LINKAGE BANKING AND OUTREACH: A CASE OF MICROFINANCE COOPERATIVES IN TANZANIA

Esther K. Ishengoma*

ABSTRACT

While microfinance cooperatives (MFCs) involved in linkage banking has increased in order to overcome their financing gap and thus expand their outreach, studies associating microfinance institutions (MFIs) outreach with sustainability, cost efficiency and profitability signal the possibility of MFIs involved in linkage banking to reduce their outreach. Previous studies relating outreach to linkage banking are biased toward banking institutions. Based on semi-regression model applying primary data collected from 102 MFCs, this paper assesses the relationship between outreach and linkage banking. The results reveal missing and mixed effects of financial linkages on MFCs outreach. Explanations of these resultsinclude poor organisation of linkage banking, unfavourable terms or loan requirements and the graduation of MFCs' large member-borrowers to partner banking institutions.

BACKGROUND

Theincreasing demand of microcredit services has raised the need for a continuous establishment and expansion of microfinance institutions (MFIs), especially microfinance cooperatives (MFCs). In 2009, there were more than 49,330 MFCs serving more than 184 million members in the world (World Council of Credit Unions --WOCCU, 2010). The number of MFCs in Tanzania has reached 5,344 in 2009 (Ishengoma, 2012). However, their outreach is quite low as they provided financial services to four percent of the population aged 16 years. The people reached by banking institutions are also still few. In 2009, banking institutions reached 12.4 percent of population (Finscope, 2009). The situation is worse in rural

Business Management Review pp140-160 ISSN 0856-2253

*Dr. Esther Ishengoma is an Alexander von Humboldt Research Fellow at the GIGA-German Institute of Global and Area Studies and a Senior Lecturer at the University of Dar es Salaam Business School. Current address: UDBS, P.O.Box 35046, Dar es Salaam, Tanzania; Email estheri@udbs.udsm.ac.tz or i_esther@yahoo.com; Tel. +255 756 002363, Fax. +255 22 2410510. **Acknowledgement**
The author acknowledges the support from Alexander von Humboldt Foundation, which has paid for her stay in Germany to have access to good academic/research facilities. She also thanks GIGA for offering her the facilities, sida-SAREC and the University of Dar es Salaam Business School for financing data collection.

areas as only 8.3 percent of rural dwellers had access to financial services from banks, compared to 22 percent in urban areas (Finscope, 2009).

Among others, limited outreach seems to be associated with increased financing gaps in MFCs. The lack of funds for lending to MFCs' clients is said to weaken customer royalty, which could lead to an increased dropout of clients (Gallardo et al., 2006), discourage new membership and increase moral hazard due to the lack of incentives for loan repayment. The latter could lead to a further decline of funds for re-lending, and consequently a continued decline of MFCs' outreach.

Government and development institutions have in one way or another responded by stimulating linkage banking to facilitate the provision of commercial wholesale funds to MFIs for re-lending to their clients. During 2005 to 2009 MFCs' borrowings as percent of total sources of their financing increased from 18 to 54 percent (Inshengoma, 2012). This experience has also been registered at worldwide level. Although linkage banking in Tanzania and the world at large has been growing, there is limited knowledge on the extent to which they influence MFCs' outreach.

Schreiner (2002) identifies six aspects of MFI's outreach: breadth, depth, and worth to clients, cost to clients, length and scope. The most widely used terms, which this study also focuses on, are depth and breadth of outreach. The breadth of outreach is the scale of operations of MFIs mostly captured by the number of clients served (Ylinen, 2010; Schreiner, 2002). As the original mission or the preference of microfinance was to reach the poor, then the depth of outreach denotes the weight which MFIs give to the poor when offering services (Schreiner, 2002). It is sometimes indirectly captured by the attributes of the clients served, which include sex (women are preferred), location (rural is preferred), education (less is preferred), ethnicity (minorities are preferred), housing (small, flimsy houses are preferred), and access to public services (lack of access is preferred) (Schreiner, 2002; Conning, 1999). Thus, the higher the number of a MFI's clients with preferred attributes the higher the depth of outreach (see Hermes et al., 2009a; Campion et al., 2010; Yaron, 1994). Loan size is also being used to capture depth of outreach based on the assumption that the poor will prefer small loans for short periods (Schreiner, 2002). Thus, the smaller the loan and the shorter the period the higher the depth of outreach.

Studies reporting positive effects of linkage banking on outreach have focused on banking institutions. It is reported that through linkage banking, commercial banks are able to expand their market, diversify their investments, and reduce loan administration costs (see Seibel, 2005; Awal, www.bwtp.org; Development Alternatives, Inc. 2005). Corroborating with Pagura and Kirsten (2006) findings that linkage banking enables banking institutions to reach new clients, in 2009 CRDB Bank Plc reached 571,476 clients through partnership with 425 MFCs

(CRDB Microfinance Services Company Ltd., 2009). Since BanqueNationale de DéveloppementAgricole Bamako (BNDA) in Mali became a wholesaler to MFIs, it attained a 100 percent repayment rate of loans to MFI sector (Seibel 2005). AVIVA in India managed to offer insurance services to 200,000 clients through rural MFIs (Pagura and Kirsten, 2006). Through Credit and Savings for the Hardcore Poor (CASHPOR), ICICI Bank in India reached 23,739 new active clients (Development Alternatives, Inc. 2005). Findings from studies reported here are biased toward banking institutions, and thus, do not reflect the effects of linkage banking on outreach of MFIs since new clients reached by banking institutions could be old clients of MFIs.

Contrary to the above observations, Development Alternatives, Inc. (2005) reports lack of differences on breadth of outreach of a CASHPOR's business line which had partnership with ICICI Bank and the one which operated without partnership. Results from studies (see Hermes et al, 2009a; Campion et al., 2010; Engels, 2009; Makame and Murinde, 2006) associating MFIs' outreach with sustainability, cost efficiency or and profitability signal the possibility for MFIs involved in financial linkages to limit their depth and breadth of outreach in order to control their operating and financing costs as well as risk associated with lending to new clients. The need for controlling of these costs is to enable them repay their loans and interest to banking institutions.

