cane farms (90Ha – 110Ha) made available by the sugar millers. This process has

thus facilitated a key development objective of transferring land to formerly disempowered black people. This scheme was initiated in 1996 at the time of the base-line survey and by May 2003, 142 medium-scale black commercial farmers had been settled on land formerly owned by the sugar millers, with MFO2 providing over R8 million worth of finance using the graduated payment product (Inggs, 2003). This has certainly extended the frontier of rural finance where financial innovation has allowed funds to be made available at a relatively low subsidy and had certainly increased the scope of MFO2 outreach.

Lender MFO2 also provided finance to groups of small, largely subsistence small-scale farmers. The loans were designed to provide working capital finance to allow these farmers to establish crops. The repayment regimes are flexible, accommodating the seasonality of cash flows of the agricultural clients. In addition, these groups tended to be large, consisting of 30 to 60 members. The less frequent repayment schedules do not promote the frequent borrower and lender interaction, necessary to maintain group cohesion and regular repayments, although regular repayment does not necessarily match the cash flow of agricultural clients. Cash flow patterns of these farmers tend to be subject to high covariant risks which limit the effectiveness of joint liability, since if one group member defaults as a result of a negative income shock, the entire group is likely to default (Graham, 1995a).

To improve access to this type of finance, no obligatory deposits, administration fees or formal collateral are required. However, the effectiveness of joint liability groups is determined largely by the degree of investments in group formation and to what extent group members know and trust each other and are in a position to monitor each other (Jain, 1995; Graham 1995a). Investment in group formation by MFO2 was less intensive, making use of existing farmer associations. Group members were more spatially dispersed and

heterogeneous, making monitoring by individuals more costly relative to the gains, thus reducing group cohesion. Agricultural group members were responsible for group formation costs, and MFO2 required the group to have a formal constitution with an elected governing body managing the group's activities. MFO2 did assist borrowers in drafting a constitution. Members of the governing body were also required to pledge collateral to improve group monitoring and cohesion. While better access to finance was created through less stringent qualifying criteria, the group loan did impose additional transaction costs on borrowers and to some extent on MFO2 that provided assistance in constituting the group. If the spread of transaction costs is a barometer of the quality of financial services, then MFO2 group loans necessarily impose high transaction costs on these spatially dispersed agricultural borrowers.

By the repeat survey in July 2000, the product offering had changed somewhat due to the increasing pressure on MFO2 to become self-sustainable, which resulted in reduced access to concessional funds. The group loan had been abandoned given the high transaction costs relative to the small individual loans granted. The joint liability mechanism did not prove successful given the co-variant nature of the risks and faced the geographic dispersion of the borrowers limiting the impact of joint liability. While the three core products had been retained, there were a number of changes, the most notable being the imposition of a minimum loan amount, increases in the interest rates to meet with the ruling bank rate adjusted for risk (which invariably increased the interest rate) and more stringent collateral requirements. Loan payments were still flexible, but had to fit in to either a monthly, quarterly, bi-annual or annual payment regime that accommodates much of the seasonality of agricultural production (Table 4.8).

The increasing drive for financial self-sustainability by MFO2 has thus resulted in the scope of outreach being reduced, since these loan products were targeted at individuals that had funds available, or a viable business that could afford the collateral and obligatory deposit requirements. While the projects financed must still have development impact in terms of job creation, land redistribution or export potential, there has been a distinct shift in focus toward financing more viable, higher-income projects (Annual Report of MFO2, 1999).

MFO3 had a specific target market, namely small-scale sugarcane farmers situated in the sugarcane growing areas of SA. Its primary objective was largely driven by the donor or supporting body of MFO3 that required MFO3 to provide financial assistance to small-scale sugarcane farmers to establish sugarcane. To achieve this objective MFO3 had two core products that did not change in characteristics from the 1997 base-line survey. Two of the major changes were the maximum loan amount and the interest rate. The interest rate is determined by the cost of borrowed funds some of which are sourced from commercial lenders, while most is borrowed at concessional rates. The maximum loan amount is determined by the cost of establishing one hectare of sugar cane and is revised annually (Table 4.9). The scope of outreach is limited, since the financial products are only geared toward financing the establishment and maintenance of sugarcane. The broader financial needs of the target market cannot be met by MFO3. However, the absence of any formal collateral requirements, compensating balances or administration fees, make this type of finance more accessible to low-income small-scale farmers when compared to the financial products of MFO2.

Table 4.9 Loan Product Characteristics of MFO3

Dates	Loan Products	Loan Terms and Conditions							
		Loan value (Rand)		Maximum Loan Term (years)	Interest Rate (per annum)	Repayment Frequency	Administration Fee	Obligatory Deposit	Formal Collateral
		Minimum	Maximum						
Baseline Survey (1996/97)	Crop Establishment	None	R4800/ha	8	16% pa	Seasonal	None	R50/ ha	Cession on crop
	Ratoon Management	None	R1400/ha	2	16% pa	Seasonal	None	None	Cession on crop
Repeat Survey (1999/2000)	Crop Establishment	None	R5100/ha	8	18% pa	Seasonal	None	R50/ha	Cession on crop
	Ratoon Management	None	R1800/ha	2	18 %pa	Seasonal	None	None	Cession on crop

This improves the depth of outreach that MFO3 could achieve. Loan repayments were adjusted to the seasonal nature of crop production, and thereby added to the quality of the given service by MFO3. The two loan products had distinct functions with the longer-term product providing finance to establish the crop, while the shorter-term loan provided emergency finance for crop maintenance (Table 4.9). Lender MFO3 did not employ a graduated loan system whereby repeat borrowers qualified for larger loans at longer terms. All borrowers qualified for the same loan depending on the area that was to be planted to sugarcane. This differs from some of the more successful Bolivian lenders that use a graduated loan system to provide a strong incentive for borrowers to repay and thereby to gain access to more credit at better terms and conditions. The shorter-term product was also only available to small-scale sugarcane farmers if they had not accumulated enough savings in their compulsory savings accounts to manage the crop.

With the restructuring of MFO3, the range of credit products was broadened in response to the cash flow needs of small-scale sugarcane farmers. The first additional product was a bridging finance loan that would cover the liquidity needs of the small-scale growers between harvesting the crop and when payment was received from the sugar mills. This product is also available to contractors who harvest and transport the sugar cane for many small-scale growers. Lender MFO3 has also introduced a group loan product through which low-income individuals who want to establish sugarcane, can access funds. The group size has been limited to between 3 and 10 individuals that have to live in close proximity to one another. This lender hopes to reduce the transaction costs of dealing with many small-scale growers and also wants the grower groups to pool resources so that better cost efficiencies can be achieved. Loans to these groups will also be provided at concessional interest rates.

While small groups tend to work better than large groups, relatively high covariant risks in agricultural production still make group loans somewhat risky (adverse agricultural conditions will affect all group members). Effectively setting up the joint liability mechanism also requires strict incentives in the loan contract and much investment in correctly constituting the groups. From the initial discussion with personnel from MFO3 it is not clear whether this will be the case. The traditional 8 year long-term loan product was geared to small-scale growers who have more than 5 hectares of dry land or 2 hectares under irrigation. The greater area results in higher potential incomes and hence bigger loans through which MFO3 can achieve cost efficiencies. The 2 year ratoon management loan is still in place, while the compulsory savings facility has also been retained. Lender MFO3 has thus attempted to increase the scope of outreach by offering a broader range of financial products, still with relatively few collateral requirements and administrative fees.

Lender MFO4 only provides group loans to individuals, predominantly women in urban areas that are self-employed. This limits the extent to which MFO4 can accommodate the broader financial needs of individuals or households. This may negatively impact both the scale and scope of outreach. The requirement that loans can only be used to finance business activities further limits the scope of the programme. This lender operated a graduated loan programme where incentives to repay the loan were encouraged by the promise of access to larger loans over longer terms with the maximum loan term being 12 months. Groups were required to deposit 10% of the required loan amount in a club savings account at a commercial bank. Given the relatively small start-up loans, this should not necessarily limit access by low-income individuals to finance (Table 4.10).

Table 4.10 Loan Product Characteristics for MFO4

Dates	Loan Products	Loan Terms and Conditions							
		Loan value (Rand)		Maximum Loan Term (months)	Interest Rate (per annum)	Repayment Frequency	Administration Fee	Obligatory Deposit	Formal Collateral
		Minimum	Maximum						
Baseline Survey (1996/97)	Group loan (group size of 4 to 6 individuals)	R100 (per individual)	R5000 (per individual)	4 – 12	3% for 4 month 2.8% for 6 month 2.3% for 9 month 2.1% for 12 month	Monthly	None	10% of investment	Joint liability
Repeat Survey (1999/2000)	Group loan (group size of 4 to 6 individuals)	R400 (per individual)	R800 (per individual)	4	N/a	Monthly	None	R80 per group member to be deposited in a club savings account	Joint liability
		R800	R1200	4 – 6					
		R1200	R1600	4 – 6					
		R1600	R2200	4 – 6					

A further restriction on the scope of MFO4's outreach is that the loan size between group members was not allowed to vary by more than R300. With first-time borrowers having access to relatively small amounts and with limited loan size variability between group members, this type of finance may be too restrictive. Navajas (1999) showed that borrowers that had few alternative sources of finance tended to use BancoSol's group loans. Once a credit track record was established and a need for more flexible finance existed, such borrowers tended to migrate to lenders offering individual loans. The frequent monthly repayments promote the regular contact between borrower and lender that is required for group monitoring purposes.

With the restructuring that MFO4 underwent in 2000, the terms and conditions of the loans were revised, with the most notable changes being in the maximum and minimum loan size and maximum loan term. The minimum loan amount was raised, while the maximum loan amount was reduced considerably from R5000 to R2200 (Table 4.10). This was possibly to ensure less exposure at the top end, while also realizing that small, informal business could probably not sustain such high levels of debt. The maximum loan variance between group members remained at R300, while only one male was allowed to be part of a group. Hence the revised measures were not so much aimed at increasing the scope of outreach, but rather to reduce exposure and promote better group management.

Reviewing the above trends, it seems that the agricultural lenders had relatively more flexible loan products to accommodate the range of agricultural finance needs of small- to medium-scale farmers. MFO3 has extended its scope of outreach by adding to its product range while still requiring little formal collateral, thus enabling it to reach individuals further down the poverty chain. The objective of MFO2 to increase financial viability, has seen a shift in

emphasis to offering loans to higher-income customers with more collateralisable wealth. This would suggest that barriers to access to this finance by low-income individuals have increased. However, not all low-income individuals are credit-worthy and cost effective to service. In addition, profit generation requires productive and growing businesses, which in agriculture are difficult to sustain on a small-scale.

Lender MFO1, although not offering a broad range of products, offered the most flexible financial product, clearly differentiating between its perceived risk classes of borrowers, and improving quality of service with differentiated loan pricing and no restrictions on the use of funds. The scope of finance is limited in that only formally-employed individuals can borrow money at relatively high interest rates. Finance provided by MFO4 also has limited scope in that only individuals owning small informal business can access its funds. Given the small loan sizes, this form of finance may appeal to high-risk, low-income individuals that have few other alternatives to access finance. The group loan may also necessarily impose high transaction costs on individuals within the group and reduce the quality of financial services. While the nature of loan products influences the quality of financial services provided, information is also required on loan approval and disbursal procedures to assess the quality and scope of outreach. These aspects are discussed for the four MFOs in 4.8.2.

4.8.2 Cost to Borrower and Lender: Loan Application, Approval, Disbursal and Collection Process

An important dimension in the definition of outreach by Navajas *et al.*, (2000) was the cost incurred by borrowers and savers to utilize the financial services provided by MFOs. Part of these costs include the direct cost of finance charges, administration fees and transaction charges. A second component of user is the indirect transaction costs incurred in interacting

with the financial technology (Yaron, 1994; Gonzalez-Vega *et al.*, 1996; Navajas *et al.*, 2000). These transaction costs are a function of the financial technology and depend on: where loan applications are made; how detailed and time-consuming the process is; how long the loan approval process takes; how funds are disbursed (loans disbursed in cash vs. loans disbursed in-kind); and how funds are collected. The administrative and operational efficiency of the MFOs play an important role in this process.

The MFOs also incur transaction costs in the financial process and there is a need to balance to what extent MFOs pass these on to users or absorb them. Part of the process of financial innovation is the process of reducing the transaction cost spread (Gonzalez-Vega, 1993). The extent to which the four study MFOs have achieved this is subjectively assessed in this section. Lender MFO1 requires that loan applications be made at its branches (Table 4.11).

Table 4.11 Loan Application, Approval, Disbursal and Collection Procedures used by MFO1

Characteristics	Base line survey (1997)	Repeat Survey (2000)
Client solicitation	Word of mouth, advertising in local newspapers and popular press, radio	Word of mouth, advertising in local newspapers and popular press, radio
Place of loan application	Branch	Branch, fax, telephone, internet
Loan application process	Completion of a loan application form	Captured on to the management information system (MIS)
Loan processing (first-time applicant)	1 – 2 hours	1 – 2 hours
Loan processing (repeat borrower)	Less than one hour	Less than one hour
Loan approval decision	Decentralised Branch manager makes decision	Decentralised Branch manager makes decision
Where does loan processing take place?	At branch	At branch
Local individuals involved in approval process	No	No
Loan disbursal method	Cash at branch	Cash at branch
Grace period	11 – 42 days depending on when loan is taken	11 – 42 days, depending on when the loan is taken
Loan collection method	Cash payment at branch or cash payment at post office or nominated commercial bank	Cash payment at branch or cash payment at post office or nominated commercial bank

In 1997, MFO1 only had 11 branches that were situated in major rural and urban towns – this may have increased the cost to users in getting to a branch. However, many branches are located in shopping complexes such that most of the time the visit to the branch can be combined with other shopping activities. By 2000, the mechanisms by which applications could be made had increased substantially to include telephonic applications (toll-free number), applications by fax, and via the internet (this is probably only available to higher-income users).

The type of financial service provided determines how applications can be received, and, hence the transaction costs that users must incur. Importantly, MFO1 has expanded its application mechanisms to reduce the cost of time and other expenses to get to a branch. A caveat to this process is that borrowers must still visit a branch to *collect* the funds (Table 4.11). Transaction costs are also incurred by individuals as a result of language and reading barriers. Loan applicants were still required to complete a loan application form in English in 1997, this had changed by 2000 since applications were captured by a customer consultant directly on to the MIS. Loan applications are captured by a customer consultant directly onto the MIS. Loan applicants are also addressed in their home language, thus substantially reducing reading and writing barriers. Given that information on the loan applicant's date of birth, home address, home telephone contact, residence type, marital status, work address, work telephone and income details are required, the loan application can be processed quickly. MFO1 has a direct electronic link to the credit bureau and hence a bureau check can be done in less than one minute. Loans can be approved in under one hour if the applicant's personal references and employment can be easily verified. This reduces borrower waiting time considerably.

A decentralized loan approval process has also contributed to faster loan approval, as branch managers have full authority to approve or decline a loan (most loan amounts are under R10000). Lender MFO1 has developed adequate cash handling facilities that allow the loan to be paid out in cash upon approval with no restrictions on the use of funds. This also reduces borrower transaction costs since the cash is obtained immediately upon loan approval. The loan terms and conditions are relatively easy to understand with a simple mechanism being used to compute the instalment. Equal instalments are payable monthly, with the balance outstanding being reduced by the value of the instalment.

Instalments are payable on a monthly basis at the branch. Payments can also be made at the local Post Office or at the commercial bank where MFO1 has a bank account. Again, MFO1 has tried to reduce borrower transaction costs by increasing the number of pay points. MFO1 has itself increased the branches at which payments can be received. Borrowers can also transfer to different branches with relative ease. This flexibility in systems and processes that are designed to reduce borrower transaction costs do come at a cost to MFO1 that is built into the cost of credit. Hence, while MFO1 has developed mechanisms to reduce borrower transaction costs, the infrastructure that is necessary to do this has raised operational costs and hence the cost of credit. Lender MFO1 solicits borrowers mostly through word of mouth, pamphlet distribution and advertising through radio and popular press. The loan application process is considerably faster for repeat borrowers, since no application form has to be completed. If the borrower has an available credit limit, he/she can proceed directly to the teller to withdraw the required amount.

Lender MFO2 solicits clients mainly through word of mouth, advertising on the radio and in popular press, and by having stands at local shows or field days attended by farmers. Loan

applications for the group loan were mostly made in-field to reduce both borrower and lender transaction costs. Loan officers normally attend local farmers' association meetings where relatively simple loan application forms are completed by borrowers or on behalf of borrowers if literacy is a problem. All other loan applications for MFO2 were handled at the branches. Since only 7 of the 44 MFO2 branches could process agricultural loans, borrower cash costs (travel) and opportunity cost of time in accessing these services were necessarily high (Table 4.12). This has subsequently been changed so that all financial services (both savings and loans) provided by MFO2 are available at all branches. This has improved accessibility to these loan products for rural individuals. However, the loan application process is still fairly detailed and time-consuming, since not all branches can process loans. When an inquiry is made at a branch, it must be forwarded to the nearest branch where MFO2 has agricultural advisors. This process can already induce time delays if requests are not processed quickly.

Once the request is received, an interview is set up with the loan applicant, where detailed information on the existing or potential business venture to be financed, is obtained. The likelihood that loan applicants will have all this information at hand is relatively low, although they are informed about these requirements at the inquiry stage. The gathering of information may result in several visits to the branch by the loan applicant and by the agricultural advisor to the loan applicant's premises to verify information. If loan applicants have all the information at hand this process is relatively fast. Small agricultural businesses are, however, not likely to have detailed financial records and a business plan that is required for any loan application (first-time or repeat).

Table 4.12 Loan Application, Approval, Disbursal and Collection Procedures used by MFO2

Characteristics	Base line survey (1997)	Repeat Survey (2000)
Client solicitation	Word of mouth, advertising in local newspapers and popular press, radio, show stands	Word of mouth, advertising in local newspapers and popular press, radio, show stands
Place of loan application	Branch	Branch
Loan application process	Completion of a loan application form, visit by field officer, submission of application form to processing center for loan approval, collateral must be secured, loan approved/declined	Completion of a loan application form, visit by field officer, submission of application form to processing center for loan approval, collateral must be secured, loan approved/declined
Loan processing (first-time applicant)	2 – 24 weeks	2 - 6 weeks
Loan processing (repeat borrower)	2 – 24 weeks	2 – 6 weeks
Loan approval decision	Chief loan officer (Loans < R2000) Processing center manager (Loans < R50000) Head office (Loans > R50000)	Area manager (Processing branch) Regional manager (Head office) Divisional manager (Head office) Credit committee (Head office) (all approval limits have been revised upwards but were not disclosed)
Where does loan processing take place?	At the regional processing centre	At the regional processing center
Local individuals involved in approval process	No	No
Loan disbursal method	In-kind (agricultural suppliers are paid directly)	In-kind (agricultural suppliers are paid directly)
Grace period	30 days	30 days
Loan collection method	Pay cash at branch, stop order or debit order	Pay cash at branch, stop order or debit order

Once all the information has been gathered, the loan application is sent to a processing center where the details are captured onto the MIS, the loan guarantees are put in place and the loan application is assessed. Although loan approval decision-making is decentralized, branch managers and agricultural managers have limited approval authority with larger amounts being referred to head office. For MFO2, rural development branch managers were allowed to approve loans to a value of R50 000. The chief advisor directly responsible for field staff could approve loans up to R2 000 before having to refer them to the branch manager. Loans greater than R50 000 were referred to head office for approval (Table 4.12).

To speed up the loan approval process, regional staff are given approval authority over larger loans. A collateral-intensive lending technology necessarily imposes additional costs on borrowers since the legal processes involved are time-consuming and costly. In addition to time intensive loan processing procedures, loan disbursements were in-kind, further reducing loan product flexibility while also imposing additional transaction costs on borrowers in accessing the funds. Although MFO2 has cash handling facilities, funds are disbursed in-kind to make sure that money is utilized as per loan application. Suppliers of agricultural inputs or sellers of land are paid directly. Thus the funds initially have little flexibility in use although these loans do become fungible once the asset is in the borrower's possession. This loan approval and pay-out process is not much faster for repeat borrowers, since the whole application process has to be repeated. Loans are repayable by cash deposit, or debit order if the borrower has a banking account.

