



SUSTAINABILITY OF MICROFINANCE INSTITUTIONS

A study on selected MFIs in India

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Abstract

Sustainability has both an institutional and a financial dimension. Financially self sustainability, operational sustainability, return on assets, and return on equity are the common indicators of sustainability. The levels of self-sustainability against which MFIs are measured are financial self sufficiency and operational self sufficiency. Financial Self-Sufficiency indicates whether or not enough revenue has been earned to cover both, direct costs - including financing costs, provisions for loan losses, and operating expenses - and indirect costs, including the adjusted cost of capital (Sa-dhan.net). According to Barres (2006), firms merely achieving FSS ratios do not confirm financial sustainability, because MFIs may resort to strict cost control or institutions may charge high interest rates to hide their management inefficiencies. So it becomes essential to know exactly the components that lead to financial sustainability of MFIs. While Operating Self-Sufficiency is a percentage (%), which indicates whether or not enough revenue has been earned to cover the Microfinance Institution's (MFI's) total costs – operational expenses, loan loss provisions and financial costs. Operational self-sufficiency thus indicates whether or not enough revenue has been earned to cover the MFI's direct costs, excluding the (adjusted) cost of capital, but including any actual financing costs incurred. If an MFI does not reach operational self-sufficiency, eventually its equity (loan fund capital) will be reduced by losses (unless additional grants can be raised to cover operating shortfalls). This means that there will be a smaller amount of funds to loan to borrowers (which could lead to closing the MFI once the funds run out) (Sa-dhan.net). The study measures the performance of sample microfinance institutions in India from 2008 to 2012 in terms of sustainability. Also trend analysis is done to observe the performance of sample microfinance institutions year on year in terms of sustainability. Sustainability of MFIs is determined taking operational sustainability, financial sustainability, return on assets and return on equity in to consideration. In order to determine the variables that influence financial sustainability of MFIs multiple regression model is used.

Introduction

Sustainability has both an institutional and a financial dimension. Financially self sustainability, operational sustainability, return on assets, and return on equity are the common indicators of sustainability. The levels of self-sustainability against which MFIs are measured are financial self sufficiency and operational self sufficiency. Financial Self-Sufficiency indicates whether or not enough revenue has been earned to cover both, direct costs - including financing costs, provisions for loan losses, and operating expenses - and indirect costs, including the adjusted cost of capital (Sa-dhan.net). According to Barres (2006), firms merely achieving FSS ratios do not confirm financial sustainability, because MFIs may resort to strict cost control or institutions may charge high interest rates to hide their management inefficiencies. So it becomes essential to know exactly the components that lead to financial sustainability of MFIs. While Operating Self-Sufficiency is a percentage (%), which indicates whether or not enough revenue has been earned to cover the Microfinance Institution's (MFI's) total costs – operational expenses, loan loss provisions and financial costs. Operational self-sufficiency thus indicates whether or not enough revenue has been earned to cover the MFI's direct costs, excluding the (adjusted) cost of capital, but including any actual financing costs incurred. If an MFI does not reach operational self-sufficiency, eventually its equity (loan fund capital) will be reduced by losses (unless additional grants can be raised to cover operating shortfalls). This means that there will be a smaller amount of funds to loan to borrowers (which could lead to closing the MFI once the funds run out) (Sa-dhan.net). The study measures the performance of sample microfinance institutions in India from 2008 to 2012 in terms of sustainability. Also trend analysis is done to observe the performance of sample microfinance institutions year on year in terms of sustainability. Sustainability of MFIs is determined taking operational sustainability, financial sustainability, return on assets and return on equity in to consideration. In order to determine the variables that influence financial sustainability of MFIs multiple regression model is used.

Review of Literature

In his study on efficiency of microfinance institutions Bereket Zerai (2011) quoted the work of Meyer and Zeller (2002), who proposed a microfinance triangle model consisting of outreach, welfare impact and financial sustainability as indicators of performance of MFIs. Barres et al (2005) proposed some variables grouped in to indicators like profitability and sustainability, efficiency and productivity, asset management and quality which will help for assessment of performance of microfinance institutions taking into consideration several aspects of MFIs' operation. Ledgerwood (1999) has identified 6 indicators for assessing MFIs' performance which are portfolio quality, productivity and efficiency, financial viability, leverage and capital adequacy, profitability, scale and Outreach & growth. Global Microrate has issued a technical guide in 2003 which presented four indicators: efficiency, financial management, asset quality and profitability for measurement of risk experienced by microfinance institutions. The SEEP network and Consultative group to assist the poor (CGAP, 2003) have presented the indicators asset and liability management, sustainability and profitability, portfolio quality and efficiency and productivity for measuring the financial and operational performance of MFIs. According to (Bereket Zerai & Rani, 2011), MFIs works with two objectives: social and financial. Social objective is to reach as many number of clients who are poorer, while financial objective is to achieve financial self sufficiency, means MFIs should be able to deliver the variety of services to their clients continuously thus achieving sustenance and the service delivery should not be hindered by lack of funds and MFIs should not depend on subsidies for delivery of services to their clients. Thus according to (Zerai and Rani, 2011), outreach

and sustainability are very much necessary for success of microfinance institutions. According to (Chaves and Gonzalez-Vega, 1996), sustainability means whether enough revenue or income is generated by MFI to cover the opportunity cost of all inputs and assets. In this chapter the researcher presents the sustainability measures of sample of Indian microfinance institutions.