As noted above previous studies assessing the relationship between financial linkages and outreach are biased toward banking institutions. Those relating MFIs' outreach to efficiency, profitability and sustainability signal the possibilities of financial linkages to negatively affect MFIs' outreach. Yet, the knowledge on the effect of financial linkages on MFIs' depth and breadth of outreach is scant. This paper aims to fill this gap. The knowledge generated is important given the trend and encouragement of the involvement of MFIs in financial linkages for financial inclusion.

The rest of the paper is organized as follows. Section 2 addresses assumptions and theoretical relationships between financial linkages and outreach. Section 3 describes the research methodology while section 4 presents the findings. Section 5 concludes and offers implications for future studies.

Conceptual and Hypothetical Relationship between Financial Linkages andOutreach

Based on theoretical views on business linkages or strategic alliance, collaboration among firms may result in overcoming resource constraints, minimise transaction costs, acquire new technology and management skills, build customer royalty by enhancing product value or gain competitive advantage and market position (see also Gallardo, et al., 2006). These outcomes may lead to the expansion of the

market through introducing new products, built customer royalty and entering new markets.

Establishment of linkage banking may reduce MFCs' resource constraints by enabling them to have additional funds to offer loans to their members. This is expected to expand their outreach by increasing the number of borrowers at a time and to increase the amount of loan to repeating borrowers. It may also mean that MFCs have funds to balance their liquidity requirements (Pagura and Kirsten, 2006) such as delayed repayments and increased seasonal demand (see Saibel, 2005). This may result in timely provision of loans to members on the waiting list, and therefore, improves members' satisfaction with MFCs' services. Consequently, the number of new members joining MFCs may increase. If access to funds from formal financial institutions increases the amount of loan offered to repeating borrowers may also rise. If new members joining MFCs and or receiving loans are women, the depth of outreach is expanded.

When financial linkages expand the scope of outreach (i.e. providing more financial services: automated teller machines (ATM), point of sale facilities, insurance, money transfer, payment of pension, salary and bills) to MFCs' members and non-members they expose the latter to other MFCs' services and attract them to join MFCs. The provision of extra financial services (apart from deposits/savings and loans) to their members may increase their satisfaction and loyalty. This may reduce dropout of members and induce their positive cooperation: loan repayment. Members' cooperative altitudes may reduce operating costs and bad debts, hence increase amount available for re-lending.

The above outcomes may be attained if loans provided by formal financial institutions to MFCs are inexpensive, continuous, timely, and/or adequate (see, Development Alternatives, Inc., 2005). Timing is very important, especially for micro clients in rural areas, whose investment activities are seasonal in nature. These clients need loans during planting seasons but not in harvesting seasons (see Saibel, 2005). Delays in the provision of loans to MFCs, and hence, to micro clients may make the latter to borrow from informal sources particularly moneylenders. Some of these clients may decline to take delayed loans from MFCs, hence a lack of growth of number of borrowers despite financial linkages. Others may accept loans while already taken credits from other sources. Clients with multiple loans face difficulties to repay them, a situation that may decrease MFCs' funds for further lending to their clients in the long run.

Some MFIs invest part of the funds provided by FFIs to other assets (e.g. treasurer bills) than lending to micro-clients (Bazil, 2007). These kinds of investments have no impact on their outreach.

When loan from FFIs has high interest rate and zero grace period may forces MFIs to charge their clients high interest rate to cover interest expenses (Mlowe and Kaleshu, 2009; Development Alternatives, Inc., 2005). This may discourage borrowing (Yaron, 1994), hence reducing outreach. Furthermore, it may increase loan delinquency and default rate, and thus reduced MFIs' financing capacity, and hence declined ability to expand their outreach. Development Alternatives, Inc. (2005) reports the possibility for MFIs to use their income to repay loans from FFIs irrespective of whether clients who have borrowed money from FFIs have repaid their loans. Members unable to pay their loans may dropout (Mvungi, 2010). This can discourages new membership as people may lose trust on the operations of MFCs.

Provision of loans in small amount increases loan processing and administrative costs per monetary unit of loan offered (Hermes et al, 2009a; Campion et al., 2010). This in turn reduces profit and thus internally generated funds (see Engels, 2009; Makame and Murinde, 2006). Lending to women, who are also assumed to borrow in small amounts and frequently, is also associated with high cost per monetary unit of loan (Hermes et al., 2009a; Campion et al., 2010) although it increases the depth of outreach. MFIs struggling to increase their operating and financial self sufficiency in order to access private funding from FFIs may shade out small borrowers including women, hence reduced breadth and depth of outreach. Based on the above discussions, it is assumed that financial linkages have either positive or negative effects on the breadth and depth of outreach.

METHODOLOGY

Modeling and Operationatisation of Research Variables

The paper borrows from the theory of the firm and the discussion by Sealey and Lindley (1977) to model output (in our case outreach) as a function of inputs: labour, deposits and savings, loans from FFIs. Access to loan from FFIs captures financial linkages. The treatment of outreach as output indicators complies with other studies in this area (see Gutienrrez-Nieto et al., 2005). The treatment of depth of outreach as one of the output follows several studies (see Lensink, et al., 2008; Hermes et al., 2009a, 2009b; Gutienrrez-Nieto et al., 2005) in banking, and microfinance institutions on the way they capture output as gross loan portfolio or total earning assets. The slight difference is that these studies capture output as the total value of assets (e.g. loans) while depth of outreach is the average amount per loan.

The paper views breadth of outreach (the number of loans) as output in terms of quantity. The number of members is viewed as the output of the services provided by MFCs, and therefore, modelled as a function of inputs to offer the services. The paper excludes the input, physical capital, because MFCs interviewed did not provide information on investment in physical capital. Employees based MFCs

also did not provide data on physical facilities they utilise since they use their employers' facilities. The paperutilises a semi-natural logarithm function to model outreach as a function of inputs as presented below.

$$out_{it} = \beta_0 + \beta_1 Labour_{it} + \beta_2 SaDe_{it} + \beta_3 LoanFFIs_{it} + \sum_{j=4}^{9} \beta_j CV_{jit} + \beta_{10} P + e \ldots \quad (1)$$

From equation 1, *out* refers to outreach attained by MFCs *i* (i = 1, 2, 3, … n), at time t (t = 2005, 2006, and 2007). For the model capturing outreach as a future membership, sources of financing (i.e. savings and deposits -- *SaDe*) and financial linkages (*LoanFFIs*) enter as lagged variables. This is because it is expected that new members in the year after (e.g. 2007) will be attracted by good MFIs' services (increased loan size, number of loans, shorter waiting time) in the year before (e.g. 2006). These services are expected to be directly associated with the financing capacity of MFCs in the year before (e.g. 2006). Thus, in this model, *t* is equal to 2005 and 2006 for the variables, SaDe and *LoanFFIs*, while the *t* for the variable capturing outreach and the rest in the model is equal to 2006 and 2007. The terms, Labour, CV, and P denote labour, controllable variables (i.e. MFCs' specific factors) and dummy period (i.e. year), respectively. Labour is measured as total salaries and fringe benefits per member at time *t* expressed in natural logarithmic form. The term *P* enters as dummy Year 2007, and dummy Year 2006 equals one and zero otherwise for the model capturing outreach as number of loans and loan size; and only dummy Year 2007 for the model capturing outreach as future membership size. The term, *e*, is the error term, while the terms β_{0to10} are the coefficients to be estimated.