By nature of the type of finance that is provided by MFO2, the loan application form is necessarily complicated and relatively long. The information requirements, collateral requirements and inflexibility in use of funds do impose additional transaction costs on the borrower. The extent to which MFO2's transaction costs have increased or reduced is not clear. However, the loan amounts disbursed are relatively large while interest rates are much lower than those charged by MFO1 partly due to subsidized funding and larger loan sizes. The total cost of credit to the borrower (including transaction costs), given the relatively large loan amounts, is thus be relatively lower than for MFO1. However, the barriers to entry for low-income borrowers have increased given the collateral-intensive technology. The transaction costs that these individuals would have incurred in interacting with the financial technology could be relatively high. The most important cut in borrower transaction costs has been MFO2's endeavour to speed-up the time taken to process a loan application and to

reduce the time taken to approve a loan by delegating increased authority to branch managers (Table 4.12).

Since MFO3 targets specifically small-scale sugarcane producers, most of the client solicitation happens by word-of-mouth. This is a relatively cost-effective way of marketing for MFO3. Loan applications can be made at agency centres such as the local farmer associations, sugar mills and government extension offices (Table 4.13). However, most of these offices are fairly centrally situated, operating in major rural towns only. There are only 15 sugar mills in the three provinces in which MFO3 operates, thus increasing borrower transaction costs of accessing this finance. Another factor that adds to borrower transaction costs was that the predominant language at the mills is English, which was often not understood. Loan application procedures are tedious, requiring that the potential borrower go to the local sugar mill or extension office to apply for a loan. Following the loan application, a meeting is arranged between the loan applicant, the local extension officer and an MFO3 loan officer. During the process all the necessary information is collected and the loan process explained to the loan applicant.

The loan or extension officer must, however, still make a field visit to verify all the details captured on the loan application form. The application details are then captured by the sugar mill, after which the application form is forwarded to MFO3 for further processing. This process often resulted in time delays, since the mill staff are often slow to forward loan application forms to the MFO3 office. Long loan approval times often resulted in funds not being received in time by the borrowers to establish crops, thus placing the whole loan in jeopardy. The restructuring process implemented by MFO3 tried to address long loan

approval times by setting up offices at each of the mills where MFO3 staff can handle loan applications to speed up the process and reduce the language and literacy constraint.

Table 4.13 Loan Application, Approval, Disbursal and Collection Procedures used by MFO3

Characteristics	Base line survey (1997)	Repeat Survey (2000)
Client solicitation	Word of mouth, field days	Word of mouth, field days
Place of loan application	Extension office or sugar mill	Extension office or sugar mill
Loan application process	Completion of loan application form, meeting with loan officer, field visit by loan officer, staff application processed by mill, application processed by MFO3 staff	Completion of loan application form, meeting with loan officer, field visit by loan officer, application processed by mill staff, application processed by MFO3 staff
Loan processing (first-time applicant)	8 – 26 weeks	8 – 26 weeks
Loan processing (repeat borrower)	8 – 26 weeks	8 – 26 weeks
Loan approval decision	Loan officer in conjunction with Head office staff	Loan officer in conjunction with Head office staff
Where does loan processing take place?	Head office	Head office
Local individuals involved in approval process	Yes	Yes
How?	Loans committee consists of grower facilitator from local area and MFO3 loan officer	Loans committee consists of grower facilitator from local area and MFO3 loan officer
Loan disbursal method	In-kind (agricultural suppliers are paid directly)	In-kind (agricultural suppliers are paid directly)
Grace period	Yes – seasonal loan repayment	Yes – seasonal loan repayment
Loan collection method	Direct deduction by mill	Direct deduction by mill

Once a credit check is done, the loan is either approved or declined based on the loan officer's recommendation. Borrowers then have to be informed of the outcome. The whole loan application process can take from two months to half a year. Loan disbursals were in-kind with borrowers having to collect order numbers from the mill or extension office, since MFO3 does not have any cash handling facility. These order numbers can be used to buy agricultural inputs and hire loan contractors. While imposing relatively less of the administrative burden on MFO3, it increases borrower transaction costs since several visits to the extension office or mill need to be made. Thus, even though the interest rates on these loans are subsidised, the effective interest rate to borrowers may be much higher (Table

4.13). Again the loan has little flexibility in use although money is fungible. The sugar mills handle loan collections through automatic deductions. An advantage for the borrower is that the loan repayments coincide with the delivery of the crop and thus match the cash flow of the farm business.

Lender MFO3 has adopted a screening-intensive technology relying little on collateral, which increases access to this financial service by low-income small-scale farmers. To reduce administrative overheads, MFO3 has made extensive use of the administrative structure of the sugar mills in handling applications and disbursing loans. This has increased borrower transaction costs through increased visits in applying for the loan and collecting the loan in-kind. The total cost of credit may thus be high even though the interest charged is at a concessional rate. Loan contract terms were complex, with no clearly defined instalment calculation. Hence borrowers could not anticipate how much would be deducted and when. These processes had not changed by the time of the repeat survey in 2000. With the restructuring process in June 2001, however, some of the processes had been re-designed to improve the administrative process and reduce the loan application time to 2 weeks. Small groups loans were also encouraged to increase the bargaining power of small-scale farmers in input purchase while, also reducing transaction costs since MFO3 would only interact with the group leader and not all individuals within the group. As discussed in Chapter 2 group loans can work, but need to be carefully structured.

Lender MFO4 was a relatively small organisation with a limited branch network. Since loan applications had to be made at branches, this necessarily increased borrower transaction costs (Table 4.14). Loan application forms are relatively simple, with loan officers assisting loan applicants to complete three forms, reducing any possible literacy problems. While the group-

lending technology may increase access to finance for individuals lower down in the poverty chain, group formation costs can necessarily impose high costs on potential borrowers. This process has to be rigorous to ensure that groups are properly constituted.

Table 4.14 Loan Application, Approval, Disbursal and Collection Procedures used by MFO4

Characteristics	Base line survey (1997)	Repeat Survey (2000)
Client solicitation	Word-of-mouth	Word-of-mouth
Place of loan application	At branch or in field	At branch or in field
Loan application process	Introductory meeting Form groups Complete application forms Visit to each group member by field officer Loan processed	Introductory meeting Form groups Complete application forms Visit to each group member by field officer Loan processed
Loan processing (first-time applications)	4 – 5 weeks	4 – 5 weeks
Loan processing (repeat borrower)	Same day	Same day
Loan approval decision	Loan officer at branch	Loan officer at branch
Where does loan processing take place?	Branch	Branch
Local individuals involved in approval process	No	No
Loan disbursal method	Cheque to be cashed at bank	Cheque to be cashed at bank
Grace period	30 days	30 days
Loan collection method	Cash deposited at bank	Cash deposited at bank

First-time loan application approval times were fairly long for MFO4 due to investments in borrower group formation. This involved obtaining a loan application form, having a start-up meeting with MFO4 staff, and putting the obligatory cash deposit into a savings account with a commercial bank. The credit vetting procedure required the MFO4 loan officer to visit the premises of each of the loan applicants. Lender MFO4 had no cash handling facilities, and since there were no functioning MISs in branches, all administrative work had to be conducted at head office, which was situated in Pretoria. Upon approval by the branch, Head office would transfer the funds to the branch's bank account. The branch would then issue a cheque for the loan amount to the group, where leaders had to then deposit this cheque into a bank account to obtain the funds. For security and administrative reasons, no funds were kept

at local branches. This process is time-consuming and imposes high transaction costs on borrowers who have to travel to MFO4 branches several times during the administrative process.

For repeat borrowers, loan approval times were considerably faster, with loan applications for new loans being made when paying the last instalment of the current loan. However, borrowers still had to incur the cost of time and (possibly) transport to cash the cheque. Loan collections require that groups firstly collect the required funds amongst their members and then to go to MFO4, to obtain a bank deposit slip so that the money could be deposited at the bank. This process again imposed considerable transaction costs for borrowers, particularly those who lived far away from the MFO4 branch. Loan disbursements did, though, coincide with loan repayments, which did help to alleviate the costs (Table 4.14).

The main issue with MFO4 seemed to be the lack of administrative and cash handling capacity at the branches. To keep the set-up costs of MFO4 low, branches were not equipped to handle much of the administrative burden of loan disbursements as this required relatively costly infrastructure and trained staff. As potential fraud was also considered a problem, MFO4 used centralized control and no cash handling by the branches. Even though the loan approval process was decentralized, the low-cost infrastructure of the branches necessarily imposed high transaction costs on the borrowers, thus raising the total cost of credit. The demise of MFO4 in early 2000 can also be partly attributed to poor administrative control and violation of procedure, particularly in ensuring proper group formation. The pressure to increase sales often forced branch staff to grant credit without following proper procedure. At the time of the second interview in 2000, policies were being put in place to counter this, with branches being equipped to better handle the administrative burden.

In summary agricultural lenders (MFO2 and MFO3) tended to have technologies that are cost-increasing to both borrower and lender with complicated loan application, approval and loan disbursement procedures. Loan flexibility was limited with loans being disbursed in-kind. While such in-kind loan disbursement were partly instituted to prevent diversion of funds, secondary markets for goods obtained in-kind may emerge and negate efforts to prevent diversion of funds. The micro-lenders (MFO1 and MFO4) have improved service quality through faster loan approval and simpler loan application procedures, although MFO4 has tended to adopt only technologies that reduce lender administrative costs. The next section reviews the presence MISs and staff incentives schemes in these four study MFOs.

4.8.3 Staff Incentive Schemes

Having well-motivated and productive staff helps MFOs to provide effective financial services to clients, and achieve high levels of outreach and loan recovery. It is thus important that MFOs have staff policies that are conducive to high productivity and accountability. Best practice MFOs have had financial and non-financial incentives linked to both loan disbursement (volume and number of loans) and collection, and branch profitability targets to try and induce better staff performance and accountability. Lender MFO1 had staff incentives linked to the number and volume of loans disbursed, loan repayments and branch profitability. This policy was in place at the 1997 baseline survey and the repeat survey in 2000. Not only are branch staff rewarded, but both senior management and the company directors are paid incentives based on company performance (Table 4.15). This encouraged staff productivity and accountability in meeting the company objectives. Branch employees were able to increase their basic monthly salary by 50 per cent if performance targets were met. More

importantly, the staff incentive system encouraged both prudence and high productivity as branch staff were penalized when poor credit-granting decisions were made. This is a vital component of any incentive scheme since only sales or collections incentives have negative effects on the MFO.

Table 4.15 Staff Incentive Systems used by the Study MFOs

	MFO1	MFO2	MFO3	MFO4
Staff incentive scheme present at baseline survey (1996/97)	Yes – based on total number of first-time applications, loan collections, loan sales, and branch profitability	Yes – only for branch managers Linked only to volume of loans disbursed	No	Yes – linked to number of loans disbursed and loan recovery Loan officer must have a minimum of 40 groups with a 90% recovery rate
Staff incentive scheme present at repeat survey (1999/2000)	Yes – based on total number of first-time applications, loan collections, loan sales, and branch profitability	Yes – applies to all credit staff. Based on number of loan approvals, volumes of loans disbursed and on recovery rate	No	Yes – if loan officer manages more than 65 groups, has a recovery rate of 98% and doubtful debts do not exceed 2% then performance bonus is paid

Incentives based only on sales by volume led to the demise of Unifer, one of the largest microlenders in SA in 2002. Staff were granting as many loans as possible with the result that very poor credit evaluation decisions were made, leading to poor loan repayment performance (Makbari, 2002). Lender MFO2 only had branch management incentives linked to volume of loans disbursed in 1997. In 2000, the incentive payments had been extended to loan officers and credit staff (Table 4.15). Incentive payments were based on number of loans approved, loan volumes disbursed and loan recovery.

Lender MFO3 had no incentive scheme and had not introduced one by 2000. This is due to MFO3 not having a large staff structure and, relying mostly on the administrative staff at the

mills and extension staff in the field to process applications. As the staff did not fall under the ambit of MFO3, little could be done to give them incentives, even though this might improve productivity. Productivity at MFO3's Head office could be improved with an incentive remuneration system (Table 4.15). However, to introduce a staff incentive system would be very difficult to achieve since the umbrella organisation of which MFO3 is part would probably not approve such a step (organizational culture).

The incentive scheme used by MFO4 is also based on number of loans disbursed and loan recovery. To qualify for the monthly incentive bonuses, loan officers must have a minimum of 40 groups with an overall 90 per cent repayment rate. Should a loan officer's group number and loan recovery figures drop, his/her incentive payments are terminated until the loan officer has surpassed his/her previous performance targets. Centre managers receive 25% of the incentives earned by loan officers who report directly to them, while senior loan officers receive their own incentives and 20% of the incentives earned by loan officers who report directly to them. Incentive payments account for approximately 30% of the total salary of the field staff (Churchill, 1998). The minimum qualifying criteria for incentive payments had increased substantially by 2000 (Table 4.15).

In order to improve staff productivity, the minimum number of groups was increased from 40 to 60 and the loan collection rate from 90% to 98%. These incentives indicate a greater focus on collections and sales. Discussions with MFO4 staff indicate that these incentives did not encourage staff to ensure that groups repaid their loans. There was a clear emphasis on sales that was directed by senior management at Head office. This resulted in poor staff discipline resulting in poor loan repayment performance. The lesson is that staff incentive mechanisms need to be objectively enforced and upheld through a clear commitment from senior

management. Ultimately, incentive schemes are open to manipulation that can have negative consequences, as was the case with MFO4 and Unifer.

4.8.4 Management Information Systems (MISs)

A well-developed MIS can improve lender administrative procedures, loan tracking, and reduce borrower loan application times, improving service quality and lowering administrative costs of lenders (Yaron *et al.*, 1997). However, a MIS can only add as much value as its design and functionality permits. A complete evaluation of the MIS of each of the study MFOs was not the emphasis of this study but some key aspects are noted from their experiences, particularly those of MFO1. The availability of concise appropriate information at all levels of management to allow good business decision-making is the crux of any good MIS. Reference to an MIS implies the entire software package used for transactional and reporting purposes. These need not necessarily be one and the same, but most banking software packages have both components. Large amounts of data are generated on a regular basis by MFOs, and these data need to be stored, manipulated and presented coherently to system users. Ultimately this is what MISs are designed to do - good MIS should act as a conduit through which raw data becomes useful and useable information (Mainhart, 1999).

From a technical perspective, the flexibility or inflexibility of information and transaction management systems can allow an MFO to adapt its products to changing markets, allow for rapid expansion of the business and give the necessary capability to offer not only credit but also savings. Mainhart (1999) covers a broad range of technical aspects that need to be considered when designing or purchasing an information system. For instance, does the information system provide accounting facilities, portfolio-tracking capabilities, deposit

monitoring and customer information? Is the system client centric or account centric? Does the system allow for different lending methodologies, payment types, savings products, and interest calculation types?

Lender MFO1 has designed its MIS with considerable operational functionality. However, very little regard is given to storing essential data for client trend monitoring over time, and analysis (such as credit scorecard development) - key aspects when making informed management decisions. The system provides all of the necessary reports for the day to day running of MFO1, and this presented some major problems to management, particularly if historical trend analysis was needed. There is a trade-off between operational efficiency and sufficient data storage for improved management information. Fortunately, data warehouses can overcome this problem by separating the storage of information from the transactional system. Data warehouses very costly to develop, and so important starting point is to ensure that any MIS can store data in a reasonable format for future use. The immediate cost may be high, but the long-term benefits may outweigh this and operating costs.

Secondly, making changes to the system such as allowing for additional products was a slow and difficult process. It took almost a year to incorporate savings capabilities into the MFO1 information system, bearing in mind that the MIS was custom-built by MFO1. Even more critical to any data management system is that the rules that store data are clearly defined and understood by all users. The ability of the information system to give branches the facility to manage cash is also important. Note again that MFO4 had an elementary accounting system of sorts that did not allow any cash management at branch level, and this raised borrower transaction costs. The information system of MFO1 did have this flexibility. The capabilities of the information systems at MFO2 and MFO3 were not explored in any detail in this study,

but it is evident from interacting with MFO2 staff that the data required for this study were not readily accessible, despite being stored on the system.

The lack of readily accessible data for the study was also a problem for MFO1. Only a few users who understood MFO1's rules and processes could access the data on the database to create any meaningful information. Hence, although all four MFOs had an MIS, the flexibility and power of the MIS to enable these MFOs to generate useful information, to respond to changes in markets with different products, or to expand the scope of outreach and offer savings facilities, varied. Most important of all, these limitations can severely constrain the development and expansion of financial technologies and services by these MFOs.

4.8.5 Loan Monitoring, Arrears Tracking and Loan Write-off Policies

Arrears definitions and the tracking of arrears are important for effective credit management. The point at which a payment is defined as late, how quickly management and staff are informed of arrears and what action is taken can profoundly impact on a financial institution's success at recovering outstanding money (Yaron, 1994; Yaron *et al.*, 1997). This in turn will impact on self-sustainability if arrears can be recovered cost effectively. Arrears definitions are normally linked to the repayment frequency of a particular loan. The loans granted by MFO1, MFO2 and MFO4 are repayable on a monthly basis, with clearly defined due-date for instalments that sets the starting point from which arrears can be measured. This also gives borrowers a clearly defined point by which instalments are due. Lender MFO3, however, has no clearly defined due date for loans, and rather deducts 25% of the value of the crop delivered to the mill.

Information on the tonnages delivered by the small-scale growers is sent to MFO3 for processing and then calculating what should be deducted, based on the quantity of the crop delivered. The mill then processes these payments. The terms and conditions of the loan contract drawn up by MFO3 also stipulate that the loan is only due and payable at the end of the 2- or 8-year loan term. This has created additional complications for effective follow-up on arrears, since as per contract the loan is only deemed in arrears at the end of the loan term. This has created disincentives for borrowers to exert the necessary effort to produce a crop, the proceeds of which are used to redeem the loan. To obtain some estimate of arrears, MFO3 performs a calculation on what should have been delivered each growing season by the borrowers. From this a *pro forma* instalment is computed. If the amount deducted by the mill is less than 20% of what should have been deducted, an arrears investigation is done by extension and loan officers. However, not all of the borrowers in arrears may be visited, thus creating further incentives not to pay amongst borrowers.

Lender MFO1 raises instalments on the first day of every month. If instalments due are not paid by the first day of the month, the instalment is regarded as being in arrears. The MIS system tracks this on a daily basis and accounts are queued for a follow-up telephone call by a credit controller within two to three days of the instalment being flagged as being in arrears. In addition to an immediate telephonic follow-up strategy, MFO1 also sends a series of letters to borrowers in arrears. MFO4 follows a similar 'account' ageing methodology, with instalments being regarded as in arrears one day after the instalment was due. Instalment tracking by MFO4 was still done on a manual basis, which may result in slower reaction to the arrears.

Lender MFO2 aged accounts at the end of the calendar month, so an instalment was regarded as current for a full 30 days after its due date before it was aged. The MIS system of MFO2 tracked loan payments - accounts in arrears are sent letters with the appropriate action to be taken on arrear accounts being decided at a monthly portfolio review meeting. Hence the follow-up on arrears is much slower. Whether this impacts on the effectiveness of MFO2's collection strategy is difficult to determine. Given the long-term nature of the loans, a fast follow-up strategy may be less critical than for short-term unsecured loans as is the case for MFO1 and MFO4.

Lender MFO1's late stage arrears management and loan write-off policy was somewhat obscured by an instalment ageing mechanism that stopped ageing the accounts once an instalment was more than 90 days in arrears. Initially, MFO1 had a very aggressive loan write-off policy whereby a loan was written-off once it reached 90 days in arrears. Hence the ageing of the loan did not matter beyond this point. By 2000, this process had changed: at 90 days overdue, a loan was escalated to a central collections environment where a loan recovery process was instituted. At periodic intervals all loans in the central collections division were reviewed and those that were deemed not recoverable were charged off. This was a very subjective process since it was difficult to determine how seriously the accounts that were charged off were in arrears. The effectiveness of the central collections environment and the level of arrears could not be effectively monitored by MFO1. This, in turn, affected provisioning for bad debt, since there is no set rule according to which accounts are charged off.

In order to provide accurately for potential loan losses, requires an objective and consistent ageing mechanism that is continuous throughout the life-cycle of the debt is needed. Lenders

MFO2 and MFO3 also tended to have a flexible charge-off policy - MFO2 only charged off accounts where the debt was considered not to be recoverable, and does not inform borrowers that the debt has been written off (this ensures that borrowers still feel obligated to repay the debt). Lender MFO3 has a similar flexible charge-off policy where debt is charged off once it is considered not recoverable. The write-off policy for MFO4 was unfortunately not disclosed.

