



Comparison of Financial Performance of MFI's in India and Bangladesh – Key Discriminators

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I. INTRODUCTION

The poor, like the rest of society, need financial products and services to build assets, stabilize consumption and protect themselves against risks. Microfinance serves as the last-mile bridge to the low-income population excluded from the traditional financial services system and seeks to fill this gap and alleviate poverty. Microfinance loans serve the low-income population in multiple ways, by:

- Providing working capital to build businesses;
- Infusing credit to smooth cash flows and mitigate irregularity in accessing food, clothing, shelter, or education; and
- Cushioning the economic impact of shocks such as illness, theft, or natural disasters.

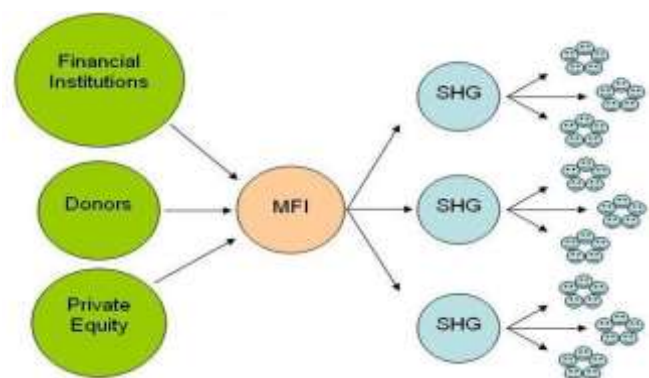
Moreover, by providing an alternative to the loans offered by the local money lenders priced at 60 per cent to 100 per cent annual interest, microfinance prevents the borrower from remaining trapped in a debt trap which exacerbates poverty. The microfinance model is designed specifically to help the low income population overcome typical challenges such as illiteracy, lack of financial knowledge and deficiency of collateralizable assets. At the same time, it takes the advantage of existing community support systems and networks to encourage financial discipline and ensure high repayment rates.

Microfinance and Microfinance Institution - Definition

Consultative Group to Assist the Poor (CGAP) defines microfinance as “a credit methodology that employs effective collateral substitutes to deliver and recover short-term working capital loans to micro entrepreneurs.

More broadly, microfinance refers to a movement that envisions a world in which low-income households have permanent access to a range of high quality financial services to finance their income-producing activities, build assets, stabilize consumption, and protect against risks. Those institutions which have microfinance as their main operation are known as microfinance institutions (MFIs). Microfinance has a significant role in bridging the gap between the formal financial institutions and the rural poor.

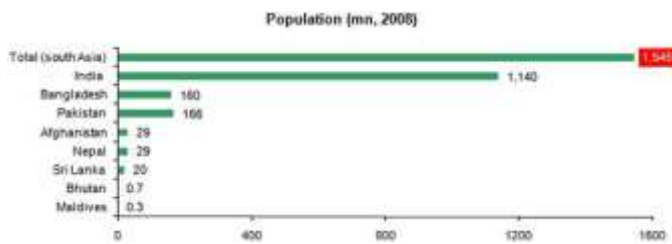
Microfinance Industry Structure:



Microfinance Institutions in South Asian Countries

Eight countries of South Asia, Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka, has a large combined population (1.5 bn), second to East

Asia (2 bn). Over 460 mn among these are poor and the three countries India, Bangladesh and Pakistan together account for 95 per cent of the population as well as poor. South Asia has great diversity in size and circumstance, India (1.13 bn) and Maldives 0.3 mn. Nearly 80 per cent of the regions GDP originate in India, South Asia's fastest-growing and biggest economy, with Pakistan and Bangladesh accounting for another 10 per cent and 7 per cent, respectively, and with the remainder divided among the others.



2. Statement of the Problem

India and Bangladesh are two developing economies in the world and poverty is a common problem in these two countries. Bangladesh has been the birth place of microfinance and also pioneer in the world for applying microfinance. Starting with the Grameen bank founded by Mohammed Yunus in 1970s microfinance represented a method of lending that is to be tailored specifically to the world's poorest population whereas, the microfinance industry in India started with informal Self Help Group (SHG) to access the much – needed savings and credit services in the early 1980's and today it has evolved into a vibrant industry exhibiting variety of business model. To provide microfinance and other support services MFIs should be able to sustain for long period. In order to sustain operations, MFIs must generate enough revenues from financial services to cover their financial and operating cost and in many cases, build institutional capital through profit. The present study is an attempt to identify the key discriminators in assessing the financial performance of Microfinance Institutions operating in India and Bangladesh during 2007-08 to 2011-12 and to make a comparison thereof.

The study focuses on the following objectives:

- To identify the key discriminators in assessing the financial performance of

Microfinance Institutions in India and Bangladesh

- To compare the performance of MFIs in India and Bangladesh

4. Scope of the Study

The study is pertaining to microfinance institutions in India and Bangladesh. The comprehensive financial performance indicators model used by Microfinance InformationExchange (MIX) has been chosen for the study. The parameters, such as institutional characteristics, financing structure, outreach indicators, overall financial performance indicators, revenue and expenses, efficiency and risk and liquidity have been considered to analyse the financial performance.