Outreach (out) is indicated by two indicators, breadth and depth of outreach. The breadth of outreach is captured by two variables, future membership size (number of members reached) and number of loans provided. Both variables are measured at three levels: number of individual members, number of all members (i.e. individuals, groups, and institutions) and number of female members; as well as number loans provided to individuals, to all members, and to female members. As described in section four, female membership and number of loans offered to females reflect depth of outreach. The average value of the loan (i.e. loan size) also captures the depth of outreach. For the analysis utilising data for MFCs that have access to loan in any of the three years reviewed (2005-2007), loan size is captured at two levels: average loan size for individual borrowers, and that for female borrowers. It is generally argued that the higher the loan size the lesser the depth of outreach since MFIs will in this case offer a smaller number of loans to poor borrowers (see Hermes, et al., 2009a). However, the reviewed literature provides neither the cut-off point for the loan size of poor borrowers nor the explanation for the increase of loan size and number of loans to females. It is also important to note that for MFCs whose value per share is high, poor people can

join the MFCs in groups, save in groups and access loans in groups. Thus, large MFCs may not mean targeting wealthier members.

Financial linkages (LoanFFIs) is captured by two indicators: access to loan from FFIs measured as dummy one if MFCs received loan from FFIs and zero otherwise; and natural logarithm of the value of loan. The later is utilised in a reduced model because it requires the data for MFCs which had loans from FFIs. In the reduced model outreach is regressed on financial linkages (natural logarithm of loan amount) and labour while controlling for the dummy period 2007 and 2006. The correlation analysis is conducted to assess the relationship between outreach and term of loans, loan period (in months).

It would have been interesting to capture financial linkages by classifications: commercial banks, non-commercial bank institutions (e.g. pension funds), large micro-financing institutions (e.g. Pride Tanzania, Cooperative Banks), MFCs networking organisations (e.g. Dunduliza and SCCULT), and international organisations (e.g. OIKOCredit). This is important because loan requirements and terms from these categories of FFIs are diverse. Furthermore, the levels of bargaining power between MFCs and these categories of FFIs are also likely to differ. The levels of supervision, monitoring and control extended by these different categories of FFIs to MFCs as revealed by the results from FGDs are also different. These differences may result in diverse levels of outreach. Given the number of observations, this level of analysis cannot be conducted. Furthermore, it was observed that some MFCs had diverse sources of loans, i.e. from commercial banks and non-bank institutions, a situation that complicates categorisation of linkages. Capturing financial linkages based on the level of diversification, which is likely to increase MFCs' bargaining power and therefore better terms of loans, is also interesting but it is beyond the scope of book.

It is important to control for the effect of *savings and deposits (SaDe)*, which is a source of funds utilised by MFCs with and those without access to loans from FFIs to provide loans. Savings and deposits are the cheapest sources of funds, and thus play significant role in expanding outreach (see Jaron, 1994). Therefore savings and deposits is measured as the sum of these two sources expressed in natural logarithmic form.

MFCs' specific factors, which enter in the model as *controllable variables (CV)*, are MFC's management education, age, location, type of MFCs and gender focus. Outreach may be associated with these variables in several ways. The FGDs reveal that MFC's managers are involved in strategic decisions related to MFCs' operations, viz., involvement in financial linkages with FFIs and their types, negotiations and acceptance of terms of loans, number and size of loans offered to members, type of members (viz., male, female, groups or institutions) to attract, the application of information communication technology, employment of educated

accountant/clerks and approaches applied in enforcing repayment. These decisions have effect on MFCs' outreach. The direction of the effect seems to depend on the quality of managers' decisions, which is linked to the level of their capacity to analyse issues. Managers' education is therefore captured as dummy one if the average years of education per MFC's manager is above 11 years, and zero otherwise. A dummy variable is used because some MFCs' managers had studied for at least 11 to 16 years, which is equivalent to at least certificate to diploma/degree while others had studied for at between 7 to 11 years (i.e. primary education to basic secondary education). Thus, the values of the variable are categorical.

Knowledge accumulated over the years may assist MFCs' managers to make effective decisions on loan provision to their members and financing, which may reduce administrative and transaction costs while attracting more members and borrowers. It is also possible that MFCs which have been in operation for a long period may reach more clients (members) than newly established ones. However, MFCs which are relatively more aged may be conservative in utilising new techniques to reduce costs and attracting new members. Thus, age of a MFC indicated from when it started offering loans is incorporated s to control for the effect of either accumulated knowledge/experience or conservative altitude of management on outreach. It is measured as dummy one for MFCs with at least 10 years in operation, and zero otherwise.

WhenMFCs are located to a place with many MFIs and banking institutions are likely to face stiff completion, which might force them to reduce costs, offer better and diversified services (see Hermes et al., 2009a). The reduction in costs and stiff competition may also force them to lower the interest rate charged. This might attract more members and increase demand for loans (see Yaron, 1994). Lower interest rate also increases repayment rates, hence reduced dropout (see Godquin, 2004). These may increase internally generated funds to be used for future lending.

On the other hand, stiff competition, which means the presence of competing borrowing alternatives, might attract multiple borrowings, which is said to raise administrative costs and default rates (see McIntosh and Wydick, 2005) and hence reduced membership and internally generated funds to offer loans. Since sample MFCs operate in either Dar es Salaam or Iringa, whereby the former is characterised with higher completion (due to the existence of a significant number of MFIs, banks and non-banks FFIs) than Iringa, the analysis controls for the location where MFCs operate. It is captured as dummy one for MFCs located in Dar es Salaam, and zero for those located in Iringa.