Important lessons for arrears tracking from these experiences are: firstly, that MFOs must have clearly-defined instalment due dates for loans; secondly, the ageing of debt must be linked to the instalment due dates so that arrears can be identified in a consistent and timely manner. When an account is considered in arrears it must be clearly identified and appropriate action instituted so as to create awareness amongst borrowers of a serious intent to recover the debt; thirdly, arrears definition should be as objective as possible and applied consistently, while the ageing of debt should not stop too early in the loan cycle. Tracking the level of arrears throughout the account life cycle is important for effective arrears management.

Some MFOs have ageing mechanisms that operate at a product level, while others have ageing mechanisms that work at a customer level. This can make the ageing of debt and the arrears follow-up process more difficult in an environment where borrowers can have multiple products where one loan may be in arrears and another loan may be current. Each ageing method has advantages and disadvantages. Clearly defined debt ageing rules and processes must be put in place so that the ageing of the debt can be tracked. A consistent loan write-off policy is also important. Accumulating non-performing debt can have several consequences when monitoring the performance of the debtors' book.

Firstly it can hide more recent changes in the debtor's book. This can have serious consequences if those changes show symptoms of a bigger problem to come (Rosenberg, 1999). Secondly, accumulating a large proportion of non-performing debt can markedly reduce lender profitability if that debt is not adequately provided for. To provide accurately for potential loan losses, an objective and consistent arrears ageing mechanism must be in place. Finally, retaining a large portion of non-performing debt can mask the true measurement of collection rates, since the denominator (amount due) is ever increasing relative to the numerator (amount received) (Rosenberg, 1999).

4.8.6 Client Information, Incentives and Loan Contract Enforcement Mechanisms

The most important non-financial costs for a lender are incurred, and comparative advantages established, while gathering and processing information on borrowers. This process must be relatively quick and effective to avoid poor loan approval decisions resulting in high loan default and reducing excessive waiting times for borrowers (Simms, 1997). Borrower screening costs are an increasing function of the distance between borrower and lender, be it geographical, ethnic or occupational. Best practice Indonesian RFIs have reduced geographic, ethnic and occupational distances by employing individuals from local communities to screen borrowers. Group lending technologies, as used by the Grameen Bank, employ borrower self-selection mechanisms (Chaves and Gonzalez-Vega, 1996).

There are two components to mitigating the problem of asymmetric information: borrower screening to reduce adverse selection, and creating an incentive-compatible debt contract to ensure that borrowers repay the loan. Borrower screening can either be undertaken by the lender, or by potential borrowers through self-selection mechanisms in group loans. Creating

the right incentives in a debt contract is achieved by monitoring borrowers to ensure that their actions are consistent in meeting their debt obligations. Alternatively, some form of collateral can be required that increases the borrower's stake in the contract and, hence, the incentive to repay. Monitoring borrowers can either be undertaken by borrowers themselves, as is the case in joint liability groups, or by the lender.

Financial technologies used by lenders can place varying emphasis on the importance of screening, monitoring and collateral. This is a function of the resources available within the lending organisation, the target market, interest rates, and the institutional environment (Navajas, 1999a). The MFOs that operate in credit markets where there is no formal collateral available have tended to adopt screening-intensive loan technologies, while relying on intangible collateral such as reputational capital to create incentives for borrowers to repay. The financial technologies used by the four KZN study MFOs were either screening and monitoring intensive; or screening and collateral intensive, with possibly more emphasis on collateral than on screening. Lender MFO4 used screening-intensive technologies where the screening was performed by the individuals within the group, while MFO2 and MFO3 used collateral-intensive technologies. The financial technology used by MFO1 was also screening intensive. As most of the borrowers in its target market had very little formal collateral, screening was important in selecting borrowers with the appropriate risk levels. MFO1 relied on branch managers to screen loan applicants with the assistance of a loan application scorecard in 1997 (Table 4.16).

The local knowledge of the branch managers together with the scoring tool provided a relatively effective risk assessment mechanism for MFO1. The most important components in the credit assessment criteria were loan applicant stability, contactability, loan affordability

and credit history. Given that MFO1 had a screening and monitoring intensive technology that relied on rapid telephonic follow-up, loan applicant contact by telephone either at work, at home or both, was critical. With the large number of individual loans that are disbursed, visiting the borrowers is prohibitively expensive. Some of the risk associated with assessing potential future income streams had been eliminated by MFO1 since it only loans money to individuals that are formally employed. However, it was still important to assess the loan applicant's employment stability as an indicator of potentially stable future income from employment. Assessing loan applicant credit history indicated borrower willingness-to-repay, while monthly income was a measure of the ability to repay the loan.

All of the loan approval authority vested with the branch managers for MFO1. This improved the speed of loan approval decision and thus reduced the loan applicant's waiting time in the branch, thus adding to quality of service. Although a formal scoring model is used, this *complemented* rather than dominated the credit granting decision. Scorecards can be very useful tools in the credit granting process as they improve the consistency of loan granting decisions. However, they should not dominate the scoring process entirely as an important edge in the decisioning process can be lost (Schreiner, 2001). Lender MFO1 expanded its scoring technology in 2000 to incorporate data from the credit bureau that were also made available to branch managers to assist them in the loan granting decision and to further enforce the importance of reputational collateral at MFO1 (Table 4.16).

Table 4.16 Screening and Contract Enforcement Technologies used by the Study MFOs

Characteristic	Date	MFO1	MFO2	MFO3	MFO4
Use of formal scoring model	Baseline survey (1997)	Yes – for screening of first-time loan applicants. Only an internal application scorecard	No scoring system in place	Yes – judgemental scoring system	No scoring system
	Repeat Survey (2000)	Yes – for screening of first-time loan applicants. Used both an internal score and bureau information	Yes – used a scorecard to determine the risk level of a loan application for purpose of setting the interest rate	Same as 1997	No scoring system
	2002	Yes – for screening first-time loan applicants. Also developed a behavioural scorecard to score repeat loans	Same as 2000	Same as 1997	No scoring system
Loan applicant screening	Baseline survey (1997)	Done by branch manager	Done by senior Agricultural Advisor, area manager, divisional manager or credit committee	Loan officer and Head office personnel	Loan applicants and loan officer
	Repeat Survey (2000)	Done by branch manager	Area manager, regional manager, divisional manager, credit committee	Loan officer and Head office personnel	Loan applicants and loan officer
Borrower Monitoring	Baseline survey (1997) and survey in 2000	Telephonic follow-up by credit controller	Done by Agricultural Advisor	Very limited monitoring by mill extension staff and loan officers	No
Collateral	Baseline survey (1997) and survey in 2000	Reputational capital	Own equity contribution, Land (freehold), Land (PTO), Chattel assets, Cession over savings, Cession on life assurance, Cession on shares, Personal guarantor	Cession over crop	Joint liability

Discussions with branch managers of MFO1 indicated that the information on a loan applicant's repayment history is regarded as the most important source of information in the screening process next to contactability and ability to repay the loan. Little emphasis was placed on the bureau score as such, since its predictive power tended to be weak in the micro-finance market. The number of inquiries at financial institutions in the last six months, recent judgements or bad debt write-offs and arrears on active loans with other lenders were important bureau criteria. This highlights the importance and value of sharing information in a credit market in which clients tend to have little formal collateral.

At the beginning of 2002, MFO1 introduced a behavioural scoring system as a further tool for branch managers to use in the repeat loan decision. A bureau inquiry is not done for every repeat loan in order to save costs. Behavioural information tends to be more predictive of loan status than application information, which relies mostly on demographic data. Lender MFO1 does not formally have a loan graduation scheme that offers borrowers a larger loan amount over a longer term as an incentive to repay. Although first-time borrowers will only qualify for a 4 month loan, repeat borrowers can qualify for a longer loan term. The loan amount is based on affordability. The behavioural scoring system has allowed MFO1 to refine this process. Terms and conditions of repeat loans are largely determined by the behavioural score which implicitly encourages better repayment behaviour amongst borrowers.

As MFO1 did not use any formal collateral, effective loan monitoring was an important component of its financial technology. Borrower monitoring performs the important function of helping to encourage that the borrower to maintain the required amount of effort to repay

the loan. It also allows the lender to establish *ex post* whether loan default was caused by a lack of borrower diligence, or an exogenous income shock. Borrower monitoring was effected by telephonic contact. As soon as arrears are detected by the MIS, borrowers are contacted and a promise to pay arrangement is made. If this arrangement is broken, borrowers are contacted again until a payment is received. A technology that relies on telephonic contact may exclude borrowers that are relatively poorer (cannot afford to rent a telephone) and may limit the depth of outreach.

The only form of collateral that MFO1 uses is a collateral substitute that, firstly, relies on the loan applicants' loan repayment history with other lenders, and secondly, on the repayment performance of loans granted by MFO1. Having access to credit bureau data gives MFO1 a distinct advantage since the reputational capital created by loan repayment history with other lenders can be utilized and applied when the first loan application is made. The reputational capital is then further enhanced through loan repayment performance at MFO1. Reputational capital only has value if it is accompanied by a credible threat of no access to credit in the event that the loan applicant or borrower defaults on the loan. Lender MFO1 applies this threat rigorously. If loan applicants have a poor track record of repaying loans with other lenders then the application for a first-time loan is normally turned down. If a borrower develops or incurs consistent, or serious arrears on any loan at MFO1, then no repeat loan is granted.

Important dynamics that are impacting on the effect of reputational capital, particularly in the market for small consumer loans in SA, are the level of competition and the entry of a large number of new financial institutions and the ease with which borrowers in arrears can apply to go under administration. New entrants into this market have increased the availability of

alternative sources of credit. To maintain sales levels, lenders are beginning to be more flexible about whether poor credit history on the bureau records will affect the loan decision. This diminishes the value of reputational capital as collateral, since credit may be obtained even with a relatively poor loan repayment record. Secondly, the level of information sharing between all the lenders can be improved. Many of the smaller financial institutions do not submit data to the major credit bureaux because they do not have the capacity to assimilate the data in the required format. Hence, the credit histories of some borrowers are not shared, and credit is granted to potentially high-risk loan applicants. Since the level of information sharing is limited, the threat by MFO1 of no future access to credit is less credible, since a defaulting borrower has an opportunity, although minor, of obtaining credit at another lender.

When a borrower is placed under administration by the court, the borrower is protected from any further legal action by any lender to whom money is owed. The debt administrator appointed by the court then pays each creditor on behalf of the borrower on quarterly basis where the loan payments are calculated on what the borrower can afford. The administrator charges as fee for this. Applying to go under administration has become very popular in South Africa because it is a means by which borrowers can reduce the debt burden. Although borrowers under administration are not allowed to be granted any further credit, microlenders do still offer loans to borrowers under administration which reduces the incentive not to go under administration.

Lender MFO2, unlike MFO1, employs a collateral-intensive financial technology because of the relatively large loans granted over a long time period for income generating purposes (Table 4.16). The screening component of the credit assessment focuses primarily on the repayment capacity of the business and the previous credit track record of the borrower with

MFO2 and other lenders (although only default and judgement information is considered). Lender MFO2 has set certain minimum thresholds for repayment capacity. This is defined as income from all sources less business and personal costs divided by all current loan repayments that the loan applicant owes. Lender MFO2 also has defined thresholds for return on investment, net capital ratio, current ratio and interest coverage ratio. These factors, together with the type and value of collateral that the loan applicant can offer and the deemed development impact of the loan, determine whether the loan is approved or declined.

Importantly, MFO2 loan officers or field advisors that initially interact with the loan applicant do not approve loans – this approval takes place at one of the regional processing centres. Hence, limited local knowledge of borrowers is utilized, although the loan officers that handle the initial stages of the loan application are involved in motivating for either approval or rejection of the loan application. In 1997, MFO2 did not employ any scoring mechanisms to assist in the credit granting decision. Following work done by Kuhn and Darroch (1999) on factors affecting loan default of medium-term agricultural loans disbursed by MFO2, it developed a scoring system that was used to set the risk adjusted interest rate of the loan (Table 4.16). No scoring system was used to assist with the accept or reject decision at the time of the survey in 1997 and 2000.

To create the necessary incentive-compatible debt contract, MFO2 relied on the borrower's own equity contributions and collateral to increase his/her stake in the investment and thereby encourage loan repayment. Obligatory deposits by borrowers to increase their stake in the investment were also required by MFO2. In 1997, obligatory deposits were relatively high - at 30% of the value of the finance needed for working capital and equipment loans, and 10% for land. In 2000, the level of obligatory deposits had decreased to 20% of the value of the

investment for all three loan products. The obligatory deposit was not always rigidly enforced. Where the nature of the loan had sufficient developmental impact, but borrowers did not have enough own equity, this requirement was reduced or waived completely.

An example of this waiver is the low equity requirements for medium-scale emerging sugarcane farmers purchasing commercial farm land using the graduated repayment scheme. To increase access to finance by these individuals, the own equity contribution was lowered to 5% of land price. Hence, the equity contribution requirement had varying incentive effects for MFO2 borrowers, depending on how rigidly they were enforced. With the increased pressure for MFO2 to become financially sustainable, a greater level of rigidity was adopted. This potentially limited access to this finance to relatively high-income individuals only. Lender MFO2 also used several collateral types, the most important and most valued being freehold land that had secure and transferable property rights. Pledging of land may, however, involve considerable collateralisation costs for borrowers, due to legal fees and time delays in securing mortgage bonds over the property. Relatively high collateralisation costs may impede the use of property as collateral by emerging farmers and agribusiness. An advantage of this type of collateral for borrowers is that it can be used for multiple loans. Once the initial costs have been incurred, these are not necessarily incurred again. While borrower collateralisation costs are necessarily high, private land as a collateral type is highly effective. The difficulty with attaching land is that it is a long and drawn-out process.

During this process crops on the land may be neglected, the property may be invaded by illegal tenants, buildings can be vandalized and fixed improvements, such as irrigation, stolen. This can reduce the value of property and hence the realizable value of the collateral. The liquidation costs for MFO2 may also be necessarily high. There is also a political cost

attached to the foreclosure of land, particularly in the case of emerging farmers that have purchased commercial farm land. However, since the land is transferable to MFO2, albeit at a cost, the possibility of attaching land does present a credible threat to borrowers.

Lender MFO2 also accepted permission to occupy certificates (PTOs) in certain instances when financing fixed property investments in communal areas of KwaZulu-Natal. Since the occupant of the property has only usufruct rights to the land, and given that tribal authorities can cancel PTOs at any time, tenure is insecure, limiting the transferability of the land to MFO2. This collateral type thus had no value since MFO cannot take possession of the land in the event of default. During the 2000 survey, MFO2 indicated that this form of collateral was seldomly used, and if so, only as a token to the borrower to indicate MFO2's willingness to attach the asset in the case of loan default. Even if the land or property was attached and could be sold, MFO2 indicated that few people would be interested in buying such a property because of the social repercussions in the community.

Machinery, vehicles and equipment used by MFO2 as collateral had high collateral-specific risks because of the possibility of theft, borrowers could easily dispose of the machinery without the lender's knowledge, and poor maintenance often resulted in rapid loss in the value of the asset. High collateral-specific risks and geographic dispersion made it difficult and costly for the lender to locate the borrowers, thereby increasing lender liquidation costs, while poor condition and low value of such assets reduced their marketability. It was also relatively costly for borrowers to register a notarial bond over equipment.

The realizable value from equipment disposed may be relatively low where the asset has been neglected. Again individuals in communities are reluctant to purchase repossessed equipment

due to social repercussions within the community. Often sheriffs of the court that are sent to attach the asset are intimidated. While the realizable value from such forms of collateral may be low, MFO2 will collateralize equipment as a token threat to borrowers of the potential to foreclose. The incentive effect that this form of collateral has may be more limited than that of freehold land, given the collateral specific problems of equipment. Lender MFO2 also used savings in a fixed deposit account with MFO2 as collateral. It considered this one of the most cost-effective forms of collateral, since the funds could be attached at little cost and potential loss of value. The disadvantage of this type of collateral is that not all borrowers have sizeable fixed deposits where the value exceeded 60% of the investment.

Cessions over life insurance and personal guarantors are also used as collateral by MFO2. All borrowers had to take out a life assurance policy when accepting a loan. This would cover the borrower in the event of death or accident. Life assurance could not be foreclosed in the event of voluntary default and, hence, could not be used as an incentive mechanism in the loan contract. Personal guarantors were seldom used as the nominated guarantors were often not able to support the additional debt.

At the time of the baseline survey, MFO2 did use joint liability groups as a form of collateral. The key feature with group loans is joint liability, which proposes that all members in the group are treated as being in default if any one member of the group does not repay (Besley and Coate, 1995). The prerequisite for joint liability to work as collateral is that the members in the group have a high degree of social connectedness. Although a common feature associated with group loans is joint liability, there are several other features that characterize group loans and influence their repayment performance. These include the domino effect, group solidarity and the loan cycle effect (Besley and Coate, 1995; Paxton *et al.*, 2000). The

domino effect occurs when as a result of one group member defaulting other members in the group default and it can even be observed at programme level where, if one group is observed to default, several or all the other groups in the programme default (Besley and Coate, 1995).

Group solidarity refers to the willingness of a group to repay for one of its defaulting members. Group solidarity relies on the homogeneity of group members, where homogeneity implies similar cash flows amongst members in the group, trust and a feeling of mutual obligation. An environment with a high prevalence of idiosyncratic income shocks weakens the effect of group solidarity often resulting in the observance of the domino effect (Paxton *et al.*, 2000). Groups repayment performance has been observed to decline with repeat loans because of the matching effect problem, lack of attention to group dynamics and growth in loan size that increases the incentive to default. The matching problem, in particular, is important in group loans, since the cash needs of members within groups may diverge at some point in time, reducing both the joint liability and group solidarity effect.

Paxton *et al.*, (2000) observed the domino and loan cycle effects as having a strong negative influence on loan repayment performance of groups in Burkina Fasso, Africa. In addition, group loans to rural small-scale farmers had more problems in repaying as a result of less-diversified activities of individuals (exposing them to high covariant risks such that a negative income shock resulted in many groups defaulting). Urban individuals had more diversified and high income activities. The prevalence of joint liability coming into effect when group members defaulted was also not observed, as individuals were more concerned about the social impacts of this in the communities in which they lived. Instead the prevalence of group solidarity was relatively strong. Strong group leadership also had a positive impact on group loan repayment performance.

Gonzalez-Vega *et al.*, (1997) also noted the trade-off between the positive effects of joint liability and group solidarity, and the negative effects of covariant risks, social harmony, domino and loan cycle effects of group loans for BancoSol. This MFO has managed to overcome these negative influences by offering individual loans to members of established groups (reducing the loan cycle effect) and financing activities that generate sufficient returns to group members so that the pressure on groups to enforce loan repayment either through joint liability or group solidarity is reduced (Gonzalez-Vega *et al.*, 1997; Navajas, 1999). This is also accompanied by high levels of service quality that engenders value in a long-term relationship with the bank such that the limitations of group loans are outweighed by service quality, at least for a period of time.

Both MFO2 and MFO4 made use of group loans. For MFO2 the group loans possibly provided a platform to reduce the transaction costs of dealing with a large number of small-scale farmers. Loan applications were taken at farmers' association meetings. To further reduce transaction costs for MFO2, group members were responsible for group formation with guidance given to groups by MFO2 personnel. There were a number of problems with these group loans that mitigated against effective functioning of the social collateral that was meant to encourage loan repayment performance. First, the groups were relatively large (30 - 60 members) and the level of social cohesion was possibly not at a level required to let joint liability come into force in the event of default. Members of the group were also spatially dispersed, making monitoring costly and imperfect.

Second, all members of the groups and all groups in a geographic area were exposed to the same climatic and market conditions, since they all produced the same or similar crops.

Default as a result of an external shock such as poor weather or slumping markets hence created the domino effect described by Paxton *et al.*, (2000). Also important within the context of group loans is frequent contact between the group and the lender. Seasonal loan repayments resulted in less frequent contact between borrowers and lender, and MFO2 was less able to monitor the activities of group members to ensure that the groups were functioning and members within groups performing. Group solidarity was also negatively affected since group members produced food mostly for subsistence purposes and hence little money was available to pay for the defaulting member, resulting mostly in a domino effect.