5. Significance of the Study

The study will be useful to the MFIs, for knowing their performance and taking appropriate decisions; donors, Investors, researchers and academicians and policy makers for their national development decisions.

6. Research Methodology

a) Source of data

The study is primarily based on secondary data. The data have been collected from

Microfinance Information Exchange (MIX) i.e., www.mixmarket.org.

b) Discriminant Function Analysis: Key Discriminators

Discriminant Function Analysis (DFA) is used to find which ratios differentiate between these two countries maximally. Discriminant Function Analysis has attempted to answer the following questions in 2 stages namely: Construction of Discriminant Function, Classification and Interpretation. How do the MFIs of India differ from those MFIs of Bangladesh in terms of their performance in factors relating to Institutional Characteristics, Financing Structure, Outreach Indicators, Overall Financial Performance, Revenue and Expenses, Efficiency and Risk and Liquidity? Do variables relating to the factors mentioned above significantly exist among these two countries? In general, what are all the variables which significantly discriminate the MFIs of India from Bangladesh?

i) Construction of Discriminant Function

Discriminant Function Analysis attempts to construct a function with these and other variables/ratios so that the MFIs belonging to either of these two countries are differentiated at the maximum. The linear combination of the variables is known as Discriminant Function and its parameters are called Discriminant Function coefficients. A typical Discriminant Function will be of the form,

$$Z = a_0 + a_1X_1 + a_2X_2 + \dots + a_nX_n ; \text{where, } a_0 - \text{constant}$$

a_1, a_2, \dots, a_n – Discriminant Function coefficients of the independent variables

X_1, X_2, \dots, X_n , respectively

Since the objective is to determine the variables which discriminate most efficiently between India and Bangladesh the stepwise approach has been used. The 26 variables in seven parameters are included in the model.

Stepwise selection

The step wise approach involves entering the independent variables in the Discriminant Function one at a time on the basis of their discriminating power. The stepwise approach begins by choosing the single best discriminating variable. The initial variable is then paired with each of the other independent variables one at a time, and a second variable is chosen. The second variable is the one that is best able to improve the discriminating power of the function in combination with the first variable. The third and any subsequent variables are selected in a similar manner. As additional variables are included, some already selected variables may be removed if the information they contain about group differences is available in some combination of the other already included variables (Multicollinearity). Eventually either all independent variables will have been included in the function or the excluded variables will have been judged as not contributing significantly to further discrimination by sequentially selecting the next best discriminating variable at each step. Variables that are not useful in discriminating between the groups are eliminated and a reduced set of variables is identified. The reduced set typically is almost as good as, and sometimes better than, the complete set of variables.

The result of the discriminant function analysis is given in table 1 with the reduced set of variables and the

values of discriminant function coefficients for each of the discriminating variable. Thus, out of 26 variables introduced in the model, the function included only 10 variables in the equation using stepwise approach.

Using the values given in table 6.9.1 the Discriminant Function (Z) for the problem under study can be written as,

$$Z = -1.095 + 0.0001X_1 + 0.010X_2 + 0.030X_3 - 0.285X_4 + 0.206X_5 - 0.132X_6 -$$

$$0.426X_7 + 0.015X_8 + 0.002X_9 - 0.006X_{10} - 0.049X_{11} \text{ ---- (A)}$$

Where, X_1 =Number of active borrowers; X_2 =Average loan balance per borrower/GNI per capita (per cent); X_3 =Financial revenue/ assets (per cent); X_4 =Financial expense/ assets (per cent); X_5 =Operating expense/ assets (per cent); X_6 =Operating expense/ loan portfolio (per cent); X_7 =Average salary/ GNI per capita; X_8 =Cost per borrower X_9 =Loans per staff member; X_{10} =Personnel allocation ratio (per cent)

Table 1(a) reveals the multivariate aspect of the model given under the 'Canonical Discriminant Function'. It is clear that Discriminant Function is significant at 1% level (Wilks lambda and chi-square test values given in the table indicate that the model is significant at 1% level) and displays a correlation of 0.914 which explains that there is a good correlation between the grouping variable and the independent variables.

ii) Classification

Once the Discriminant Function is arrived at, then the efficiency of the function as to, how accurately it predicts the MFIs in to the respective countries must be assessed. For this a classification matrix has been developed using actual and 'predicted' group membership of the MFIs. Before a Classification Matrix can be considered, several things must be decided beforehand. First, the group centroids (means), second cutting score and third a prior probabilities of each group.

Group Centroids

Using the Discriminant Function given in (A) the discriminant score for each MFI is calculated by substituting the values for discriminating variables from the analysis data. Then mean scores for India (Z_0) and Bangladesh (Z_1) are calculated, which are called Group Centroids are given table 2.