MFCs in Tanzania are either occupational based (i.e. established by workers of a given organisation), mixed (i.e. comprising households, entrepreneurs, business organisations) or industry based. For occupational and industry based MFCs, the

number of members and therefore borrowers may depend on the size of the organisation's or industry's employment. Risks of loan portfolio for mixed and occupational based MFCs and loan administrative costs are likely to be diverse. For example, loan repayment by borrowers from the occupational MFCs is directly deducted from their salaries by employers. Occupational MFCs know in advance the capacity of the borrower to repay the loan, while mixed and industry based MFCs might not have that advantage. The data utilised in this paper comprises mixed and occupational MFCs. The type of a MFC is captured as dummy one for occupational MFCs, and zero otherwise.

Groups containing higher proportion of women are less likely to default on their loan repayments (Anthony and Horne, 2003). Translating this finding at the level of MFCs, it is expected that repayment rate (hence encouraged membership and borrowings) increases with the proportion of female members. However, lending to women may increase loan administrative costs (and hence high interest rate) since they borrow more frequently and in small amounts (see Helmes et al., 2009b). Thus, female composition is controlled and measured as the number of female members divided by the total number of individual members.

Data

This paperutilises quantitative data of MFCs for year 2005 to 2007 collected to assess the influence of financial linkages on outreach and sustainability of MFCs/SACCOS. Qualitative data from six focus group discussions (FGDs) comprising 112 managers from 102 MFCs is also utilised to add on the explanations of results from quantitative analysis.

The quantitative analysis of the influence of financial linkages on outreach is done at two levels. The analysis at level one utilises two-year data. This is due to the utilisation of lagged variable, sources of funding. The first level compares MFCs which had and those which had no linkages with FFIs. At this level the number of observations based on the way outreach is captured range from 90 to 126 (Table 1, Level 1). Thirty two per cent of MFCs had financial linkages (*Loan-FFIs*) with FFIs in either 2005 or and 2006. During 2005 to 2007, 43 to 46 percent of observations had linkages with FFIs.

Table 1: Descriptive Statistics of Linkages, Outreach and MFCs Specific Factors

Anal-ysis	Members			Labour	SaDe	Loan-FFIs	Educa-tion	Age	Region	Worker	Gender	Year 07	(Obs)
	All	Individual	Female										
Panel 1: Financial linkages and membership													
Level 1	5.836 (0.099)	5.836 (0.093)	4.940 (0.109)	8.620 (0.119)	17.787 (0.174)	0.323 (0.046)	0.431 (0.049)	0.441 (0.049)	0.333 (0.046)	0.324 (0.046)	0.460 (0.019)	0.5	102
Level 2	6.061 (0.104)	5.965 (0.108)	4.975 (0.130)	8.466 (0.145)	17.678 (0.202)	0.513 (0.057)	0.315 (0.053)	0.447 (0.057)	0.197 (0.045)	0.276 (0.051)	0.414 (0.021)	0.5	76
Panel 2: Financial linkages and number of loans													
Level 1	5.285 (0.119)	5.245 (0.118)	4.463 (0.121)	8.643 (0.111)	18.162 (0.159)	0.367 (0.042)	0.460 (0.044)	0.375 (0.042)	0.320 (0.041)	0.390 (0.043)	0.440 (0.015)	0.33	126
Level 2	5.513 (0.148)	5.460 (0.147)	4.522 (0.144)	8.490 (0.125)	18.183 (0.180)	0.637 (0 .050)	0.340 (0.049)	0.340 (0.049)	0.153 (0.038)	0.329 (0.049)	0.415 (0.019)	0.33	90
Panel 3: Financial linkages and loan size													
Level1		13.161 (0.113)	13.008 (0.117)	8.905 (0.116)	18.485 (0.137)	0.415 (0.052)	0.426 (0.052)	0.348 (0.050)	0.292 (0.048)	0.359 (0.051)	0.424 (0.018)	0.333	90
Level2		12.996 (0.117)	13.815 (0.255)	8.658 (0.118)	18.344 (0.155)	0.634 (0.061)	0.301 (0.058)	0.269 (0.056)	0.095 (0.037)	0.285 (0.057)	0.388 (0.019)	0.333	63

Note: Analysis Level 1 comprises MFCs with and without linkages with FFIs while Analysis Level 2 comprises MFCs with linkages with FFIs only. Figures in parentheses are standard deviations while the rest are means.

The analysis at level two uses three year balanced data sets. The analysis at this level utilises data from MFCs, which were involved in financial linkages in either 2005, 2006 or and 2007. The analysis compares MFCs' outreach during two periods, i.e. when MFCs were and when they were not involved financial linkages. The number of observations based on the way outreach is captured range from 63 to 90 (Table 1, Level 2). In 2005 or and 2006, 51 per cent of the observations had linkages with FFIs. In either 2005, 2006, or and 2007, around 64 per cent of the observations had linkages with FFIs.

Outreach

During 2006 to 2007, the average number of all members, individuals and females per sample MFCs was 342, 342, and 140, respectively (Table 1, Panel 1- Level 1). These were less than number of members reached by MFCs involved in linkage banking (Table 1, Panel 1- Level 2). During 2005 to 2007, the average annual number of loans offered by sample MFCs to all members, individuals, and females were around 197, 190, and 87, respectively (Table 1, Panel 2 - Level 1). These were lower than those offered by MFCs involved in financial linkages (Table 1, Panel 2 - Level 2). With respect to the depth of outreach, the average annual size of loan offered by sample MFCs to individual borrowers (males and females) during 2005 to 2007 was higher (i.e. around Tshs. 520,000) than that of MFCs involved in

financial linkages (i.e. around Tshs. 440,000) (Table 1, Panel 2). Further analysis on relationship between financial linkages and outreach while controlling for selected MFCs' specific factors, is performed in the following section.

MFCs' Inputs and Specific Factors

Among the main inputs required by MFCs to perform their activities are labour and funds. The average annual labour cost per member (*Labour*) for sample MFCs range between Tshs. 5,540 and 7,370. MFCs involved in financial linkages had relatively lower labour cost per member. The mean annual sum of savings and deposits (*SaDe*) of sample MFCs ranged between Tshs. 53 and 107 million (Table1, Panel 1 and 3, level 1). The mean annual savings and deposits of MFCs involved in financial linkages ranged between Tshs. 47 and Tshs. 92 million (Table 1, Panel 1 to 3, level 2).