Given the development nature of these loans, MFO2 did not strictly sanction groups with defaulting members by not limiting their access to future loans. This resulted in poor loan repayment performance. Paxton *et al.*, (2000) also found that group loans to small-scale farmers had worse levels of repayment as farming activities were riskier while group members earned less, hence weakening the group solidarity. The poor performance of the group loans, together with increasing financial pressure, resulted in MFO2 abandoning the group loan product.

Lender MFO2 did not monitor loans as intensively as MFO1. Loan officers are required to visit borrowers at least four times per year during the critical cash flow period of the business. Loan officers do visit clients that are in arrears, but normally only if such a visit is deemed necessary by the portfolio review committee. Monitoring of loans is costly for MFO2, particularly because of the geographic dispersion of the borrowers and because a personal visit is required as the loan officer must determine whether the borrower is investing the required amount of effort into the business venture for which finance was required.

Lender MFO3 had a screening - and a collateral-intensive technology. The screening of loan applicants takes place at a group meeting between the loan applicant, loan officer of MFO3 and the extension officer. The main purpose of this assessment is to establish whether the loan applicant has the necessary agricultural experience and whether the land is suitable to grow sugarcane. The details taken at the credit meeting are verified by a field visit. The application process was necessarily lengthy, thereby detracting from the quality of service provided by MFO3. If applications were not made timeously, funds may only be disbursed after the planting season.

Given the limited staff complement at MFO3 and dispersion of borrowers, only limited monitoring was implemented. Even when borrowers were in arrears, only a selected subset of borrowers were visited. Monitoring did not provide a credible threat to small-scale borrowers and thus increased the incentive for rent-seeking behaviour. The only form of collateral that MFO3 would accept is a cession on the sugarcane crop. All borrowers had to cede their crop as collateral. The cession was enforced by the sugar mill where the loan repayment would automatically be deducted from the proceeds of the sugarcane deliveries paid to the borrower. Borrower collateralisation costs were relatively low as there were no costs involved in pledging such collateral. The crop cessions did, however, present some problems to MFO3.

Exogenous shocks such as adverse weather and fire, and flaws in loan collection systems (for example, some borrowers delivered on the quotas of growers who had no loans and thus avoided deduction) reduced crop transferability to the lender. This reduced the potential loss of payment to borrowers, increasing the incentive to default. Legal action was seldom considered due to the high costs of court procedures relative to the loan sizes and the length of the legal processes. Delinquent borrowers were often difficult to locate, while court

officials were also intimidated by delinquent borrowers when serving summons. Costly monitoring and the problems in the crop delivery mechanisms lowered the effectiveness of the threat by MFO3 and increased the likelihood of rent-seeking behaviour by borrowers. Lender MFO3 did not strictly apply the principle of not granting defaulters access to future credit because of its developmental role, further reducing the incentive structure in the loan contract.

Lender MFO4 only granted loans to small groups (4 - 6 individuals). Group formation was the responsibility of the individuals with group homogeneity being a relatively strict criterion applied by MFO4. Members of the group had to know and to trust each other. This is a requirement for both joint liability and group solidarity to be effective (Paxton *et al.*, 2000). Group members were mostly women having small business ventures in urban areas. These businesses have more frequent cash flows that fit in with the frequent repayment patterns set by MFO4, which allows better monitoring of groups to ensure that they remain properly constituted and functional.

Although part of the advantage of lending to groups is that there is an element of self-selection (individuals screen each other in the process of forming a group), MFO4 did some initial credit checks during the initial stages of the loan application. Firstly, all individuals applying for a loan from MFO4 were informed about how the group concept worked. Next all applicants were visited to establish that their small business ventures for which they required finance were feasible, and that applicants had enough funds to cover living expenses and the loan repayment. Some care was, therefore, taken to ensure that group members had the necessary cash flows to repay the loan such that group coercion would not necessarily have to be enforced.

Groups served by MFO4 had to deposit a minimum of R35 per group member into a bank savings account prior to the loan application being processed (this figure rose to R80 per group member in 2000). The savings account provided the funds for group solidarity, as they could be utilized to make up the shortfall of a defaulting member. To ensure that the savings account always had sufficient funds, group members had to contribute to that fund on a monthly basis. Incentives to repay were increased by the access to better loan terms and conditions if existing loans were repaid on time, while late payments resulted in severe credit rationing and denial of access to future credit for the entire group. This is critical if joint liability is to be effective and was successfully applied by BancoSol. While group formation necessarily imposed high transaction costs on borrowers, these costs were offset to some extent by the access to credit that these individuals would not have normally had.

Chapter 2 showed that an important component of BancoSol's success with group loans was the quality of service that it provided. Building a long-term relationship with BancoSol loan officers had distinct benefits at a moderate cost to the borrower, since BancoSol had the facilities to deal with borrowers directly. This was more difficult for MFO4 to achieve because of its limited administrative capacity. The costs of interacting with the financial technology were high because MFO4 did not have cash handling facilities. Group formation and monitoring costs, together with a fairly rigid loan programme, meant that the benefits to the borrower were limited.

Problems with group loans experienced by MFO4 were mostly related to poor administrative controls. Firstly, borrowers were not required to have a compulsory savings account because of problems with the bank. This undermined group solidarity, as shown by lower repayment

rates. The joint liability mechanism was not that strong because individuals often feared the social repercussions of their coercive actions. This resulted in a domino effect where a single member defaulting resulted in the entire group defaulting. This was further exacerbated by the inconsistency in denying future access to credit. This threat by MFO4 was not deemed credible by borrowers and hence reduced the value of reputational capital. Lender MFO4 also did not share loan repayment information with other lenders, which further reduced the repayment incentive effect of borrower reputation. Loan officers paid little attention to group formation and training which also undermined joint liability and group solidarity.

The matching effect also was a source of problems between group members in MFO4. Some had progressed faster than others and thus required more credit. Given that loan amounts were not allowed to vary by more than R300 between group members, this that may have resulted in such members opting out of the group, placing increasing pressure on the remaining group members. Staff at MFO4 admit that it may have granted repeat loans that were beyond the repayment capacity of group members. This caused in a domino effect as none of the group members were willing to repay the loan of the defaulting member, but rather defaulted themselves. Loan follow-up was also neglected. These problems were being addressed at the time of the survey in 2000. Gonzalez-Vega *et al.*, (1997) and Paxton *et al.*, (2000) highlight the importance of homogeneous groups and a credible threat of denial of access to future credit with better loan terms and conditions if group loans are to be successful.

The contrast between the lending technologies of the study MFOs is evident with MFO1 having a screening- and monitoring-intensive technology. Branch manager experience was combined with a scoring technology to overcome information asymmetries, while immediate

follow-up of arrears, combined with a credit threat of no access to future credit, provided a relatively effective incentive mechanism. However, the limitations of MFO1's screening and incentive technology were that it could only accommodate individuals that were formally employed and that could be contacted telephonically. Lender MFO2 had a more collateral-intensive technology but the incentive effect of this collateral on loan repayment was limited. MFO2 had to also monitor clients, and the most marked change observed in its technology was an increased emphasis on enforcing loan contracts and being less accommodating to loan defaulters.

Enforcing loan contracts in rural areas was difficult, given MFO2's historic reputation of being a pure developmental organisation. The increased collateral requirements have resulted in a shift in the target clientele that MFO2 serves, not surprising given that the type of financial technology determines the nature and quality of loan applicants (Navajas, 1999a). Lender MFO3 has a distinct development focus and financial technology is not geared toward contract enforcement but rather to achieving high levels of outreach at low cost. It relies mostly on the administrative and monitoring capacity of the sugar mills. This creates an incentive problem, since the sugar mill personnel may not always apply the necessary effort that MFO3 requires to monitor loan repayment performance of borrowers. While MFO3 has tried to overcome these problems by placing its own staff at the sugar mills, this does not reduce the incentive problem that borrowers have. Revisions to the allocation of grower numbers (allocated by the sugar industry to all individuals that want to deliver sugarcane to the sugar mills) to members of the same household may make crop cessions more effective. Lender MFO3's technology, however, also requires more monitoring to ensure that borrowers exert the necessary effort in growing their crop. This is costly and may not be justified given the pressure on MFO3 to continue to charge relatively low interest rates.

Lender MFO3 has introduced a group loan product – a potentially risky move given the covariant nature of small-farmer incomes, and group homogeneity may not always be achieved in rural SA (particularly amongst men who mostly work away from home for longer periods of time). If these groups are only a mechanism to reduce administrative costs, then the incentive problem is not solved. Lending practices used by MFO4 violated some of the basic principles that promote success in group lending, which resulted in its ultimate sequestration and merger into another financial institution. Joint liability has been difficult to enforce, since group members are hesitant to put peer pressure on other group members because of social dynamics within communities. Group members have often been more willing to pay the instalment of defaulting members, but seldom more than once or twice. Groups require good leadership, and business ventures need to generate cash flow. If group members cannot generate income, no amount of social coercion will result in loan repayment.

4.8.7 Savings Mobilisation

Given the development objectives of the study lenders, with most having initially adopted a supply-led approach to providing credit, and legal restrictions, few offer any voluntary savings facilities. Only MFO2 mobilises savings (only by special concession from the government) in the rural areas, offering both demand and time deposits through an extended branch network throughout KZN (thus increasing the scope of financial services). These savings products are simple and clearly set out, showing clients knowing exactly what their gains will be in Rand amounts on money deposited (see Table 4.17 overleaf). Some of the savings products encourage individuals to save for a specific purpose. Depending on the amount deposited, most of the savings products pay real, positive interest rates.

Table 4.17 Savings Technologies Used by the Study MFO

Savings Technologies	Lender			
	MFO1	MFO2	MFO3	MFO4
Savings products	None	Demand and time deposits	Compulsory savings for ratoon crop management	Compulsory savings held in club account at commercial bank
Access to savings for personal use	Not applicable	Good (client can get a cash loan of up to 90% of the value of the amount saved in time deposit account)	Poor (client may only use savings for crop management)	Poor (savings used as a contingency when one group member does not repay due instalment)
Annual nominal interest rates	Not applicable	1997 Demand deposits: 2% - 11,25% per annum Time deposits: 11,5% - 13,25% 2002 Demand deposits: 0% - 9,2% per annum Time deposits: 9,5% - 10,5% per annum	Based on ruling commercial bank deposit rate	Ruling bank deposit rate on club accounts

Source: Own data

Although the interest rate paid on deposits may not always be high, Meyer (1989) and Gurgand *et al.*, (1994) show that access in terms of ease of withdrawal and branch accessibility are important factors inducing rural individuals to save. The demand deposits are easily accessible from any branch of MFO2 with no restrictions on the use of funds being specified. While the time deposits are less accessible, MFO2 offers a quick cash loan facility of up to 90 per cent of the value of time deposits, should depositors require the funds for any unforeseen events. In addition, both savings and loans products are offered at all branches, thus reducing the transaction costs of individuals in accessing financial services.

Savings can also provide MFO2 with useful information on potential borrowers while also serving as a form of collateral. Lending against deposits may be a viable alternative for financing consumption expenditure of rural individuals who do not earn fixed incomes. Savings mobilisation has also enabled MFO2 to reduce dependence on donor funds. While savings mobilisation forms a necessary component when providing rural financial services, the initial cost of developing a savings strategy may be high in terms of reporting requirements, the costs of satisfying reserve requirements and gaining credibility to attract clients (Riley, 1996). Lender MFO2 has been operating for 23 years and has only begun mobilising savings in the last 12 years, having built capacity to mobilise savings and being granted exemption from the Banks Act through legislation to permit voluntary savings mobilisation. Legal barriers prevent the other three KZN study institutions from actively mobilising deposits. While the Mutual Banks Act makes provision for savings mobilisation, RFIs are reluctant to register as a mutual bank because of the stringent liquidity, reporting and staffing requirements that increase operating costs. Reform of these requirements may be necessary to allow rural lenders to mobilise savings.

Both MFO3 and MFO4 require compulsory savings from borrowers (Table 4.17). Lender MFO3 requires that borrowers deposit R25 per tonne of sugarcane delivered to accumulate funds for ratoon crop management purposes. Although these funds are paid positive, real interest rate, they are not readily accessible to individuals both in terms of access to branches and flexibility in use. Borrowers can only access the savings through the sugar mills where order forms are obtained for purchasing the inputs at input suppliers. In addition, these savings are largely restricted to borrowing clientele only, thus reducing their ability to promote outreach.

For MFO4, borrowers must deposit at least R25 per month in a club savings account held at a commercial lending institution. These savings have no flexibility since they may only be used to cover outstanding loan repayments of delinquent members within the group. These savings requirements may also impose high transaction costs on group members, since they have to deposit the funds at a commercial bank and not with MFO4. This may be partly due to MFO4 being restricted by legislation from accepting deposits, while also not having the capacity at branch level to manage savings (no well-developed MIS is in place at branches, and there is a lack of trained staff to handle deposits). Holding savings may also pose high security risks for MFO4 which operates a relatively simple branch infrastructure compared to MFO2, which has invested heavily in branch infrastructure and assumed a more bank-like organizational structure.

Given the above comparison of study MFO financial technologies, the following sections review the scale and depth of outreach achieved by these four MFOs.

4.9 Outreach Indicators for the Four Study MFOs

Outreach refers to the provision of a wide range of financial services to large numbers of the poor (Yaron, 1994). Chapter 2 showed that Navajas *et al.*, (2000) have defined several dimensions of outreach, with breadth and depth of outreach being two important dimensions. Both breadth and depth of outreach must be reviewed within the context of a MFO's objectives, target market and the financial technology used, as these can affect the ability to reach large numbers of low-income individuals. Successful MFOs such as the Grameen Bank, Bank Rakyat Indonesia Unit Desa, and BancoSol have achieved high levels of breadth and depth of outreach. Christen *et al.*, (1994) argue that breadth of outreach, not exclusive focus on the poor, is an important indicator of outreach, with successful MFOs having achieved both.

4.9.1 Breadth of Outreach

The target market for MFO1 is low-income individuals employed in the formal sector and earning between R500 and R5000 per month. The average income of most of MFO1s clients is less than R3000 per month. Given the focus on such individuals, MFO1 has achieved relatively high levels of breadth of outreach. The average outstanding loan portfolio increased from R27 million at the time of the baseline survey in 1997, to R201 million in real terms during the 2001/2002 financial year, a real growth of 645% (Table 4.18; Figure 4.1).

Table 4.18 Breadth of Outreach by MFO1

	Baseline Survey 1997	1998/99	1999/00	2000/01	2001/02
Average annual portfolio outstanding	R27 000 000	R51 931 640	R94 172 516	R157 153 638	R201 100 440
Average number of loans outstanding	30 000	56 555	89 337	145 644	183 069
Average number of active borrowers		56 555	89 337	145 167	181 698
Amount outstanding per loan	R900	R918	R1 054	R1 078	R1 098
Amount outstanding per active borrower		R918	R1 054	R1 082	R1 107
Amount disbursed to first-time borrowers		R36 040 222	R77 686 378	R87 844 181	R86 349 680
Amount disbursed to repeat borrowers		R163 689 907	R270 930 940	R401 331 101	R482 853 964
Amount disbursed		R199 730 129	R348 617 318	R489 175 282	R569 203 644
Number of first-time borrowers		41 704	92 958	105 100	108 954
Number of repeat borrowers		149 722	254 596	390 034	524 126
Average number of branches	10	38	66	93	113

Note: Monetary values are expressed in real terms - 1997/98 = 100

Real growth in the average loan portfolio does not necessarily represent high breadth of outreach if this growth was due to the granting of larger loans. Portfolio growth should be accompanied by growth in the number of active borrowers and loans disbursed both to first-time and repeat borrowers. The average number of active borrowers has shown similar growth, increasing by 221% from 56 000 in 1999 to 182 000 in 2002 (Table 4.18). The average number of loans outstanding has shown a slightly higher increase than the average number of active borrowers as MFO1 allowed borrowers to have more than one loan simultaneously since 2000.

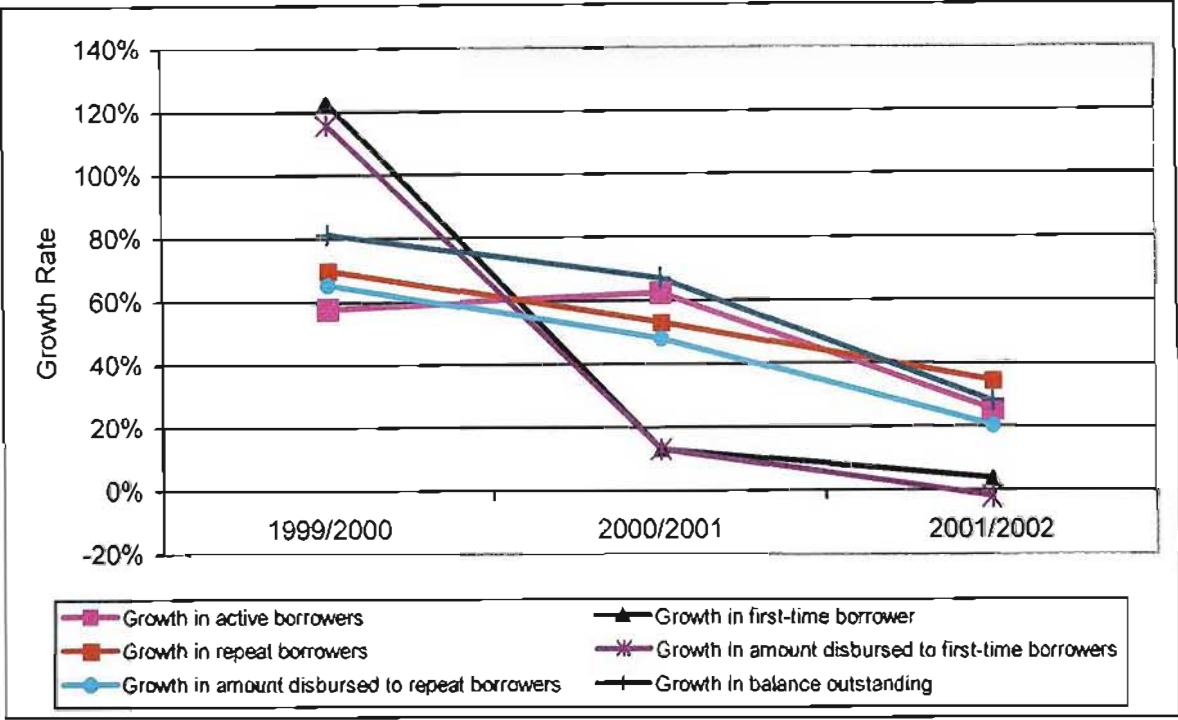


Figure 4.1 Year on Year Growth in Outreach Indicators for MFO1

While the portfolio and number of active borrowers have grown rapidly, the average real balance outstanding per active borrowers has increased by 20% since the baseline survey. This increase is due to MFO1 granting loans with longer terms to the same clientele, rather than shifting its target market to wealthier individuals. The volume and number of loans disbursed also indicates the breadth, of outreach with MFO1 granting loans to 524 000 individuals in 2002 - of which 108 900 (21%) were loans to first-time customers (Table 4.18). This rapid growth in breadth of outreach has been facilitated by the opening of new branches throughout SA.

The number of branches increased from 10 in 1997 to 113 in 2002. Lender MFO1 thus achieved relatively high levels of breadth of outreach, facilitated by the rapid expansion of the organisation since after a commercial bank purchased the majority shareholding. BancoSol also had high levels of breadth of outreach when measured by growth in loan portfolio, number of borrowers, and loans disbursed. These results were achieved through

rapid growth of the organisation after its independence from PRODEM and upgrading to a regulated financial institution (Gonzalez-Vega *et al.*, 1997).

The challenge for MFOs is to achieve high levels of breadth of outreach without shifting focus to granting loans to wealthier individuals. The relatively small average loan size suggests that MFO1 has increased its breadth of outreach without changing its target market in the same way as BancoSol. The remaining challenge for MFO1 is to maintain its breadth of outreach in future. The declining portfolio and client growth rates in Figure 4.1 indicate that MFO1 has entered a consolidation phase. Growth in the number of first-time borrowers and volume disbursed to first-time loans has slowed considerably, while portfolio growth and repeat advances have shown less slow-down in growth. The consolidation phase has reduced growth in the number of first-time borrowers. It is important for MFO1 to retain and grow its existing client base - the slower fall in growth of number and volume of loans to repeat clients shows that MFO1 is grappling with this challenge, with the average amount outstanding for repeat borrowers being slightly higher than for first-time borrowers (Table 4.18).