Table 1 - Canonical Discriminant Function Coefficients

	Function
Assets	.0001
Capital/asset ratio (%)	.010
Average loan balance per borrower	.030
Average loan balance per borrower /GNI per capita (%)	-.285
Financial expense/assets (%)	.206
Provision for loan impairment/assets (%)	-.113
Average salary/GNI per capita	-.426
Cost per borrower	.015
Loans per staff member	.002
Portfolio at risk greater than 90 days (%)	-.006
Loan loss rate (%)	-.049
(Constant)	-1.095

Source: Computed

Table 1(a) - Canonical discriminant function

Canonical Correlation	Wilks' Lambda	Chi-square	df	Sig.
.9148	.164	627.694	11	**

Source: Computed

Table 2(a) - Canonical discriminant functions evaluated at group means

Functions at Group Centroids	
Country	Function
India	1.658
Bangladesh	-3.051

Source: Computed

Table 2(b) - Prior Probabilities for Groups

Country	Prior	No.
India	.648	230
Bangladesh	.352	125
Total	1.000	355

Source: Computed

Cutting Score

Using the sample sizes and centroids for these two groups Cutting Score has been calculated as follows:

$$N_0Z_0 + N_1Z_1$$

$$Z_c = \frac{N_0Z_0 + N_1Z_1}{N_0 + N_1}$$

where, Z_c = Cutting Score; Z_0 = Centroid for India; Z_1 = Centroid for Bangladesh; N_0 = Sample size of India group; N_1 = Sample size of Bangladesh group;

Hence substituting the respective values the cutting score is

$$Z_c = \frac{230 * (1.658) + 125 * (-3.051)}{230 + 125} = 0.00$$

Against this Cutting Score each MFIs discriminant score has been examined. If this score is less than Z_c value, then it is classified in India group, otherwise in Bangladesh group.

Prior Probabilities

A prior probabilities has been calculated for each group based on the proportionate size of the sample in the respective groups. Using these prior probabilities, centroids and cutting score the Classification Matrix is formed. Table 2(c) is the Classification Matrix giving how many of the MFIs have been correctly classified into the respective groups and the overall correct classification percentage. Thus it is seen that the discriminant function has predicted 100 per cent of the MFIs correctly in the India and 99.2 per cent of the MFIs in Bangladesh and on the whole classified 99.7 per cent of the MFIs correctly.

Table 2 (c) - Classification Results

		Country	Predicted Group Membership		Total
			India	Bangladesh	
Original	Number	India	226	4	230
		Bangladesh	1	124	125
	Per cent	India	100	0	100
		Bangladesh	0.8	99.2	100

Source: Computed

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions variables ordered by absolute size of correlation within function.

Table 2 (d) - Structure Matrix

Ratios	Function(R)	R2 %
Financial expense/ assets (%)	0.386	14.90
Average loan balance per borrower / GNI per capita (%)	-0.260	6.76
Average salary/ GNI per capita	-0.236	5.57
Loans per staff member	0.176	3.10
Average loan balance per borrower	0.113	1.28
Provision for loan impairment/ assets (%)	-0.096	0.92
Assets	-0.050	0.25
Cost per borrower	0.040	0.16
Portfolio at risk > 90 days (%)	0.019	0.04
Capital/asset ratio (%)	0.019	0.04

Source: Computed

Once the Discriminate Function and its classification efficiency are assessed, then the next question remains to be answered is: how efficient are the discriminating variables in the Discriminant Function? This cannot be answered directly. However, the discriminating power or the contribution of each variable to the function can sufficiently answer the question. That is, by examining the Discriminant Function to determine the relative importance of each discriminating variable in the Discriminant Function between the two countries. Table2 (d) gives the structural correlations which measure the simple linear correlations between each independent variable and the Discriminant Function. The R2% gives the percent contribution of each variable to Discriminant Function. By looking at the structure matrix it is seen that 'Financial expense/assets' is the maximum discriminating ratio (R2%=14.90%) between India and Bangladesh MFIs, followed by 'Average loan balance per borrower/GNI per capita' (6.76%), 'Average salary/GNI per capita' (5.57%), 'Loans per staff member' (3.10%), and 'Average loan balance per borrower' (1.28%) all other ratios whose contribution in discriminating between India and Bangladesh MFIs are less than 1%.

It is found that from discriminating variables between Indian and Bangladesh MFIs, the variables, namely average loan balance per borrower/GNI per capita, average salary/GNI per capita, loans per staff member, average loan balance per borrower and provision for loan impairment/assets have shown better performance in Indian MFIs, whereas, financial expense/assets, assets, cost per borrower, portfolio at risk greater than 90 days and capital assets ratio have shown better performance in Bangladesh MFIs. 7.

Limitations of the study

The study is subject to the following limitations:

- The limitations inherent in statistical tools apply to this study also.
- Non availability of continuous data from MIX for more than five years has restricted the period and number of MFIs in this study

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