The annual mean and maximum amount of loans from FFIs (*Loan-FFIs*) to MFC was around Tshs. 82.13 million and 1.73 billion. The interest rate charged by FFIs ranged from 7.5 to 18 per cent while the average was 13 per cent. Loan period ranged from 6 to 36 months, and the average was 15 month. The FGDs reveal that FFIs do not offer grace period.

With respect to MFCs specific factors, around 30 to 46 per cent of MFCs had managers with above eleven years of education (Table1). The rest, particularly those in rural areas of Iringa region had between seven and eleven years of education. Twenty seven to 45 per cent of MFCs have been in operation and providing loans to their members for at least ten years. Nine to 33 per cent of MFCs were operating in Dar es Salaam, and the rest were operating in Iringa (see Region in Table1). Twenty nine to 40 per cent of sample MFCs were employees based, while the rest were mixed (see workers in Table1). Forty to 46 per cent of individual members in sample MFCs were females, while the rest were males (see Gender in Table1).

EMPIRICAL RESULTS

Financial linkages and outreach

The adjusted *R* squared in Table 2 (Panel 1 and 2) indicates that financial linkages and MFCs' specific factors explain membership size, number of loans, loans to females and female membership size by between 56 and 81 per cent. The effect of financial linkages and MFCs' specific factors on loan size, is higher for the females model (48 to 81 per cent) than for all individual members (26 to 36 per cent) (Table 2, Panel 3).

The results in Table 2 (Panel 1, Analysis level 1) show that the breadth of outreach (number of all and individual members) and depth of outreach (i.e. female members) of MFCs involved in involved in financial linkages do not significantly

differ from MFCs not involved in financial linkages. The results further show that MFCs involved in financial linkages offered more loans (in numbers) than their counterparts, but the differences among them is insignificant (Table 2, Panel 2, Analysis level 1). Moreover, the average size of loan offered by MFCs involved in financial linkages was also not significantly bigger than that of those offered by their counterparts (Table 2, Panel 3, Analysis level 1). These findings indicate that linkage banking has insignificant effect on MFCs' outreach.

Table 2 Financial Linkages and Outreach

	Panel 1: Financial linkages and membership						Panel 2: Financial linkages and number of loans						Panel 3: Financial linkages and size of loans					
	Level 1: MFCs with and without linkages with FFIs			Level 2: Only MFCs having linkages with FFIs			Level 1: MFCs with and without linkages with FFIs			Level 2: Only MFCs having linkages with FFIs			Level 1: MFCs with and without linkages with FFIs		Analysis level 2a: Loan-FFIs captured as dummy one during when MFCs have loan	Analysis level 2b: Loan-FFIs captured as natural log of loan amount		
	All members	Individual members	Female members	All members	Individual members	Female members	Number of loans - members	Number of loans - Individual	Number of loans - Female	Number of loans - members	Number of loans – Individual	Number of loans - Female	Individual loan size	Female loan size	Individual loan size	Female loan size	ndividual loan size	Female loan size
Labour	-0.382*** (0.069)	-0.324*** (0.060)	-0.345*** (0.061)	-0.211*** (0.053)	-0.253*** (0.056)	-0.287*** (0.058)	-0.146*** (0.062)	-0.165*** (0.062)	-0.219*** (0.068)	-0.033 (0.075)	-0.0678 (0.076)	-0.089 (0.080)	0.127 (0.100)	0.206*** (0.080)	0.118 (0.110)	0.025 (0.127)	0.205 (0.144)	0.186 (0.152)
SaDe	0.523*** (0.049)	0.522*** (0.042)	0.526*** (0.043)	0.451*** (0.041)	0.482*** (0.043)	0.468*** (0.045)	0.681*** (0.045)	0.678*** (0.045)	0.693*** (0.059)	0.655*** (0.058)	0.667*** (0.058)	0.575*** (0.069)	0.392*** (0.088)	0.396*** (0.070)	0.411*** (0.092)	0.562*** (0.106)		
Loan-FFIs	0.031 (0.154)	-0.078 (0.133)	0.001 (0.136)	0.288*** (0.114)	0.227* (0.118)	0.380*** (0.123)	0.103 (0.147)	0.097 (0.146)	0.180 (0.157)	0.352** (0.165)	0.350** (0.167)	0.575** (0.069)	0.182 (0.206)	0.201 (0.179)	0.070 (0.215)	-0.015 (0.246)	0.472*** (0.097)	0.628*** (0.104)
Education	0.242 (0.209)	0.203 (0.180)	0.235 (0.184)	0.207* (0.130)	0.177 (0.139)	0.186 (0.145)	0.247 (0.207)	0.153 (0.206)	0.170 (0.216)	0.344* (0.182)	0.288* (0.184)	0.181 (0.198)	0.049 (0.234)	0.609*** (0.204)	-0.043 (0.234)	0.295 (0.267)		
Age	-0.179 (0.145)	-0.217* (0.125)	-0.274** (0.128)	-0.292*** (0.103)	-0.297*** (0.111)	-0.385*** (0.116)	0.146 (0.151)	0.165 (0.150)	0.215 (0.171)	0.237* (0.157)	0.273* (0.158)	0.204 (0.170)	-0.088 (0.215)	0.022 (0.192)	-0.056 (0.216)	-0.059 (0.251)		
Region	-0.517** (0.224)	-0.526*** (0.193)	-0.552*** (0.197)				-0.346 (0.236)	-0.233 (0.235)	-0.403* (0.249)									
Worker	-0.278* (0.165)	-0.275* (0.143)	-0.258** (0.145)				-0.290* (0.161)	-0.265* (0.160)	-0.284* (0.175)									
Gender	0.450 (0.400)	0.830** (0.346)	2.774*** (0.353)	0.975*** (0.279)	1.003*** (0.307)	3.086*** (0.321)	-0.555 (0.448)	-0.525 (0.446)	2.591*** (0.517)	-0.121 (0.437)	-0.062 (0.441)	3.133*** (0.483)	0.898 (0.623)	0.194 (0.590)				
Year 07	0.129 (0.134)	0.086 (0.116)	0.091 (0.118)	0.110 (0.103)	0.077 (0.111)	0.027 (0.116)	-0.058 (0.166)	-0.070 (0.165)	0.042 (0.184)	-0.275 (0.189)	-0.303* (0.191)	-0.087 (0.206)	0.179 (0.255)	-0.005 (0.221)	0.259 (0.252)	3.297*** (0.290)	-0.021 (0.324)	3.021*** (0.342)
Year 06							-0.057 (0.162)	-0.077 (0.161)	0.045 (0.177)	-0.205 (0.185)	-0.247 (0.186)	-0.061 (0.202)	-0.042 (0.245)	-0.020 (0.212)	0.027 (0.242)	0.083 (0.276)	-0.117 (0.316)	0.205 (0.332)
Constant	-0.219 (0.894)	-0.787 (0.773)	-2.484*** (0.788)	-0.692 (0.640)	-0.891 (0.671)	-2.233*** (0.701)	-5.524*** (0.880)	-5.365*** (0.876)	-7.522*** (1.165)	-6.335*** (0.976)	-6.306*** (0.984)	-6.828*** (1.170)	4.278** (1.761)	3.453*** (1.282)	4.316*** (1.700)	2.144 (1.940)	2.914 (2.130)	-0.006 (2.245)
R-squared	0.6	0.665	0.742	0.804	0.777	0.833	0.726	0.724	0.687	0.782	0.776	0.729	0.328	0.515	0.414	0.838	0.420	0.832
Adj R-squared	0.561	0.632	0.717	0.784	0.755	0.816	0.703	0.701	0.656	0.761	0.754	0.701	0.261	0.476	0.341	0.817	0.358	0.813
Prob> F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Observations	102	102	102	76	76	76	126	126	111	90	90	84	90	105	63	63	42	42