Table 4.19 shows that the growth in the average portfolio for MFO2 has also been substantial, rising from R48 million in 1997 to R169 million in real terms by 2002. Compared to MFO1, the outstanding loan portfolio of MFO2 is not much less. However, portfolio growth has not been accompanied by increases in the number of loans outstanding and the number of loans disbursed. The smaller number of loans outstanding and the increasing amount outstanding per loan suggest reducing, rather than increasing, breadth of outreach. The increasing real average outstanding loan balance, reducing number of loans disbursed

and increasing real average loan size imply that MFO2 is granting fewer and much larger loans to higher-income individuals (Table 4.19).

Table 4.19 Breadth of Outreach by MFO2

	Baseline Survey	1999/00	2000/01	2001/02
Average annual portfolio outstanding	R48 500 000	R107 593 776	R164 309 644	R169 792 360
Average number of loans outstanding	4669	2281	1960	1395
Amount outstanding per loan	R10 388	R47 170	R83 853	R121 715
Amount disbursed to first-time borrowers		R33 670 623	R34 359 633	R17 676 165
Amount disbursed to repeat borrowers		R6 173 315	R7 414 765	R5 576 286
Amount disbursed		R39 843 939	R41 774 398	R23 252 451
Number of first-time borrowers		285	207	76
Number of repeat borrowers		426	89	38
Average number of branches	6	6	5	5
Total average annual savings balances		R521 908 086	R562 189 227	R570 742 247
Number of savings accounts				474 052

Note: Monetary values are expressed in real terms - 1997/98 = 100

The increase in the real average outstanding balance from R10 000 at the time of the baseline survey to R121 715 in 2002 and the reduction in the number of loans outstanding from 4 600 to 1 395, is the main feature of the portfolio shift. This portfolio shift is clearly reflected in the 1999 MFO2 annual report (MFO2, 1999) where greater focus is placed on achieving financial viability while reducing access to concessional funding. This shift has led to MFO2 granting larger, more profitable loans over longer terms. This could be classified as mission drift, but should always be viewed in the context of the financial technology and organisation mission of MFO2. It employs a collateral-intensive technology where the requirements for collateral have been more strictly enforced over time. Given MFO2's development

background, the investment in innovative screening and collateral substitute mechanisms is limited.

With increased pressure to be financially self-sustainable, MFO2 cannot afford a costly screening process for relatively small loans. Furthermore, profitable investment in agriculture may require larger loans to agribusiness ventures, rather than relatively high cost loans to fund mostly subsistence farmers. In addition, MFO2 has provided finance to over 130 medium-scale emerging farmers acquiring commercial farm-land. This can be viewed as achieving a relatively high breadth of outreach, achieving MFO2's mission of facilitating economic development in a sustainable manner.

Figure 4.2 shows negative growth in the number of loans outstanding, number of loans disbursed and amounts disbursed further suggests that MFO2 has focused on granting loans to viable agricultural and agribusiness ventures. Contrary to the limited breadth of outreach of the agricultural loan portfolio of MFO2, the relatively large volumes of average savings balances and number of savings accounts show substantial breadth of outreach through savings (Table 4.19). Voluntary savings deposit products are offered by MFO2 at all of its branches 13 branches in rural areas of KZN where no other commercial bank is present.

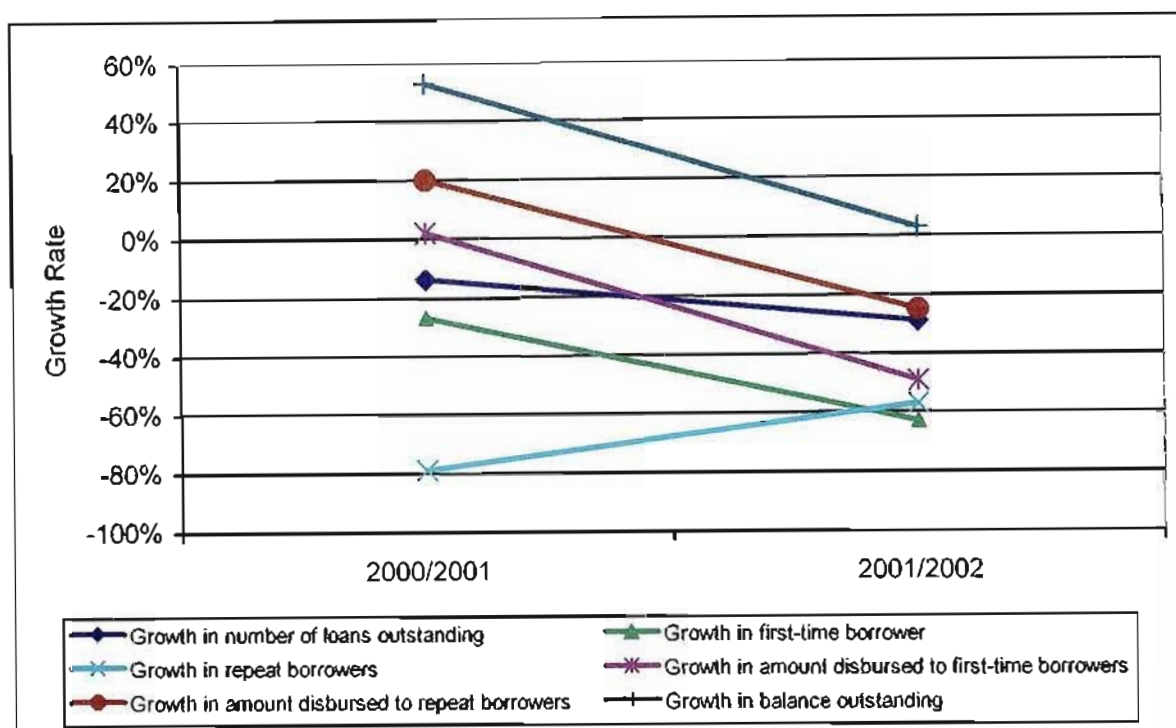


Figure 4.2 Year on Year Growth in Outreach Indicators for MFO2

Yaron (1994), Christen *et al.*, (1994), Chaves and Gonzalez-Vega (1996) and Gonzalez-Vega *et al.*, (1997) show that savings have the potential of reaching a far greater number of low-income people than credit services. While not every low-income individual may be creditworthy and thus not qualify for credit, no low-income individual is barred from saving. Allowing low-income individuals to store wealth in monetary form increases the savings potential in rural areas. With basic time and demand savings products available through its 40 branches MFO2 has achieved considerable breadth of outreach. Put simply, this suggests that low-income individuals can and do save.

Lender MFO3's target market is confined to small-scale sugarcane growers in the sugar growing areas of KwaZulu-Natal and Mpumalanga provinces, a relatively small sub-sector of the rural population. In this respect, MFO3 has few competitors. Within the relatively small sub-sector, MFO3 has achieved a good breadth of outreach with a real average outstanding

portfolio of R79.6 million and 50 000 loans outstanding (Table 4.20). The number of loans outstanding has increased by 20 000 since 1995, while average number of active borrowers has grown to about 14 000.

Table 4.20 Breadth of Outreach by MFO3

	1995/1996	1996/1997	1997/1998	1998/1999	1999/2000
Average annual portfolio outstanding	R79 650 180	R82 708 790	R82 172 500	R78 158 381	R79 635 583
Average number of loans outstanding	N/A	N/A	N/A	N/A	50 260
Average number of active borrowers	9036	10 492	11 507	12 714	13 727
Amount outstanding per loan					R1 770
Amount outstanding per active borrower	R8 815	R7 892	R7 141	R6 148	R5 801
Amount disbursed	R20 703 866	R23 688 616	R19 540 606	R14 852 403	R13 009 311
Total number of loans disbursed	2 704	2 387	2 162	1 475	N/A
Average number of branches	16	16	16	16	16
Average number of active deposit accounts	30 001	32 094	33 937	35 357	36 599
Average annual deposit balance	R9 410 015	R11 025 867	R13 911 500	R15 290 746	R15 736 067

Note: Monetary values are expressed in real terms - 1997/98 = 100

The relatively low average loan amount outstanding indicates that MFO3 reaches a large number of relatively low-income individuals, which is in line with its mission and objectives. In addition, the growing number of active clients and growing portfolio shows a relatively greater breadth of outreach in its market niche compared to MFO2 that also grants agricultural credit. This breadth of outreach has been facilitated by the co-operation of the sugar mills in administering MFO3 clients. From the information obtained from MFO3, it is not clear how many new clients are being granted credit. An increasing active number of borrowers does suggest some growth in this respect (Table 4.20).

The growth in the number of borrowers served by MFO3 has been relatively stable and has declined somewhat after 1995. The growth in annual average loan portfolio also slowed since 1996 but has increased somewhat since 1999 (Figure 4.3). The real growth in the amount of credit disbursed has declined. The amount of credit disbursed is strongly linked to the cost of sugarcane establishment and the performance of the SA sugar industry. During the 1999/2000 season the interest rate increased to 18% per annum, which may also affect the demand for credit. Another important factor affecting the expansion of financial services is linked to the sugar mills. Prior to 1997, they aggressively pursued development of small-scale sugarcane farmers in order to boost the quantity of sugarcane processed at the mills. The rate of development has now slowed, lowering MFO3's growth in breadth of outreach.

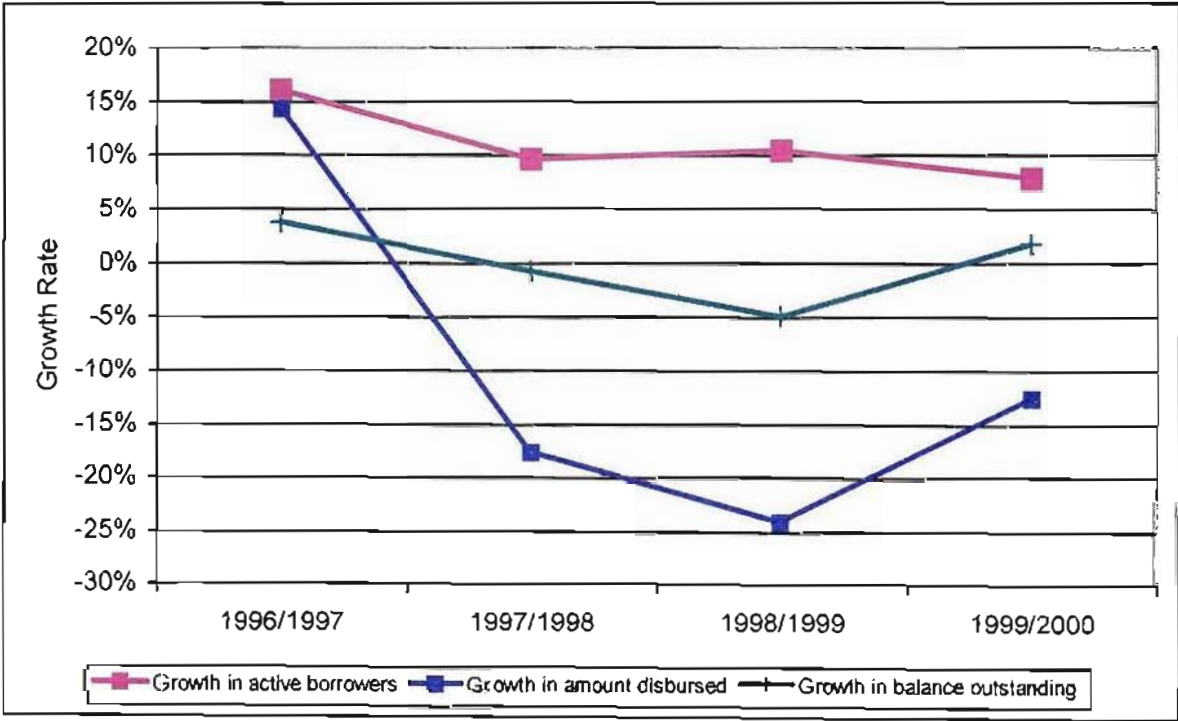


Figure 4.3 Year on Year Growth in Outreach Indicators for MFO3

Lender MFO3 requires compulsory savings from borrowers although individuals may continue to save once the loan is paid up. The savings are deposited at a commercial bank by MFO3. These savings facilities allow borrowers to accumulate funds to manage their ratoon sugar crop, thus encouraging financial independence, as loans provided by MFO3 are to

establish the initial crop. The compulsory nature of the savings facilities has reduced the potential breadth of savings outreach, but has provided cash savings facilities for low-income rural clients that may not have normally had access to a savings account at a commercial bank.

The relatively high number of active deposit accounts suggests that more individuals have savings accounts than loan accounts (Table 4.20). The number of savings accounts have increased from 30 000 in 1996 to 36 600 in 2000. The growth in the average annual active savings balance has also been fairly substantial, indicating that individuals continue to where the savings facility provided by MFO3 even though their loans are paid up. This confirms the willingness of low-income individuals in rural areas to save.

Lender MFO4 did not provide much information about outreach because it was involved in a restructuring process as a result of its poor financial performance. No information was obtained from MFO4 at the time of the baseline survey in 1997. The relatively small loan portfolio, together with few branches (20), has limited MFO4's ability to reach a large number of low-income individuals compared to MFO1 and MFO3 (see Table 4.21). The average number of loans outstanding declined from 19 728 in 1999 to 11 838, while the real annual average portfolio outstanding decreased to R8.7 million, indicating a marked scaling down of the programme.

An increase in the average loan size suggests that MFO4 has granted larger loans to fewer individuals. An increasing average outstanding loan balance may also suggest an increasing level of arrears. The increased amount disbursed in 2000, together with a reducing number of active borrowers, implies that both factors may have contributed to an increasing average

outstanding balance per loan. Achieving a suitable breadth of outreach may not only have been limited by a small branch network, but also by lack of activity and growth in the business sector. The extent to which this sector will grow in the towns where MFO4 operates will determine to what extent the demand for its financial services will grow. The cost of interacting with the financial technology of MFO4 was also relatively high, thus constraining breadth of outreach.

Table 4.21 Breadth of Outreach by MFO4

	Baseline Survey 1997	1998/99	1999/00
Average annual portfolio outstanding		R9 752 503	R8 694 067
Average number of loans outstanding		19 728	11 838
Average number of active borrowers		19 728	11 838
Amount outstanding per loan		R494	R734
Amount outstanding per active borrower		R494	R734
Amount disbursed		R1 140 150	R1 820 341
Average number of branches		29	20

Note: Monetary values are expressed in real terms - 1997/98 = 100

4.9.2 Depth of Outreach

While breadth of outreach measures the number of low-income individuals that had access to financial services, depth of outreach assesses how low down the poverty scale the borrowers or savers are. Chapter 2 described how Navajas *et al.*, (2000) developed a poverty index to assesses the depth of outreach as measured by the poverty of the clients served by BancoSol and Caja Los Andes in Bolivia. A more crude proxy is the average loan size and average balance per loan (Yaron, 1994; Christen *et al.*, 1994). Table 4.22 shows that by this standard, MFO1 has achieved relatively good depth of outreach, with the average real loan size at disbursement ranging from R918 to R1 098 for first-time borrowers.

Table 4.22 Depth of Outreach by MFO1

	1998/1999	1999/2000	2000/2001	2001/2002
Average loan balance outstanding	R918	R1 054	R1 079	R1 098
Average first-time loan	R865	R836	R836	R792
Average repeat loan	R1 094	R1 064	R1 029	R921
% Women clients	N/A	N/A	N/A	48%

Note: Monetary values are expressed in real terms - 1997/98 = 100

The average loan size for repeat borrowers is marginally higher, ranging from R921 to R1094. The relatively high breadth of outreach achieved by MFO1 is complemented by a small average loan size to both first-time and repeat borrowers, indicating a relatively good depth of outreach. Navajas *et al.*, (2000) indicated that access to credit does not tend to migrate to the very poor since they may not necessarily be creditworthy or be able to afford the debt.

The relatively high average loan size for MFO2 in Table 4.23 indicates again that the provision of agricultural credit has shifted to relatively wealthier rural individuals. The average real loan size has increased from R56 039 to R203 969 (Table 4.24). Perceived high lending risks and costs associated with lending to low-income rural poor, a collateral-based financial technology and increasing financial pressure have caused this change in focus of MFO2.

Table 4.23 Depth of Outreach by MFO2

	1999/2000	2000/2001	2001/2002
Average loan balance outstanding	R41 170	R83 853	R121 715
Average loan size	R56 039	R141 130	R203 969
Average deposit size			R1 203

Note: Monetary values are expressed in real terms - 1997/98 = 100

Gonzalez-Vega *et al.*, (1997) describe the key challenge for MFOs moving towards self-sustainability as being able to achieve this objective without incurring mission drift. The financial technology of MFO2 has clearly not put the organisation in a position to provide finance to low income rural individuals. A relatively low average deposit size shows that MFO2 can achieve depth of outreach with savings. More rural poor are able to save than borrow money so that MFO2 can reach deeper down the poverty chain with savings. This is encouraging as it allows low-income rural individuals to better manage liquidity shocks and accumulate funds (even though the amounts involved are not substantial).

The relatively small average loan size for MFO3 in Table 4.24 indicates good depth of outreach compared to the agricultural loans of MFO2. Lender MFO3 has not shifted focus of operations, and remains a financier for small-scale sugarcane growers. Growth in the average loan size from R7 656 in 1996 to R10 069 in 1999 does not necessarily indicate mission drift, but highlights the granting of larger loans to small-scale borrowers in the Mpumalanga growing region (Table 4.24). Most small-scale sugarcane farmers in this region participate in irrigation schemes and have larger land allotments (enabling them to borrow more).

Table 4.24 Depth of Outreach by MFO3

	1995/1996	1996/1997	1997/1998	1998/1999	1999/2000
Average loan balance outstanding	N/A	N/A	N/A	N/A	R1 585
Average loan size	R7 656	R9 924	R9 038	R10 069	N/A
Average deposit balance	R314	R343	R410	R432	R430

Note: Monetary values are expressed in real terms - 1997/98 = 100

Although the average loan size granted by MFO3 is relatively high compared to MFO1, farming operations require larger loans since the initial investment is higher than for micro-business. The low average savings balances suggest that borrowers utilize this fund to

maintain their plots of sugarcane, leaving relatively little in the savings account. The low level of savings is less of an indicator of depth of outreach as these are compulsory. A fixed amount is deducted for each tonne of sugarcane delivered.

Table 4.25 Depth of Outreach by MFO4

	1998/1999	1999/2000
Average loan balance outstanding	R494	R716
Average loan size	R970	R815
% Women	> 90%	> 90%

Note: Monetary values are expressed in real terms - 1997/98 = 100

Table 4.25 shows that MFO4 has a similar average loan size to MFO1. A relatively small average loan size granted mostly to women clients suggests that MFO4 is reaching relatively poor individuals. The strong contrast to MFO1's breadth and depth of outreach points to the financial technology used by MFO4 and its target market as possibly limiting growth. A relatively inflexible loan product, targeted at micro-enterprises in urban areas and accessible through a limited branch network, together with limited administration capacity, has limited MFO4's ability to achieve both breadth and depth of outreach. Furthermore, it is costly for borrowers to interact with the financial technology further reducing potential demand. As Christen *et al.*, (1994) argue, it is scale, and not exclusive focus on the poor, that determines outreach. This hypothesis has been demonstrated for MFO1 but not for MFO4, with the most striking difference between the two organisations being the financial technology.

Lender MFO1 has a strong capital base, and good administrative and cash handling facilities backed up by an extensive branch network. It also has invested in borrower screening and incentive technologies that enable it to more effectively manage the problem of asymmetric information. It also has a strong management base that are committed to the vision and objectives of MFO1. Most of these features were lacking at MFO4. While BancoSol grants

mostly group loans, it has many of the same fundamental characteristics that MFO1 has. This means that the group lending technology per say may not be the limiting factor. Rather, if MFO4 is to grow, its small business clients must thrive. This, in turn, requires a stable and growing economy.

The following section evaluates financial sustainability of MFO1 and MFO3, as only these two organisations provided suitable financial information for this study.

4.10 Financial Self-Sustainability

Microfinance organisations can be classified into two broad categories: privately-owned, independent MFOs and MFOs that are owned or funded by governments and donors. Privately-owned MFOs can either be profitable or non-profitable. Non-profitable private MFOs normally do not survive in the long-term while profitable MFOs generate enough surplus funds that ensures future survival. Subsidy or donor-funded MFOs generally rely on donor money to continue to function. Subsidy-dependent MFOs may be sustainable as long as the donor funds are available. For privately-owned MFO's, continued profitability depends on the scale of operations, charging interest rates that cover the spread of costs, managing operational costs, and keeping arrears at acceptable levels. For donor-funded MFOs, a certain level of operational efficiency is required to achieve high levels of outreach. Operational costs need to be controlled and arrears checked if subsidy levels are not increased to compensate for these inefficiencies. Subsidy-dependent MFOs that want to move toward becoming self-sustainable must place additional focus on their interest rate spread, operational costs, loan losses and their ability to mobilize private capital (Yaron, 1994; Riley, 1996).

Income statement and balance sheet information to evaluate financial self-sustainability was obtained only for MFO1 and MFO3. Some information was available and will be reported for MFO2 and MFO4. This section first establishes how profitable the study lenders are, and then examines the factors that affect self-sustainability, namely interest rates, operational costs, and arrears.

4.10.1 MFO Profitability

Gonzalez-Vega *et al.*, (1997) define a self-sustainable financial organisation as one that can generate enough revenue over time to cover the costs of all factors of production, and being able to meet all liabilities at all points in time. To do this, an organisation needs to maintain the real value of its equity capital by generating profit. An MFO that can achieve this without the help of subsidies is financially self-sustainable. Common measures for organizational profitability are rate of return on assets (ROA), rate of return on equity (ROE) and cost to income ratios. For profitable organisations ROA and ROE should at least exceed the ruling inflation rate (Barry *et al.*, 1995) to maintain the real purchasing power of the funds invested.

Calculating these measures for organisations that are subsidy-dependent can lead to misleading results, since ROA and ROE do not account for any subsidies that the MFO may have received, be it direct cash grants, grants in-kind or funds loaned at concessional interest rates (Schreiner and Yaron, 1999). To obtain a reliable estimates of ROA and ROE for subsidized MFOs, the subsidy has to be taken into account when computing these ratios. Since MFO3 relies on an annual grant from its parent body and obtains concessional funds from government and donor organisations, it is important to calculate the level of the subsidy.

This will indicate the true cost of the organisation. Adjusting organizational profit by the value of subsidies will give better estimates of ROA and ROE. Knowledge of the subsidy also enables the calculation of the SDI which highlights the increase in interest rate required to achieve financial self-sustainability within a given year, assuming that an increase in the on-lending interest rate is the only change required to achieve full subsidy independence (Yaron, 1992; Schreiner, 1997). Both Yaron (1994) and Schreiner (1997) argue that this may not necessarily be feasible or palatable for an organisation and that achieving operational cost efficiencies while maintaining suitable levels of debt collection are just as important.

The ROE and ROA for MFO1 are calculated in Table 4.26, and estimate that MFO1 is a highly profitable organisation with ROA and ROE exceeding the inflation rate by substantial margins. Real ROEs in excess of 50% show that MFO1 is able to maintain the real value of its equity capital. A relatively high cost-to-income ratio suggests that MFO1 has to incur considerable costs in generating this income.

Table 4.26 Profitability Indicators for MFO1

	1998/99	1999/00	2000/01	2001/02
ROA	39.1%	42.6%	45.0%	45.1%
ROE	65.7%	69.9%	71.0%	65.4%
Cost-to-income ratio	69.2%	68.1%	67.3%	69.3%
Consumer Price Index (CPI ^a)	6.5%	4.1%	6.4%	7.1%
Real ROA ^b	30.6%	37.0%	36.3%	35.5%
Real ROE ^b	55.5%	63.2%	60.7%	54.5%

^a CPI obtained from Consumer Price Index as published by Statistics South Africa publication P0141.1. The CPI was adjusted to match the financial year of MFO1.

^b Real ROA and ROE were calculated according to Fischer's formula $[(1 + ROA)/(1 + ROA)] - 1$.

Financial sustainability is important not only for present outreach, but also for future outreach. The perception of permanence generates incentives for borrowers to repay. For

staff, management and shareholders it gives incentives to exert effort in ensuring the proper functioning of the organisation. Non-permanence reduces the credibility of threats that limit the access to future credit to defaulting borrowers and thus undermines the value of reputational capital (Yaron, 1994; Gonzalez-Vega *et al.*, 1997). The relatively high, sustained profitability of MFO1 points to its future permanency and compatible incentives for both its clients and staff.

Lender MFO3 is dependent on subsidies from its parent organisation and from government. The parent organisation provides an annual cash grant that funds operating expenses, while government provides loan funds at concessional interest rates. Table 4.27 shows that prior to adjusting for the subsidy, the ROA and ROE for MFO3 ranged between 4.0% and 8.6% ,and 10.2% and 26.7% respectively, and were lower than those computed for MFO1. The sharp increase from 1996 to 1997 was mostly due to an increase in the revenue grant received by MFO3. The ROA was negative in three of the 5 years tracked while the real ROE was positive, showing that MFO3 can maintain the real value of its equity capital as long it has access to the revenue grants and concessional funds.

The cost-to-income ratio for MFO3 was marginally higher than that for MFO1. However, unlike MFO1, the largest cost factor for MFO3 was interest on borrowed funds both from donors and commercial banks. To assess the level of self-sustainability of MFO3, Yaron's (1992) SDI is calculated. This SDI also allows the accounting profits to be adjusted such that a subsidy-adjusted ROA (SAROA) and ROE (SAROE) can be computed. The SAROA and SAROE better reflect the true profitability of MFO3 in the absence of any subsidy. Following equation (4.3) on page 158, the value of the total subsidy was calculated as reported in Table 4.27.

Table 4.27 Profitability Indicators for MFO3

	1995/96	1996/97	1997/98	1998/99	1999/00
ROA (not adjusted for subsidy)	4.6%	8.2%	4.0%	5.6%	4.6%
ROE (not adjusted for subsidy)	18.0%	26.7%	11.5%	15.2%	10.2%
CPI ^a	6.5%	4.1%	6.4%	7.1%	6.5%
Real ROA ^b (not adjusted for subsidy)	-3.0%	0.1%	-3.3%	-1.9%	0.8%
Real ROE ^b (not adjusted for subsidy)	9.4%	17.2%	3.7%	7.0%	6.2%
Cost-to-income ratio (not adjusted for subsidy)	71.4%	60.8%	75.2%	66.6%	73.3%
SDI Calculation					
Average annual equity	R24 115 500	R30 345 500	R36 505 000	R39 627 000	R47 049 000
Average annual portfolio outstanding	R68 485 500	R76 990 000	R82 172 500	R84 112 000	R88 952 000
Direct grants	R800 000	R0	R0	R0	R0
Paid-in capital	R0	R0	R0	R0	R0
Revenue grants	R4 000 000	R8 531 000	R4 351 000	R4 604 000	R4 005 000
Average annual borrowing from donors	R52 779 000	R48 981 500	R46 932 000	R41 076 500	R31 661 000
Interest cost of donor debt	9.48%	11.41%	12.76%	10.85%	8.71%
Opportunity cost of donor funds ^c	18.00%	19.46%	19.50%	21.08%	16.54%
Discount on public debt = $A^d(m - c)$	R4 493 220	R3 944 300	R3 163 740	R4 200 926	R2 476 729
Imputed cost of equity	R4 340 790	R5 905 234	R7 118 475	R8 353 372	R7 781 904
Subsidy	R9 285 630	R10 267 658	R10 426 158	R11 115 860	R9 456 280
SDI ^d	93.1%	85.7%	84.2%	85.1%	69.3%
Current interest rates	16.0%	16.5%	17.5%	17.5%	18.0%
Subsidy-adjusted-rate	30.9%	30.6%	32.2%	32.4%	30.5%
Subsidy Adjusted ROA, ROE and Cost to Income Ratios					
Adjusted profit	-R4 144 840	-R4 362 424	-R3 307 683	-R2 762 488	-R1 674 375
SAROA	-4.4%	-4.4%	-3.1%	-2.5%	-1.6%
SAROE	-17.2%	-14.4%	-9.1%	-7.0%	-3.6%
Real SAROA	-11.3%	-11.6%	-9.9%	-9.4%	-5.2%
Real SAROE	-23.2%	-20.8%	-15.5%	-13.6%	-7.1%
Operational sustainability ^e	R5 744 380	R6 158 876	R6 467 057	R6 445 825	R4 881 000

^a CPI obtained from Consumer Price Index as published by Statistics South Africa publication P0141.1. The CPI was adjusted to match the financial year of MFO3.

^b Real ROA and ROE were calculated according to Fischer's formula $[(1 + ROA)/(1 + ROA)] - 1$.

^c Opportunity cost of donor funds was based on the average mortgage bond interest rates as computed from data obtained from the South African Reserve Bank (2003).

^d A = average annual borrowing from donors

^e Operational sustainability = Interest Revenue – Operational costs (excluding cost of debt) (Christen *et al.*, 1994).

The subsidy consisted of revenue grants obtained from the parent organisation and concessional debt. To compute the subsidy inherent in the concessional debt received from various government agencies, the net difference between what MFO3 would have had to pay to access those funds on the capital market and the actual interest rate charged, was computed. The average long-term mortgage bond rate was used to approximate the cost of debt at between 16.54% and 21.08%. To calculate the opportunity cost of equity, the annual average equity was multiplied by the long-term mortgage bond rate. This assumes that the opportunity cost of equity is the same as that of commercial debt. The total value of the subsidy for MFO3 ranged between R9.28 million and R11.1 million.

The fluctuations in the annual subsidy, in part, depend on the level of the cash grants and concessional funding received, but also on the opportunity cost of debt and equity capital. In 1998/99 there was a marked increase in interest rates sparked by rising rates in global financial markets. This increased the value of the annual subsidy to R11 million. In the following year interest rates dropped, causing a drop in the value of the subsidy. The decline in the subsidy is thus not necessarily only as a result of MFO3 becoming more self-sustainable, but rather due to a reduction in the opportunity cost of debt and equity capital. Using equation (4.1), the SDI estimates that MFO3 would have to markedly raise (in some years almost double) its annual interest rate to become totally subsidy independent. This would require a nominal on-lending interest rate of between 30% and 32% per annum which was considerably higher than the interest rates charged by MFO3 at the time of the study. These results are consistent with the lower bound of an SDI computed by Bates (1997b) who estimated that on-lending interest rates of between 30% and 60% per annum would be required for MFO3 to achieve full financial self-sustainability. Bates (1997b) included the administration and staff costs borne by the mills that were not included in this study, because

the information was not readily available. It is important that the costs carried by the mills are noted since MFO3 would need to cover these costs to achieve self-sustainability.

The subsidy adjusted ROA (SAROA) and ROE (SAROE) are recalculated using adjusted profit, where adjusted profit is the accounting profit adjusted by the revenue grants and adjusted cost of debt. Both the SAROA and SAROE are negative, indicating that MFO3 would not be able to generate enough funds to maintain the value of its equity capital without the subsidy. A subsidy-adjusted cost-to-income ratio greater than 100% underlines MFO3's reliance on the subsidy. Following Christen *et al.*, (1994), MFO3 has achieved operational self-sustainability, being able to cover all non-financial expenses (salaries, administrative costs, depreciation and bad debt costs) out of interest earned from lending activities. Christen *et al.*, (1994) found that many MFOs have reached a level of operational sustainability, but could not generate enough funds to cover the cost of debt.

Although the SDI shows that a relatively high increase in on-lending interest rates is required by MFO3 to achieve self-sustainability, charging high interest rates may not be possible. The returns generated by small-scale farmers may not meet more costly debt. Staff at MFO3 also indicated that it does not intend to become fully self-sustainable. However, MFO3 will continue to operate as long as its major donor continues to provide financial support - a very likely scenario. Given the level of outreach that MFO3 has achieved amongst small-scale sugarcane growers, and the multiplier effect on local economic activity this has, there is a strong argument for the continued donor support. Schreiner (1997) argues that the underlying hypothesis of computing the subsidy is to determine an MFO's cost to society and the donor community. Not every MFO must achieve self-sustainability, but it is important that the donor funds have been put to their best alternative use.

It is unlikely, at least in the short run, that any other MFO could profitably service the target market of MFO3. The sugar industry in KZN must judge whether the continued support of MFO3 is warranted. The continued and historic support of MFO3 would suggest that the industry subjectively considers that the benefits (tangible and intangible) exceed the costs. The objective of this study is to, at least, provide an objective overview of the outputs relative to the costs.

Profitability, the drive to self-sustainability, or achieving suitable levels of operational sustainability, depends on interest rates, cost effectiveness and the controlling of arrears. Yaron (1994) also highlights the ability of MFOs to independently mobilize capital as an important component of self-sustainability. Only MFO2 can mobilize savings and its success in this regard has assisted MFO2 to move toward financial self-sustainability. The following sections review the components of the study MFO's profitability in more detail, where information was available.

4.10.2 Interest Rates

Table 4.28 presents nominal and effective annual interest rates charged by the four KZN MFOs. Lenders MFO1 and MFO4 compute their nominal interest rates 'up-front' on the entire outstanding loan amount, while the agricultural lenders use the remaining balance method. Effective interest rates ranging from 53 to 179 per cent per annum for the micro-lenders, were relatively high and consistent with their objective of financial self-sustainability. Lender MFO1 has increased its interest rates since the base line survey.

Table 4.28 Loan Interest Rates of Study MFOs

Characteristics	MFO1	MFO2	MFO3	MFO4*
Nominal quoted interest rate (base line survey 1997)	7,5% per month	14% - 16% per annum	16% per annum	3% - 4 month loan 2.8% - 6 month loan 2.3% - 9 month loan 2.1% - 12 month loan
Nominal interest rates (2000)	14.5% per month- 2 month loan 8.5% per month - 4 month loan 6.5% per month - 6 month loan	Based on the prime lending rate of commercial banks	18% per annum	-
Nominal interest rates (2002)	20% per month - 1 month loan 11.75% per month - 4 month high risk 9.75% per month - 4 month medium risk 7.75% per month - 4 month low risk 9.5% per month - 6 month medium risk 7.5% per month - 6 month low risk 5.5% per month - 12 month loan	Based on the prime lending rate of commercial banks	-	-
Interest calculated as	Up front	Remaining balance	Remaining balance	Up-front
Annual effective interest rate (1997)	179%	-	-	66.4% - 4 month loan 66.7% - 6 month loan 58.4% - 9 month loan 63.6% - 12 month loan
Annual effective rates (2000)	225.5% - 2 month loan 153.9% - 4 month loan 123.7% - 6 month loan	-	-	-
Annual effective rate (2002)	240% - 1 month loan 209% - 4 month high risk 175.3% - 4 month medium risk 141.0% - 4 month low risk 175.7% - 6 month medium risk 141.3% - 6 month low risk 105.7% - 12 month loan	-	-	-

Source: Own data

*Source: Churchill, 1998:14 - nominal and effective interest rates are indicated per loan term

The increase in interest rates was not only necessary to cover increasing operating costs and arrears but also to meet the profit targets required by shareholders. High effective interest rates alone were not sufficient for MFO4 to survive as high bad debt levels and administrative inefficiency resulted in increasing financial pressure and the ultimate restructuring in 2000. Charging positive on-lending interest rates that allow improved coverage of operational costs and loan losses can significantly decrease dependence on subsidies. In contrast to MFO1 and MFO4, MFO2 and MFO3 have charged interest rates below commercial bank lending rates. This was consistent with their development objectives, and still applies for MFO3.

With MFO2's increased focus on achieving financial self-sustainability, interest rates charged on loans were brought in line with those charged by commercial banks. However, these interest rates have not been sufficient to cover the costs of serving the small-scale agricultural sector and absorbing relatively high loan losses. This again shows why MFO2 has adopted a more collateral-intensive technology and is granting larger loans to more viable agricultural business ventures. These long-term loans are more cost-effective, while the collateral requirements have prevented relatively higher risk small-scale farmers from applying for credit. Given its development objective, MFO3 is unlikely to increase the interest rate beyond 18% per annum.

Charging high interest rates cannot in itself lead to long-term sustainability. Gonzalez-Vega *et al.*, (1997) found that BancoSol and PRODEM in Bolivia reduced subsidy dependence not by increasing interest rates, but by reducing operational costs and loan losses through achieving economies of scale. BancoSol, after its formalisation as an independent financial institution, was able to expand rapidly attracting many new clients, and spreading fixed costs

over a larger asset base. Not all MFOs are able to follow such a path of rapid expansion, but controlling costs and loan losses is necessary to remain sustainable or move toward becoming self-sustainable (Riley, 1996).

4.10.3 Administrative and Operational Costs

Controlling administrative and operational costs is important for sustainability since this determines and affects the interest rate spread that an MFO must charge to remain viable (Yaron, 1994; Riley, 1996). Providing small loans to the poor is costly and increases the role of controlling costs if loan pricing is to remain acceptable and the MFOs to remain, or become, viable. Operational costs depend much on the scale and productivity of the MFO. Improvements in productivity allow the MFO to reach more clients effectively with a given resource. Expanding or growing MFOs can improve productivity if more staff are employed to deliver a better service, and as experience improves the effectiveness of service delivery.

Where scale and productivity cannot increase sufficiently, MFOs may have to move away from their target market. As an alternative to increasing the scale of operations to reduce costs, an MFO may broaden the type of financial services offered to attract more clients and thus grow the portfolio (Riley, 1996). Other factors may also affect operating costs such as a high turnover of the loan portfolio and the operating environment. For instance, it may be costly to enforce loan contracts. BancoSol in Bolivia successfully reduced operating costs through increasing the scale of operations and granting larger loans that enabled it to improve self-sustainability without substantially increasing interest rates (Gonzalez-Vega *et al.*, 1997).

Lender MFO1 has high administrative and operating costs by international standards as shown in Table 4.29. Staff costs as a proportion of average loan portfolio were relatively high compared to successful MFOs such as BancoSol, PRODEM, BUD and the Grameen Bank. Riley (1996) recommends that staff costs not exceed 17% of total costs. For MFO1, staff costs are in excess of 20% of total costs, although since 2000 they have declined from 21% to 20% of the average portfolio. Administrative costs for MFO1 range from 34% to 27% of the average outstanding loan portfolio, which also tends to be above the norm of best practice MFOs (Gonzalez-Vega *et al.*, 1997; Riley, 1996). Interest costs as a percentage of the outstanding loan portfolio are relatively low while provision and bad debt expenses range between 23% and 30%.

Table 4.29 Administrative Costs and Productivity Indicators for MFO1

Indicator	1998/99	1999/00	2000/01	2001/02
Staff Costs as a % of average outstanding loan portfolio	21.3%	23.3%	20.7%	20.2%
Administrative Costs as a % of average outstanding loan portfolio	34.5%	29.6%	27.0%	26.9%
Interest Costs as a % of average outstanding loan portfolio	4.7%	2.2%	1.7%	1.7%
Bad Debt costs as a % of average outstanding balance	30.2%	23.4%	23.0%	29.6%
Total Costs as a % of average outstanding balance	103.5%	90.0%	82.2%	88.3%
Total Income as a % of average outstanding balance	149.5%	132.2%	122.2%	127.5%
Average number of loans outstanding per staff member	276	203	188	185
Average loan portfolio per staff member	R271 022	R237 774	R240 048	R257 871
Average number of active clients per staff member	276	203	187	184
Average number of loans disbursed per staff member	934	788	638	640
Average volumes of loans disbursed per staff member	R1 042 355	R880 216	R747 202	R729 891
Average number of outstanding loans per branch	1488	1364	1575	1627
Average loan portfolio per branch	R1 462 091	R1 600 891	R2 012 511	R2 266 976
Average number of active clients per branch	1488	1364	1569	1615
Average number of loans disbursed per branch	5038	5306	5353	5627
Average volume of loans disbursed per branch	R5 623 231	R5 926 341	R6 264 383	R6 416 549

This is very high by international best practice standards. Total costs as a percentage of average outstanding loan portfolio exceed 80%. Given this type of cost structure and bad debt rate, MFO1 needs to charge relatively high interest rates to maintain its relatively high profitability levels.