Note: ***, **, and * imply significant at ≤1%, at ≤5% and at ≤10%, respectively. Figures in parentheses are standard error terms. As noted above, the dependent variables (all members, individual members, and female members as expressed by *out* in equation 1) and the independent variables Labour, and SaDe (savings and deposits) are in natural logarithmic form.

Insignificant influence of linkage banking on MFCs outreach might be explained by the differences in others sources of funding, whereby MFCs involved in linkage banking attracted lesser savings and deposits than those which were not involved in linkage banking (T able 2, Panel 1 and 3). Savings and deposits are positively and significantly associated with outreach. A one percent increase in savings and deposits (SaDe) significantly raises membership by around 0.5 per cent in the future (Table 2, Panel 1), the number of loans and loan size by around 0.7 and 0.4 per cent, respectively (Table2, Panel 2 and 3). Therefore, MFCs which were not involved in linkage banking but had more savings and deposit reached more members and offered larger loans than MFCs which were involved in linkage banking. As savings and deposits are cheaper sources of funding than loans from FFIs, their utilisation outweighs benefits from financial linkages.

The comparative analysis of MFCs involved and those not involved in financial linkages cannot show outreach changes after being involved in financial linkages. Thus, the second level of analysis is envisaged to overcome this weakness.

The results in Table 2 (Panel 2 Analysis level 2) reveal that when MFCs were involved in linkage banking in 2005 or 2006, they had two more members (irrespective of category) in 2006 or 2007. They offered two more loans to all categories of members than when they were not involved in linkage banking and the differences are very significant. However, with respect to depth of outreach, financial linkages' effects are rather mixed. When MFCs were involved in financial linkages, they offered higher loan size than when they were not involved in financial linkages, but the difference is insignificant (Panel 3, Analysis level 2a). In a further reduced model, the results show that a one per cent increase in loan amount from FFIs significantly raises the loan size offered by MFCs to individual and female members by about 5 and 6 per cent, respectively (Panel 3, Analysis level 2b). Thus, contrary to Hermes et al. (2009a) findings, having access to private funding does not imply shading out female borrowers.

The second level analysis of reduced model shows that having linkages with FFIs significantly raises MFCs' future membership and the number of lo
ans. However, the increase is insubstantial. This, together with mixed effects of financial linkages on loan size question the urge to borrow from FFIs instead of devising mechanisms to increase savings and deposits.

Results from the FGDs indicate possible explanations of missing and mixed effects of financial linkages on MFCs outreach. These include poor organisation of direct financial linkages as indicated by delays and improper timing of the provision of loans

to MFCs. Others are unfavourable terms and loan requirements (viz., high loan security and interest rate, short loan period, a zero grace period) and the graduation of MFCs' large member-borrowers to partner banking institutions.

Results from the FGDs reveal that it sometimes takes more than six months from the time MFCs request for loans to when they receive them from FFIs. In Iringa, results from FGDs reveal that sometimes the loans, which MFCs request from FFIs in November to meet the demand for agricultural loans from their clients which they placed for agricultural season (i.e. December – January), were provided after the season. This discourages borrowing since the use of the loan applied for, which might be based on specific time of the year, is expired. Delay in loan provision to members is an indicative of poor quality of MFCs' financial services, which may discourage future membership in MFCs and cause dropout of members.

Results from FGDs reveal that delay in the provision of loan to MFCs encourages poor investment and misuse of funds by some MFCs' managements and members. It was reported that MFCs which did not receive loans requested from FFIs on time to offer agricultural loans to farmers were forced to look for alternative borrowers after some of the ideal loan applicants decline to borrow. Some of the alternative borrowers did not fulfil the criteria for receiving loans. In some cases leaders of MFCs lent themselves irrespective of whether they qualified for borrowing. They also invest in treasury bills (Bazil, 2007) to avoid idle cash. These improper use of funds resulted in high default rate and the use of MFCs' alternative sources of finance to repay loans from FFIs. Loan defaults by leaders resulted in moral hazards whereby members who were able to repay the loan also defaulted. Consequently, new membership was discouraged while dropout of members was encouraged. Loan defaults also reduced the amount of funds available for re-lending.

When MFCs request for loans from banking institutions, they are asked to deposit about 20 to 33 percent of loans applied for as loan security. The loan security in some banking institution is transformed into fixed deposit receipt (FDR). It is renewed quarterly, and matures when all amount of loan is repaid. Interest offered on this FDR is only one percent per quarter. The effect of loan security on outreach is illustrated below.