To understand this cost structure it is important to review MFO1's operations and the nature of its lending activities. Small, short-term loans are provided with the average turnover rate of a loan being about three months. Comparing MFO1's average loan size of R1 100 to that of BancoSol, which ranges between R3000 and R4000, then MFO1 does grant relatively small loans. A high loan turnover rate of small loans necessarily increases costs (Riley, 1996). In addition, MFO1 has undergone a rapid expansion since 1998 expanding from 12 branches to 116 branches in four years. Each branch requires staff, IT infrastructure, cash handling facilities and telephone systems. This implies is initially high start-up costs, since branches need time to build lending experience and competencies to improve productivity.

This is often made difficult in more rural areas where population densities are low and employment rates are lower. MFO1's arrears management technology is not necessarily low-cost as it relies on telephonic follow-up. Since MFO1 provides loans to relatively risky individuals that, in most instances, will not qualify for credit at most other financial institutions, a relatively high default rate can be expected. High arrear rates involve costly follow-up procedures that increase administrative costs. Similar to BancoSol, the rapid increase in the scale of operations has allowed MFO1 to spread admin and staff costs over a larger asset base. Unlike BancoSol, though, MFO1's average loan size remained fairly constant. This can become problematic in the consolidation phase, particularly where the growth in the number of repeat loans is slowing down. Rapid portfolio expansion is also

likely to put pressure on bad debts as is evident in Table 4.29. This, together with a slowing portfolio growth, is likely to put pressure on MFO1's costs.

The rapid growth of MFO1 has affected staff and branch productivity levels. The average number of active loans per staff member has decreased from 276 to 185. The loan portfolio per staff member has also declined from R271 000 to R257 000. A similar trend is observed for number and volume of loans disbursed. Although staff productivity levels have declined, they still compare well with those of international best practice MFOs like BancoSol, BUD, Caja Los Andes and the Grameen Bank (Riley, 1996). Branch productivity is also relatively high by international standards and has shown an improvement in productivity levels (Yaron, 1994; Christen *et al.*, 1994; Riley, 1996). Declining staff productivity, but increasing branch productivity is partly as a result of an increasing staff component at Head office due to expanded call centre operations.

The increasing staff component and high operational cost structure poses a considerable challenge going forward, particularly now that MFO1 has entered a consolidation phase. High initial market growth did allow MFO1 to offset the increasing costs by charging higher interest rates (which are captured in the loan portfolio as interest and capital are not separate). However, slower market growth has heightened awareness of the cost of debt amongst borrowers. With limited expansion possibilities, MFO1 will have to either expand vertically (expand product range) or reduce the turnover of loans while continuing to seek cost efficiencies by developing a cost-cutting/control culture amongst its staff. Vertical expansion has already begun by exploring additional products such as payroll loans and joint ventures with large retail groups. MFO1 has also sought to increase the average repeat loan size, by increasing the term loan. BancoSol managed to increase the loan size without substantially

increasing the term of loan. This is difficult for MFO1 as salary-earning individuals cannot readily increase loan repayment capacity. Under such conditions, it becomes difficult to increase the loan size without increasing the loan term. A longer loan term can be detrimental to low-income individuals who require cash loans for liquidity management. If MFO1's clients can be shifted towards long-term loan products, the liquidity squeeze that these individuals incur may impact their ability to repay and thus increase the loan default rate. A high default rate at larger exposure will obviously be detrimental to MFO1's long-term financial sustainability.

The cost structure of MFO3 contrasts sharply with that of MFO1, as MFO3 provides larger, longer-term loans to a small client base where the loan turnover rate is much lower than for MFO1. Table 4.30 shows that staff and administrative costs do not exceed 5% of the average outstanding portfolio, while bad debt costs as a percentage of the average outstanding portfolio range between 1.6% and 3.8%. Total costs do not exceed 17% of the outstanding loan portfolio. Staff productivity is very high with the average number of active clients per staff member increasing from 430 to 654, while the average balance per staff member has declined. Branch productivity is also relatively high, as is savings mobilisation, (although MFO3 has compulsory savings).

MFO3 has, therefore, achieved considerable breadth and depth of outreach while being able to keep its cost structure under control. The financial technology of MFO3, however, relies heavily on the administrative capacity of the sugar mills, and some of the costs, particularly interest, are subsidized. Lender MFO3 can maintain a degree of operational self-sustainability because it does not carry the full administrative burden while using cash grants and

concessional interest rates to limit interest charges which are its main cost item. Removing these subsidies increases the cost structure of MFO3, and makes it financial unsustainable.

Table 4.30 Administrative Costs and Productivity Indicators for MFO3

Indicator	1995/96	1996/97	1997/98	198/99	1999/00
Staff Costs as a % of average outstanding loan portfolio	1.9%	2.1%	2.6%	2.8%	3.1%
Administrative Costs as a % of average outstanding loan portfolio	2.0%	2.3%	2.0%	2.4%	2.4%
Interest Costs as a % of average outstanding loan portfolio	8.5%	8.8%	8.3%	6.5%	5.0%
Bad Debt costs as a % of average outstanding balance	2.2%	1.9%	1.6%	2.4%	3.8%
Total Costs as a % of average outstanding balance	15.8%	16.4%	15.5%	14.4%	14.8%
Total Income as a % of average outstanding balance	22%	27%	21%	22%	20%
Total subsidy adjusted costs as a % of average balance	22.4%	21.5%	19.4%	19.4%	17.6%
Total subsidy adjusted income as a % of average balance	16.3%	15.8%	15.4%	16.1%	15.7%
Subsidy per Rand disbursed	52.2%	46.6%	53.4%	69.5%	65.1%
Average loan portfolio per staff member	R3 261 214	R3 666 190	R3 912 976	R4 005 333	R4 235 809
Average number of active clients per staff member	430	500	548	605	654
Average volumes of loans disbursed per staff member	R847 704	R1 048 806	R930 505	R761 132	R691 964
Average savings balance per staff member	R385 286	R488 167	R662 452	R783 595	R837 000
Average number of active savings account per staff member	1429	1528	1616	1684	1743
Average loan portfolio per branch	R4 280 344	R4 811 875	R5 135 781	R5 257 000	R5 559 500
Average number of active clients per branch	565	656	719	795	858
Average volume of loans disbursed per branch	R1 112 611	R1 376 558	R1 221 288	R998 985	R908 203

The cost structure of MFO3 is lower than that of BancoSol in Bolivia but it has a similar cost distribution with interest on debt being the largest cost while staff and administrative costs have been kept to a minimum (Gonzalez-Vega *et al.*, 1997). The staff productivity figures are also misleading as they do not include the time of sugar mill staff that assist MFO3 with lending and deposit operations. Bates (1997b) estimates that over 90 mill staff assist with MFO3 operations. Including staff costs for them would reduce the reported MFO3 staff

productivity levels considerably. The subsidy per Rand disbursed ranges from 46% to 69%, indicates a relatively high degree of subsidy dependence.

Only limited productivity information was available for MFO2 as shown in Table 4.31. A declining number of loans per staff member together with an increasing volume of loans disbursed per staff member shows that MFO2 is granting relatively large loans. Large, long-term loans are more cost effective than small, short-term loans, enabling MFO2 to control costs while not making substantial increases in interest rates. This, however, necessitated that MFO2 shift its target market as outlined earlier.

Table 4.31 Productivity Indicators for MFO2

	1999/00	2000/01	2001/02
Average loan portfolio per staff member	R1 365 692	R12 215 988	R16 358 631
Average number of active loans per staff member	26	122	107
Average volumes of loans disbursed per staff member	R505 741	R3 105 816	R2 240 256
Average number of loans disbursed per staff member	8	19	9
Average loan portfolio per branch	R20 030 162	R39 091 163	R42 532 440
Average number of active loans per branch	380	392	279
Average volume of loans disbursed per branch	R7 417 534	R9 938 612	R5 824 664
Average number of loans disbursed per branch	119	59	23

Based on Table 4.32, MFO4 has relatively low productivity levels with the average number of active loans per staff and per branch decreasing. The average loan portfolio and volumes of loans disbursed are increasing per staff and per branch, suggesting that MFO4 may have begun disbursing loans (albeit larger loans) during its restructuring process. The productivity indicators are relatively poor when compared to other group lending programmes such as those of the Grameen Bank and BancoSol.

Table 4.32 Productivity Indicators for MFO4

Indicator	1998/99	1999/00
Average loan portfolio per staff member	R82 967	R100 634
Average number of active loans per staff member	156	123
Average number of groups per staff member	37	30
Average volumes of loans disbursed per staff member	R9 700	R21 070
Average number of loans disbursed per staff member	9	23
Average loan portfolio per branch	R368 259	R498 009
Average number of active loans per branch	692	607
Average number of groups per branch	139	113
Average volume of loans disbursed per branch	R43 053	R104 272
Average number of loans disbursed per branch	41	115

Relatively poor administrative capacity, and the possible lack of demand for its loan product have restricted MFO4 from expanding and achieving a suitable scale of operations needed to improve cost effectiveness. The inability to grow its lending operations, together with increasing default costs, as a result of poor management, negatively affected MFO4's lending operations and its ability to remain sustainable in the long-term.

4.10.4 Arrears Management and Loan Collections

Containing arrears is just as important as containing and managing administration costs. Yaron (1994) regards containing arrears as a necessary condition for an MFO to become self-sustainable. Successful MFOs have achieved relatively high collection rates mostly due to being able to promote financial discipline amongst their borrowers. Good loan default management is linked to sound credit assessment criteria, effective incentive mechanisms and staff remuneration that is linked to the level of loan collections achieved (Riley, 1996). To objectively assess arrears, it is important to identify when a loan is regarded as being in arrears by an MFO. Arrears definitions can vary from 1 day after the instalment was due, to 30 days after the instalment was due. In addition, some MFOs may have a payment tolerance

level where a loan will not 'age' if a certain percentage of the instalment is late. This is not common practice in the SA microfinance industry where arrears definitions tend to be fairly stringent. Many credit retailers in SA have payment tolerance levels, with some of the large clothing and furniture retailers regarding a loan as current if 60% - 70% of the instalment due has been paid.

The danger with payment tolerance policies, especially for short-term credit, is that arrears are not detected quickly enough. Lender MFO1 defines an instalment as being in arrears if a full payment has not been made 1 day after the instalment due date. This is a relatively strict definition that is in line with MFO best practice. Given this strict definition, Table 4.33 shows that MFO1 does have relatively high arrears as a percentage of the annual average loan portfolio that range from 24% in 2000 to 21.7% in 2002. Arrears decreased in 2001 but then markedly increased in 2002. This arrears rate is relatively high when compared to international MFOs that report arrears rates of less than 10% (Yaron, 1994; Riley, 1996).

Table 4.33 Arrears and Collections for MFO1

Indicator	1998/1999	1999/00	2000/01	2001/02
Arrears as a % of annual average loan portfolio	-	24.4%	16.6%	21.7%
Portfolio at Risk	-	33.4%	30.1%	36.7%
Bad Debt as a % of average annual loan portfolio	-	30.2%	23.4%	23.0%
Annual average provisions as a % of annual average portfolio	6.0%	9.6%	11.8%	16.4%
Collection Rate (Asian method) for Branches	-	-	99.5%	94.1%
Current collection rate for branches	-	-	99.3%	91.6%
Average on-time collection rate	-	-	55.3%	46.0%
Collection rate for late stage arrears	-	-	8.3%	6.1%

These relatively high arrears result from a number of factors: First, MFO1 came under pressure to meet its profit target as determined by the shareholders, leading senior management to relax the credit-granting criteria and increasing the penalty interest rate on

arrears from 2.5% per month to 10.5% per month. Secondly, the SA Rand weakened considerably toward the end of 2001, putting pressure on food prices and thus reducing the disposable income of particularly low-income salary earners. The effect of these changes are shown in Figure 4.4 where the arrears as a percentage of total instalment due increased markedly after the increase in the overdue interest rate from below 25% to well over 30%.

Rosenberg (1999) cautions against relying too much on arrears rates as these measures tend to give an overly optimistic view of portfolio quality. Late payments are compared to the total balance outstanding, which includes payments not yet due. The result is that late payments are not noted timeously and thus up-coming problems often go unnoticed. Similarly, in a rapidly expanding portfolio, arrears rates are under-estimated because of a growing denominator relative to a numerator. When comparing the arrears as a percentage of average outstanding loan portfolio for MFO1 to the arrears as a percentage of total due, the extent of the understatement of the arrears is evident.

The portfolio at risk indicator (ratio of outstanding balance of loans with overdue payments to total outstanding balance) is above 30% for MFO1. Again this is a relatively high ratio and is a function of the actions that MFO1 took to increase profits and the client profile of the market that MFO1 operates in. At this point it is important to highlight some aspects of MFO1's collection strategy that has two components: early- and late-stage collections. Early-stage collections (less than 90 days in arrears) are managed by branches, while late-stage collections (more than 90 days in arrears) are managed by a central collections department. The increase in the interest on overdue charge from 2.5% per month to 10.5% per month had an even more marked effect on accounts in late-stage arrears. These borrowers were already

paying slowly, and the increase in the interest on overdue charge meant that arrears the arrears accumulated more quickly.

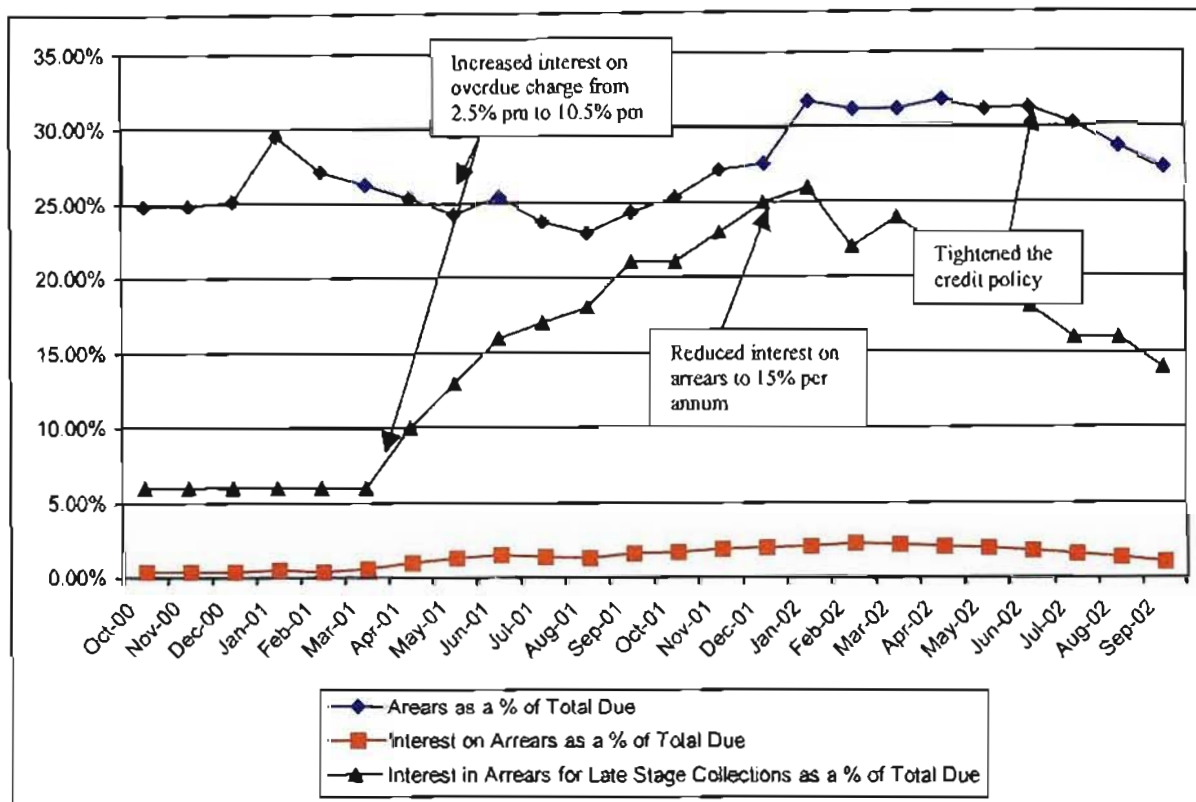


Figure 4.4 Arrears and Interest on Overdue as a % of Monthly Total Due in Branches for MFO1

The reason that arrears started accumulating faster as a result of the increase in arrears must be viewed in the context of MFO1's payment hierarchy: MFO1 has an automatic payment allocation mechanism that first allocates any payment that a borrower makes to interest on overdue, then to arrears and finally to the current instalment due. By not regularly servicing the instalment, interest on overdue charges can accumulate rapidly. Increasing interest on arrears will result in increasing arrears and a borrower may not be able to service any of the debt. The increasing arrears problem in Figure 4.4 was also exacerbated by a marked increase in nominal interest rates toward the end of 2001. Borrowers that were already stretched were facing repayment problems were further stressed, which added to the arrears problem.

Given the high level of arrears, MFO1 managed to remain profitable by charging high interest rates, and by achieving relatively high overall collection rates as shown in Figure 4.5. The problem with the relatively high arrears is highlighted by the low on-time collection rate achieved by MFO1. Less than 60% of the instalments are paid on the day that they are due, which is the first day of every month.

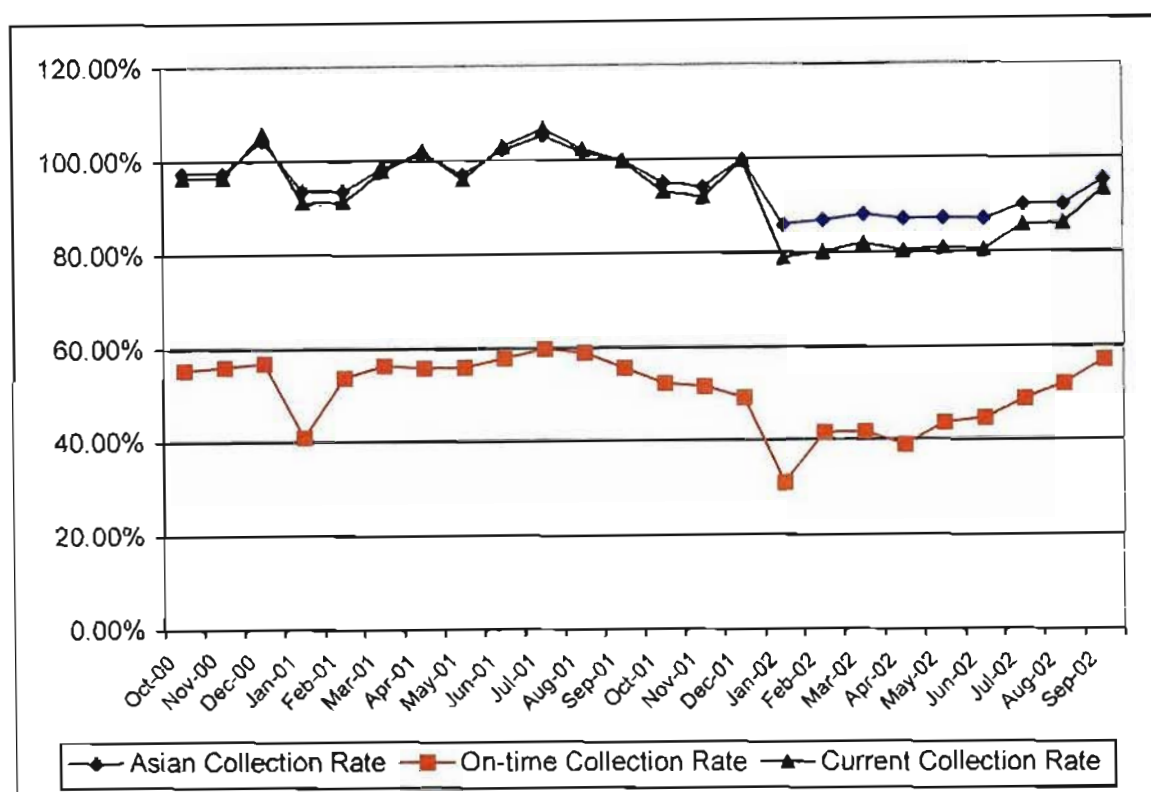


Figure 4.5 Branch Collection Rates for MFO1

Note however, when advance payments on loans are taken into account, the collection rate improves markedly to over 90%. A current collection rate of over 90% still implies a considerable portfolio loss rate for MFO1, since the average loan term is 4 months. Figure 4.5 highlights the general decline in branch collection rates from July 2001, with an extremely slow recovery after the January 2002 month. The January months are traditionally bad collection months for MFO1 since most borrowers have low liquidity after the Christmas period.