During 2005 to 2007, loan amount offered by one banking institution to MFCs ranged from Tshs. 0.19 to 1.2 billion. The institution demanded loan security equivalent to 25 percent of loan amount. This translates to Tshs. 4.75and 300 million for loans amounting to 0.19 and 1.2 billion, respectively. MFCs which had access to Tshs. 0.19 and 1.2 billion offered the average loan size of Tshs 242,800 and 1,982,760,

respectively. Considering loan size, these MFCs had forgone about 20 and 151 numbers of loans, respectively. In case the loan period was more than a year, then the number of loans forgone is more than the estimated ones as interest income could have been used to offer additional loans.

Apart from loan security, results from FGDs reveal that MFCs were required by FFIs to pay a loan fee equivalent to 1 to 3 per cent of the loan they applied for. They were also required to pay a lawyer fee, which was equivalent to one per cent of the loan. For MFCs borrowing 1.2 billion, these fees are around Tshs. 24 million, which is equivalent to 10 loans. During the FGDs, some MFCs' managers reported that some banking institutions do not accept the use of government lawyers, whose services are free.

The average annual interest rate charged by FFIs to sample MFCs is 13 per cent. As a result, some MFCs are forced to charge exorbitant rates to cover their interest expenses. High interest rate discourages borrowings (Yaron, 1994) and new membership. It also causes dropout of members who face difficulties to repay their loans (Mvungi, 2010).

The results from FGDs reveal that the FFIs in Tanzania do not offer a grace period. MFCs are required to start repaying the loan a month after loan receipt. This, coupled with delay in loan receipt, puts them under pressure to disburse funds immediately, which limits proper analysis of new borrowers. Improper analysis may raise loan default rate, hence decreased funds for re-lending.

The correlation analysis shows that the number of loans is significantly and positively associated with loan period (Table 3). Since a significant percentage of loan period provided by MFCs to borrowers is 12 months, while the average loan period offered by FFIs is 15 month. This is shorter and thus reduces the number of loans offered.

Table3: Correlation Coefficient - Loan Period and Number of Loans

		1	2	3	4
Number of loans to all members	1	1			
Number of loans to individuals	2	0.9937	1		
Number of loans to females	3	0.8215	0.8229	1	
Loan period	4	0.3566	0.3687	0.332	1

Note: Number of observations = 65

The results from FGDs reveal that among the documents which MFCs are required to submit to banking institutions during loan applications is a list of their loan applicants.

From the list, the banking institutions identify MFCs' clients applying for more than Tshs. 7 million and either approach them directly or ask MFCs management to inform them to apply for loans directly from banks. When offering loans to MFCs, the banking institutions deduct the amount equivalent to the sum of MFCs' clients' loan applications which are more than Tshs 7 million. This situation destabilises MFCs' operations as their big member-clients save/deposit more (i.e. one-third of the amount they intend to apply for). Before their deposits/savings reach one-third of the amount of loan they intend to borrow, and thus qualifying for borrowing, their savings is used to provide loans to other member-borrowers. Thus, the graduation of MFCs' big clients to commercial banks is a big challenge to MFCs' outreach and sustainability.

Labour and MFCs' specific factors affecting outreach

Although the focus of this paper is on the role of financial linkages in determining outreach, this section briefly presents the effects of labour and MFCs' specific factors on outreach. The results reveal that outreach (membership and number of loans) are negatively associated with labour, indicating an attainment of economies of scale. When the number of members and loans increase by 0.38 and around 0.2 percent, labour decreases by one percent (Table2). MFCs still have room to increase their outreach without raising labour input.

Age of MFCs has a significant and negative effect on membership. MFCs aged less than 10 years had about 1 to 2 members more than those aged at least ten years. It is possible that younger MFCs are more aggressive and business oriented than older MFCs, whose major objective was to have cooperative institutions that would collect savings for the purpose of offering credit to their members to meet social needs. This is also reflected by MFCs in the working environment, whose members are only employees of specific organisations. These MFCs have at least one to two members lesser than MFCs with mixed membership (employees, entrepreneurs, groups, institutions). They also offer one to two numbers of loans lesser than MFCs with mixed membership. The expansion of employees based MFCs is limited by the size of the organisation where a MFC is based.

Gender composition has a positive and significant effect on future membership size. An increase in females as proportion of total individual members in the current period increases membership size in the future. The magnitude of increase for female members is high (Table3, Panel 1). Gender composition has also significant and positive effect on the number of loans offered to females. A unit increase in gender composition raises the number of loans offered to females by about 13 to 23 (Table 3, Panel 2).

CONCLUSION

The main objective of this paper was to assess the effects of financial linkages on depth and breadth of outreach of MFCs. The analysis in this paperutilised two and three years quantitative balanced panel data of MFCs located in Dar es Salaam and Iringa and qualitative data collected through six FGDs. It employed a semi-logarithm regression model and descriptive analysis to examine the effect of financial linkages on outreach while controlling for MCFs' specific factors. The analysis was conducted at two levels. At level 1, the outreach of MFCs involved in financial linkages was compared with that of those not involved in financial linkages. At level 2, the outreach of MFCs during the period when they were not involved in financial linkages was compared to that of when they were involved.

The results in the analysis (i.e. level 1) reveal that there is no significant difference between the outreach of MFCs involved in and those not involved in financial linkages. MFCs without access to loans from FFIs seem to mobilise more savings and deposits than those with access to loans from FFIs. As savings and deposits are the cheapest sources of funds, they might compensate for non-funding benefits (viz., expanded scope of outreach and good governance) which MFCs involved in financial linkages may accrue. The latter might also be failing to translate the non-funding benefits into reality to expand their outreach due to low human resource capacity of some MFCs in rural areas and the nature as well as limited enterprising behaviour of occupation based MFCs. The majority of MFCs have also failed to take advantages of cooperating with banking institutions such as learning from counterparts, good governance, sharing advanced technology to expand their outreach.

The analysis at level 2 shows that having direct linkages with FFIs significantly raises MFCs' future membership and the number of loans, but not loan size. However, the increase is insubstantial. Possible factors explaining insubstantial effects and missing significant outreach differences between MFCs involved and those not involved in financial linkages include delay or improper timing of loan provision which results in the misuse of funds, investment in other assets than extension of loans to members; the graduation of MFCs' big clients to commercial banks, which reduce MFCs' internally generated funds for lending to relatively smaller clients; and unfavourable loan terms and requirements, which reduce the amount of loan from FFIs to MFCs for extension to members, increase cost of borrowing from FFIs, and thus reduce the amount of internally generated funds, and limit the number of loans to be offered. These result in high interest rate, which MFCs charge their clients (see Mlowe and Kaleshu, 2009). Consequently, members' satisfaction of services and trust on MFCs are reduced, borrowing is discouraged (see Yaron, 1994) and dropout of members is encouraged (see Mvungi, 2010). The above observations are in line with the argument by

Development Alternatives, Inc. (2005) on missing positive effects of linkage banking on MFIs outreach if loans from banking institutions are inconsistent, not continuous and expensive.

MFCs need to device mechanisms that will enable them to attract more savings and deposits. They also need to view themselves as business partners when borrowing from FFIs and bargain for better terms and requirements of loans. FFIs also need to treat MFCs as business partners and device mechanisms to speed up the provision of loans at better terms and loan requirements to MFCs, which have demonstrated good repayment records. Both, MFCs and FFIs need to transform the current status of financial linkages into active linkages to enhance MFCs' operations. Government institution, the Cooperative Development Department (CDD) and development partners may need to offer guarantee for better loan requirements and terms. Further analysis associating outreach with financial linkages based on the categories of FFIs is required to offer knowledge on types of financial linkages that need to be promoted to expand outreach.

REFERENCES

Anthony, D. and Horne, C. (2003), "Gender and Cooperation: Explaining Loan Repayment in Micro-Credit Groups", *Social Psychology Quarterly*, Vol. 66, No. 3, 293-302.

Awal, A. 'Financial Linkages in Bangladesh', www.bwtp.org (accessed 20.06.2010).

Bazil, E. (2007) 'Do Linkages between Formal and Informal Financial Institutions Affect the Sustainability of MFIs? The Case of SACCOS in Dar es Salaam', A Dissertation Submitted in Fulfilment of the Requirement for the Degree of Masters of Business Administration of the University of Dar es Salaam.

Campion, A., R. K. Ekka and M. Wenner (2010) 'Interest Rates and Implications for Microfinance in Latin America and the Caribbean', IDB Working Paper Series No.IDB-WP-177.

Conning, J. (1999) 'Outreach, Sustainability and Leverage in Monitored and Peer Monitored Lending', *Journal of development Economics* 60, 51-77.

CRDB Bank Microfinance Services Company Ltd. (2009), "Annual Report", http://crdbmicrofinance.co.tz. Accessed 21.08.2013.

Development Alternatives, Inc. (2005), "Opening Markets Through Strategic Partnerships: The Alliance between ICICI Bank and CASHPOR", microREPORT No. 39, USAID.

Engels, P. (2009) 'Mission Drift in Microfinance: The Influence of Institutional and Country Risk Indicators on the Trade-off between the Financial and Social Performance of Microfinance Institutions', Master Theses, Tilburg University, the Netherlands.

Finscope (2009), "Financial Sector Deepening Trust", Presentation of Results, Dar es Salaam.

Gallardo, J. Goldberg, M., and Randhawa, B. (2006), "Strategic Alliance to Scale Up Financial Services in Rural Areas", World Bank Working Paper No. 76.

Godquin, M. (2004), "Microfinance Repayment Performance in Bangladesh: How to Improve the Allocation of Loans by MFIs", *World Development*, Vol. 32, No. 11, 1909-1926.

Gutierrez-Nieto, B., Serrano-Cinca, C. and Molinero, C. M. (2005), "Microfinance Institutions and Efficiency", Omega, 35, 131-142.

Hermes, N., Lensink, R. and Meesters, A. (2009a), "Outreach and Efficiency of Microfinance Institutions", Working Paper, University of Groningen.

Hermes, N., Lensink, R. and Meesters, A. (2009b), "Financial Development and the Efficiency of Microfinance Institutions", www.solvay.edu/EN/Research, accessed 20.07.2010.

Ishengoma, E. K. (2012), "Financial Linkages, Institutional Factors and Loan Repayment Performance: The case of Microfinance Cooperatives in Tanzania", *African Journal of Finance and Management*, Vol. 21, No. 2, 12-31.

Lensink, R., Meesters, A., and Naaborg, I. (2008), "Bank Efficiency and Foreign Ownership: Do Good Institutions Matter", *Journal of Banking and Finance*, Vol. 32 (5), 834-844.

Makame, A. H and Murinde,V. (2006), Empirical Findings on Cognitive Dissonance Around Microfinance Outreach and Sustainability", Unpublished Paper, University of Birmingham.

McIntosh, C. and Wydick, B. (2005), "Competition and microfinance", *Journal of Development Economics*, Vol. 78, 271-298.

Mlowe, L. and Kaleshu, J. (2009), "Njombe District District Microfinance Strategic Development Plan", A Consultant Report Submitted to Njombe Local Government Authority (HalmshaurizaMji, Njombe).

Mvungi, I.S. (2010) 'Institutional Factors Affecting Loan Repayment Performance in Tanzania: A Case of Selected SACCOS in Kilombero and Kilosa', A Dissertation Submitted in Fulfillment of the Requirement for the Degree of Masters of Business Administration of the University of Dar es Salaam.

Pagura, M. and M. Kirsten, (2006): "Formal-informal financial linkages: Lessons from Developing Countries", *Small Enterprise Development*, 1 (March), pp. 16-29.

Schreiner, M. (2002) 'Aspects of Outreach: A Framework for Discussion of the Social Benefits of Microfinance', *Journal of International Development* 14, 1-13.

Sealey, C.W. jr., Lindley, J.T. (1977), "Inputs, Outputs, and a Theory of Production and Cost at Depository Financial institutions", *Journal of Finance*, 32, 1252-1266.

Seibel, H. D. (2005): "Linkages between Banks and Microfinance Institutions in Mali: A Case Study", Working Papers, aef, Universität Köln, www.econstor.eu (accessed 20 June 2010).

WOCCU (2010), "2009 Statistical Report", www.woccu.org, accessed 02.09.2010.

Yaron, J. (1994), "What Makes Rural Finance Institutions Successful?", *The World Bank Research Observer*, Vol. 9, No.1, 49-70.

Ylinen, T. (2010), "Profitability and outreach of microfinance: Mission drift theory and evidence from Uganda" Master's Thesis, Department of Economics, Helsinki School of Economics.