Although the high current collection rates are as a result of payments in advance, it must be not all borrowers pay in advance. Those that do normally pay large portions of their outstanding balance in advance. Payments in advance also incorporate a large component of refinancing by a mechanism which MFO1 calls a DLP (deduct last payment). This is not a refinancing mechanism, but rather allows borrowers to treat their instalment loans as a revolving credit facility. The available balance can be drawn down. The mechanism is that the outstanding balance of the old loan is settled with a new loan, where the borrower gets the difference of the settlement in cash. The settling of the old loan is treated as a payment, and has a marked impact on the collection rate.

This mechanism creates problems when it is used to help borrowers that are in arrears. This started to happen from July 2001 onwards when the pressure on MFO1 staff to make sales and collections targets increased. Arrears were hence settled at some point by a DLP, which resulted in a high collection rate, but these borrowers soon had liquidity problems again. This practice was stopped in April 2002 when borrowers were encouraged to settle their instalments in cash, and this started to improve the arrears in branches for MFO1. Figure 4.6 shows that late-stage collections have a similar trend to branch collections, although they are much lower. This highlights the importance of identifying arrears early, since the more delinquent a borrower becomes, the lower the probability of recovering the funds.

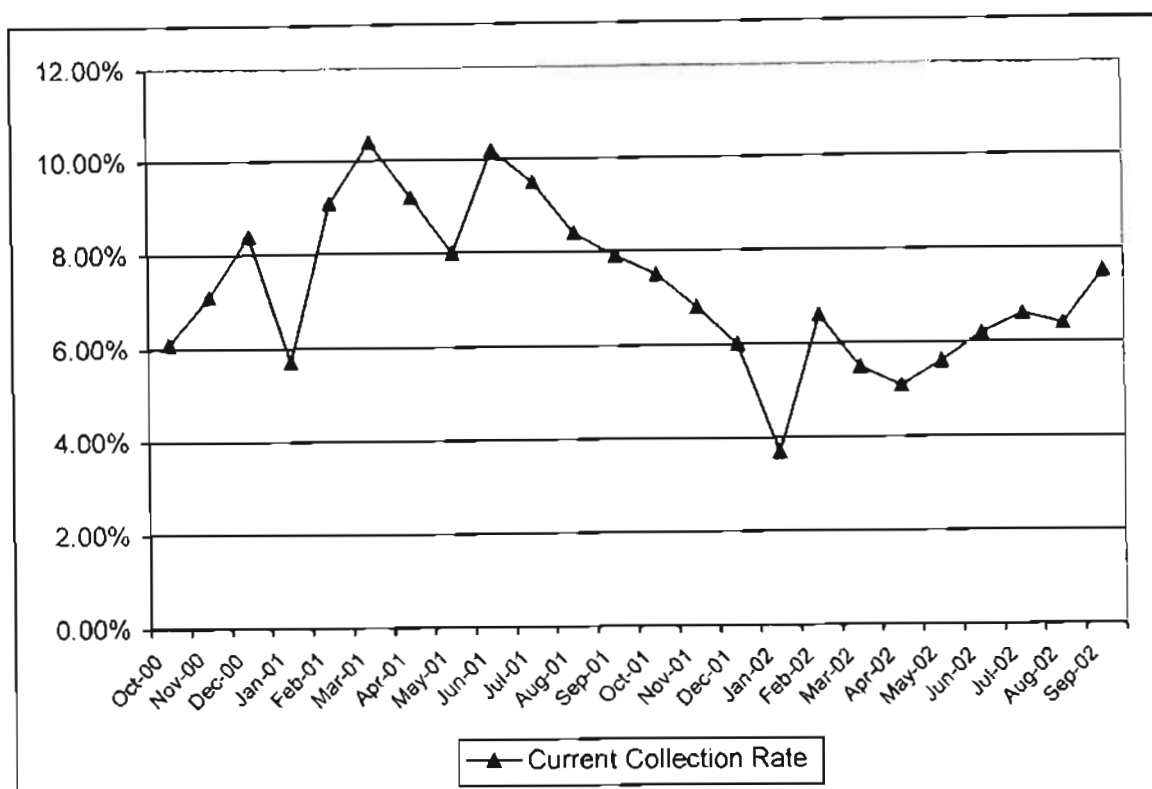


Figure 4.6 Late Stage Collection Rates for MFO1

Several issues of arrears management stand out for MFO1. Firstly, the level of arrears are relatively high by international best practice standards, even though MFO1 remains highly profitable (by charging high interest rates both on loans and on arrears). Secondly, the increase in arrears was partly due to Shareholder's requirement of higher profits, and partly by an exogenous shock via the weakening of the SA Rand against foreign currencies. Higher consumer prices meant that borrowers had less disposable income to service their debt. Higher arrears interest meant that borrowers already in arrears, would go further into arrears. This problem was overcome by achieving a high overall collection rate due to a portion of borrowers settling their loans in advance.

When measuring arrears, it is important that MFOs not focus only on one measure, but rather use several measures to provide an overall view of portfolio quality. Arrear rates can be deceptive and understate the problem, as is the case for MFO1. Collection rates also give

different impressions of collections depending on how they are calculated. The current collection rate is high for MFO1 because it includes a high proportion of advance payments. This masks the fact that few instalments are paid on-time as shown by the on-time collection rate. It is, therefore, important for MFO1 to monitor both measures in order to obtain an accurate indication of the state of its collections.

Neither MFO2, MFO3 or MFO4 could provide arrears information for the study. Since MFO3 did not have a clear instalment due date, it was very difficult to track the true state of arrears. In order to obtain some estimate of the arrears, MFO3 classified loans as being in arrears when these loans had been on the books for more than 6 years, had made no payments in the last two milling seasons, and were over 20% in arrears based on an estimated instalment. Discussions with MFO3 staff indicate that arrears were considered to be relatively high. This highlights the importance of having clear and unambiguous instalment due dates and arrear definitions so that the quality of the debtor's book can be tracked accurately. Staff at MFO4 admitted that MFO4 did not manage arrears properly, with the result that a large proportion of the loans defaulted, and led to severe financial difficulties for MFO4.

Given the above discussion of some the key financial viability criteria, the next section briefly reviews some of the issues faced by MFO1 when rapidly growing its client base. This is pertinent since achieving a suitable scale of operations is important for both outreach and cost management (Riley, 1996).

4.10.5 Challenges Faced by MFO1 due to Rapid Business Growth

There are some striking similarities between MFO1 and BancoSol that allowed these organisations to rapidly expand their client base. This section briefly explores the process of expansion of MFO1 and highlights some of the key challenges that MFO1 will face and compares these to the experience of BancoSol. Although the target clientele of the two organisations differ markedly (BancoSol provides credit to mostly self-employed people while MFO1 provides credit to individuals employed in the formal sector), a comparison of the expansion path of the two organisations may provide some useful lessons for MFO1 that has just begun to grow while BancoSol is well into its growth phase.

Similar to Bancosol, MFO1 had a number of underlying features that enabled it to expand and achieve the current relatively high level of outreach. Firstly, as with BancoSol, a primary objective of management was, and still is, to maintain and grow a profitable organisation. This objective underlies the charging of interest rates that cover the costs of lending and the focus on loan collections. Secondly, prior to formalisation, MFO1 had operated for 17 years and has had time to experiment with, and invest in, financial technology that is appropriate to its target market. Loan products were refined, a banking system was developed and processes adapted to allow MFO1 to easily replicate its technology. The acquisition of MFO1 by a larger banking group provided the necessary leverage to grow. However, rapid growth since 1998 was underpinned by slow organic growth over previous years that facilitated the process of 'learning by doing'.

Whereas BancoSol began as an NGO, MFO1 was a private, profit driven organisation from the outset. Similar to BancoSol, the first stage of MFO's growth was liability-constrained, with MFO1 through its organic growth not having access to capital to fund rapid expansion. The second stage of growth, as with BancoSol, was threatened by diminishing asset quality and marginal economies as the possibilities for expansion became less and the target market more saturated. How MFO1 manages the threat to asset quality and diminishing marginal economies becomes essential to ensure continued profitability. Gonzalez-Vega *et al.*, (1997) defined several key efficiency and productivity indicators to track the performance of an MFO as it moves through the process of growth and consolidation, and these indicators are computed for MFO1 in Table 4.34.

Table 4.34 Efficiency and Productivity Indicators for MFO1

Efficiency Indicators	1998/99	1999/00	2000/01	2001/02
Average outstanding loan portfolio per R100 of cost	R96.64	R111.10	R121.65	R113.19
Average number of loans outstanding per R100 of cost	R0.10	R0.09	R0.09	R0.08
Number of loans disbursed per R100 of expenses	0.33	0.37	0.32	0.28
Volume of loans disbursed per R100 of expenses	R372	R411	R379	R320
Average outstanding loan balance	R982	R1,174	R1,282	R1,404
Cost per R1 average outstanding portfolio	R1.03	R0.90	R0.82	R0.88
Cost per outstanding loan	R1 017	R1 057	R1 054	R1 240
Cost per loan disbursed	R300	R272	R309	R356
Cost per amount disbursed	R0.27	R0.24	R0.26	R0.31
Productivity Indicators				
Average outstanding portfolio/ Staff member	R271 022	R237 774	R240 048	R257 871
Average loan disbursed/ Staff member	R1 042 355	R880 216	R747 202	R729 891
Number of loans disbursed per staff member	934	788	638	640
Average outstanding portfolio / branch	R1 462 091	R1 600 891	R2 012 511	R2 266 976
Average amount disbursed per branch	R5 623 231	R5 926 341	R6 264 383	R6 416 549
Number of loans disbursed per branch	5038	5306	5353	5627
Average portfolio / average assets	R0.67	R0.78	R0.88	R0.85
Average loans disbursed per average asset	0.003	0.004	0.003	0.003
Average volume disbursed per average asset	R3.64	R3.94	R3.67	R3.40

Gonzalez-Vega *et al.*, (1997) defined efficiency as the output per unit cost, where outputs by an MFO are the amount of the loan portfolio, the number of loans outstanding and the number of volumes of loans disbursed. The most important efficiency indicator is average outstanding loan portfolio per unit cost. Productivity is defined as the outputs per unit of input, where inputs are the MFO's assets, loan officers and branches. On the most critical efficiency indicator, MFO1 performs relatively well, having increased the average outstanding loan portfolio per R100 of cost from R96 to R121 in 2001. The portfolio efficiency reduced somewhat in 2002 due to the relatively large provisions and write-offs that MFO1 incurred. In 2002, MFO1 adopted a more formalized loan write-off policy that resulted in much of the non-performing debt being written off. This impacted somewhat on profitability, but will be offset by lower future provisions as the debtors' book is becoming freed of non-performing.

Portfolio efficiency is the product of transaction efficiency and loan size (Gonzalez-Vega *et al.*, 1997). Increases in loan size dilute fixed costs over a larger outstanding balance. Transactions efficiency reflects improvements in physical productivity, and increases in transactions efficiency can be achieved by lengthening the loan term. Transaction efficiency as measured by the cost per number of loans outstanding, has decreased over time from R0.10 to R0.08, implying that costs per number of loans outstanding has increased (Table 4.34). Improved portfolio efficiency has, therefore, been achieved by a higher average loan size. The number of loans and volume of loans disbursed per R100 of total costs have also decreased, implying increasing costs relative to the level of transactions per annum.

BancoSol also encountered increasing transactional inefficiency and managed to improve portfolio efficiency by increasing the average loan size. Similar to MFO1, costs increased

faster than did the number of loans (Gonzalez-Vega *et al.*, 1997). When increasing loan size, it is important that the increases are either information-induced or client-induced, and are not policy-induced. Policy-induced increases in loan size imply granting fewer, larger loans to a wealthier target population. This constitutes mission drift, which is not desirable for outreach. Information-induced increases in loan size result from an MFO accumulating better knowledge of its borrowers through repeat business and thus being able to increase the initial loan size. Client-induced increases in loan size result from improved borrower repayment capacity (Gonzalez-Vega *et al.*, 1997).

Information-induced increases in loan size result in a large increase in loan size on the second or third loan with much smaller subsequent increases, while client-induced increases in loan size result in a gradual upward shift in the average loan size. Table 4.35 and 4.36 imply that increases in loan size for MFO1 are both information- and client-induced increases in loan size. The initial increase in loan size from the first to second loan is relatively large, but is then followed by more gradual increases in loan size for subsequent loans.

Table 4.35 Average Loan Size Distribution for MFO1

Loan Number	Financial Year			
	1998/99	1999/00	2000/01	2001/02
loan1 (R)	925	931	990	1004
loan2 (R)	1059	1089	1120	1062
loan3 (R)	1098	1137	1177	1145
loan4 (R)	1131	1175	1240	1269
loan5 (R)	1180	1215	1316	1360
loan6 (R)	1209	1257	1383	1423
loan7 (R)	1242	1309	1442	1512
loan8 (R)	1279	1347	1501	1530
loan9 (R)	1316	1380	1539	1565
loan10 (R)	1359	1399	1589	1598
loan11 (R)	1384	1437	1642	1564
loan12 (R)	1403	1486	1706	1083
loan13 (R)	1450	1502	1768	1396
loan14 (R)	1478	1570	1750	1036
loan15 (R)	1476	1627	1634	1040
loan16 (R)	1520	1658	2025	1125
loan17 (R)	1528	1774	1325	4000
loan18 (R)	1578	1683	1633	700
loan19 (R)	1608	1771	1160	500

Increases in loan size at BancoSol were also information- and client-induced, but BancoSol managed these increases without increasing the loan term by much. This was not the case for MFO1, which increased the average loan size by markedly increasing the loan term, because its target clientele are salaried employees. The increased borrowing capacity of these individuals is limited, and the only way to grant larger loans is to increase the loan term. The proportion of 12-month loans granted by volume have increased over time to almost 4% of sales by volume, while the 6-month loans also have a 6% share of sales by volume. Similarly, an increasing proportion of the outstanding loan portfolio is being taken up by 12-month loans (about 8% of the volume of outstanding balance, and about 2.5% of active borrowers).

Table 4.36 Growth in Average Loan Size Distribution for MFO1

Loan Number	Financial Year			
	1998/99	1999/00	2000/01	2001/02
loan1				
loan2	14.5%	17.1%	13.1%	5.7%
loan3	3.7%	4.4%	5.1%	7.9%
loan4	3.1%	3.3%	5.3%	10.8%
loan5	4.3%	3.4%	6.1%	7.2%
loan6	2.5%	3.5%	5.1%	4.6%
loan7	2.7%	4.1%	4.2%	6.2%
loan8	3.0%	2.9%	4.1%	1.2%
loan9	2.9%	2.5%	2.5%	2.3%
loan10	3.3%	1.4%	3.3%	2.1%
loan11	1.8%	2.7%	3.3%	-2.1%
loan12	1.4%	3.4%	3.9%	-30.8%
loan13	3.3%	1.1%	3.6%	28.9%
loan14	1.9%	4.6%	-1.0%	-25.7%
loan15	-0.1%	3.6%	-6.6%	0.3%
loan16	3.0%	1.9%	23.9%	8.2%
loan17	0.5%	7.0%	-34.6%	255.6%
loan18	3.3%	-5.1%	23.3%	-82.5%
loan19	1.9%	5.2%	-29.0%	-28.6%

If portfolio efficiency has been achieved through increasing the loan size by extending the loan term, it is puzzling why MFO1 has not managed to improve its transactional efficiency? The answer to this lies partly with the target market. Most of the loans disbursed by MFO1

are for liquidity management purposes. A large proportion of borrowers that take 12-month loans come back to MFO1 to take out another short-term loan to manage liquidity constraints. This is somewhat different to granting loans to small businesses that have the capacity to improve their affordability as was the case with BancoSol. Thus, although the volumes of loans disbursed had increased, the number of disbursements for shorter-term loans did not decrease. Eighty six percent of the volume of loans disbursed were 4-month loans, but 91% of the number of loans disbursed were also 4-month loans. A similar trend is evident for the distribution of the outstanding loan portfolio by number and volume. This means that while MFO1 has managed to improve its portfolio efficiency by increasing the loan term to increase the loan size, this has not resulted in transactional efficiency. Productivity indicators for MFO1 show that staff productivity has deteriorated while branch productivity has improved. Fewer loans are being disbursed per staff member, while more loans are being disbursed per branch. Staff at Head office and in the central collections department have increased considerably relative to branch staff, which partly explains the however in productivity per staff while productivity per branch is increasing. With many new branches being opened, it takes time for new staff to develop capacity and lending

Gonzalez-Vega *et al.*, (1997) highlight two processes that drive portfolio growth, rarely an extensive and an intensive process. Extensive portfolio growth results from physically growing the organisation (more branches and staff). Intensive portfolio growth results from increased productivity of existing capacity through technological innovation, more productive staff and improved capacity utilization. Extensive growth can impact negatively on productivity: Firstly, indivisible additions to existing installed capacity reduce productivity because it takes time for the new capacity to be fully utilized. Secondly, not all branches are equally productive, with newer branches needing time to develop capacity. Third, not all

branches are created equally productive. As expansion occurs, more branches tend to be opened in areas where there is less market potential. Fourth, communication costs increase as the organisation expands and increasing demands are made on costly information technology. Productivity will thus decline every time a new branch is added or new staff are employed until capacity is developed. Some productivity will also be lost for good as more branches are opened in less profitable areas through the process of expansion and growth.

Lender MFO1 experienced mostly extensive growth after 1998, which has resulted in average staff productivity declining as more Head office and branch staff had to be recruited to manage larger operations. This loss in productivity is transitory until capacity is fully developed. However, the costs of operating branches have not declined, while the Head office costs have slowly increased. Portfolio growth has slowed down because the target market that MFO1 is serving is reaching saturation level, while the possibility for further expansion is limited. This suggests that the reductions in productivity and efficiency are not only transitory but are the consequences of limits on growth. The major challenge facing MFO1 is how to offset these trends with additional innovations that can grow the portfolio without substantially increasing the cost base. Lender MFO1 has managed to generate relatively high returns on equity despite reduced transactional efficiency and staff productivity, and relatively high loan losses. The reason is that MFO1 has charged high interest rates. Whether MFO1 can continue to do this is debatable.

4.10.6 Key Future Issues

For MFO1, future profit growth will lie in being able to reduce interest rates through effectively managing costs, improving capacity utilization and technological innovation. It

has maintained a relatively high level of self-sustainability by charging relatively high interest rates to relatively high-risk clients that have limited access to collateral. The financial technology used by MFO1 to monitor and manage arrears is also relatively costly, while MFO1 has little opportunity to expand within its existing market using its current product range. Loan terms on its products cannot be continuously increased to improve portfolio efficiency, making it difficult to improve transactional efficiency.

Importantly, MFO1 will have to focus on improving the utilisation of its existing infrastructure by expanding its product base to include payroll deduction loans. It could also try to further exploit its core competency – granting credit to relatively high-risk individuals. There are many KZN retailers that reject a substantial proportion of loan applicants that MFO1 would potentially grant credit to. Expanding the client base may improve portfolio efficiency through increased transactional efficiency. Another important issue is the pressure to satisfy demands for higher returns made by the shareholders. Substantially lower interest rates could be charged if shareholders did not require a 30% to 40% year on year growth in profits. Lower interest rates may attract more clients, while also allowing existing clients to borrow more. This could again have a positive impact on portfolio efficiency. The positive signaling effect of lower interest rates may also attract more low risk clients.

Lender MFO2 has clearly shifted its focus to a wealthier subset of the rural clientele in trying to become financially self-sustainable. This can be viewed as mission drift, but the projects that are being financed may have high multiplier effects in the rural KZN economy. Lender MFO3 needs to focus on reducing borrower transaction costs, despite using its existing financial technology to reach a large number of small-scale sugarcane farmers. However, interacting with this financial technology is costly for the borrowers. A key focus area for

MFOs will be to improve administrative efficiency, particularly at the mills. In addition, MFO3 would benefit from clearly defining an instalment due date for loans such that arrears and loan performance can more accurately be monitored. Administrative inefficiency and not following company policy lead to major problems for MFO4. Within any microfinance programme it is imperative that proper loan evaluation procedures are followed. The drive for sales inevitably result in higher bad debt that severely reduced financial self-sustainability.

Chapter 5 specifies and estimates a model of loan repayment performance for clients served by MFO1. A feature of this model is that it accounts for sampling bias caused by excluding the potential loan repayment performance of rejected loan applicants.