Sustainability of Microfinance Institutions

In this section, the efficiency performance of MFIs is analyzed using sustainability indicators. The research tries to explore and investigate the major factors that influence sustainability of MFIs in India. The sustainability of Microfinance Institutions is analyzed in terms of Operating Self Sufficiency, Financial Self Sufficiency, Return on Assets and Return on Equity.

Table 1.1: Financial Self Sufficiency of MFIs from 2008-2012

S.No.	MFI	2008	2009	2010	2011	2012	Average
1	Adhikar	1.12	1.15	1.01	1.05	1.02	1.07
2	AML	1.31	1.46	1.07	0.42	0.18	0.888
3	Arohan	1.2	1.14	1.01	0.54	0.99	0.976
4	ASA India	0.31	1.76	1.16	1.04	0.91	1.036
5	Asirvad	1.3	1.56	1.22	1.08	1.18	1.268
6	Bandhan	1.74	1.58	1.56	1.62	1.51	1.602
7	BASIX	1.14	1.26	1.04	0.14	0.3	0.776
8	BJS	1.1	1.05	1.12	1.24	1.12	1.126
9	BSS	1.49	1.05	1.11	1.01	1.07	1.146
10	Cashpor MC	1.01	1.2	1.11	1.11	1.19	1.124
11	Equitas	1.08	1.45	1.26	1.17	1.22	1.236
12	ESAF	1.05	1.02	1.03	1.12	1.13	1.07
13	FFSL	1.55	1.52	1.19	0.67	0.78	1.142
14	GF SPL	1.01	1.03	1.04	0.97	1.11	1.032
15	Grama vidyal Microfinance Ltd	1.25	1.25	1.14	1	1.03	1.134
16	IDF Financial Services	1.02	1.25	1.04	1.06	1.09	1.092
17	Mahasemam	1.05	1.02	1.04	1.08	1.09	1.056
18	MMFL	1.32	1.62	1.38	1.12	1.33	1.354
19	NEED	1.12	1.12	1.11	1.17	1.19	1.142
20	RGVN	1.3	1.21	1.18	1.26	1.29	1.248
21	Sahara Utsarga	0.68	1.35	1.26	1.15	1.12	1.112
22	Samasta	0.49	0.87	1.01	0.97	1	0.868
23	Sanghamithra	1.11	1.19	1.23	1.21	1.22	1.192
24	Sarala	1.26	1.82	1.53	1.51	1.44	1.512
25	Sarvodaya Nano Finance	0.99	1.04	1.05	0.76	1.15	0.998
26	SCNL	1.07	1.14	1.06	1.03	1.05	1.07
27	SKDRDP	1.01	1.12	1.11	1.12	1.2	1.112
28	SMILE	1.14	1.19	1.38	1.19	1.08	1.196
29	Sonata	1.44	1.08	1.38	1.28	1.15	1.266
30	Spandana	1.66	1.79	1	0.56	0.17	1.036
31	Swadhaar	0.31	0.49	0.79	1.01	1.05	0.73
32	Trident Microfinance	1.14	1.34	0.84	0.43	0.04	0.758
33	UF SPL	0.55	1.24	1.1	1.03	1.07	0.998
34	Ujjivan	0.97	1.16	1.13	1.01	1.26	1.106
35	VFS	1.16	1.1	1.4	1.16	1.05	1.174
36	WSE	0.7	1.24	1.32	1.12	1.04	1.084
Number of FSS MFIs		29	34	34	28	30	

Table 1.2: Operational Self Sufficiency of MFIs from 2008-2012

S.No.	MFI	2008	2009	2010	2011	2012	Average
1	Adhikar	1.1291	1.1541	1.0104	1.0577	1.02	1.07426
2	AML	1.3104	1.4666	1.0799	0.4207	0.1888	0.89328
3	Arohan	1.2037	1.1485	1.0179	0.5411	0.9921	0.98066
4	ASA India	1.9358	1.7658	1.1656	1.0448	0.916	1.3656
5	Asirvad	1.3274	1.5698	1.2289	1.088	1.1819	1.2792
6	Bandhan	1.7423	1.583	1.5652	1.6268	1.5102	1.6055
7	BASIX	1.1412	1.2632	1.0431	0.1462	0.3006	0.77886
8	BJS	1.1067	1.0562	1.1213	1.241	1.1215	1.12934
9	BSS	1.4954	1.0561	1.1103	1.013	1.0721	1.14938
10	Cashpor MC	1.0154	1.2064	1.1126	1.1194	1.1966	1.13008
11	Equitas	1.0893	1.4496	1.265	1.1723	1.221	1.23944
12	ESAF	1.0507	1.0301	1.0376	1.1226	1.1316	1.07452
13	FFSL	1.7506	1.5243	1.1944	0.6763	0.7865	1.18642
14	GF SPL	1.0194	1.0361	1.0487	0.9731	1.1123	1.03792
15	Grama Vidiyal Microfinance Ltd.	1.2561	1.2536	1.1485	1.0016	1.0378	1.13952
16	IDF Financial Services	1.0216	1.2525	1.0424	1.0664	1.0897	1.09452
17	Mahasemam	1.0554	1.0202	1.0412	1.084	1.0919	1.05854
18	MMFL	1.3257	1.622	1.3857	1.121	1.3317	1.35722
19	NEED	1.1275	1.1274	1.1164	1.1748	1.197	1.14862
20	RGVN	1.3024	1.2109	1.1843	1.2632	1.2959	1.25134
21	Sahara Utsarga	1.6482	1.357	1.2671	1.1582	1.1212	1.31034
22	Samasta	1.0283	0.8797	1.0135	0.9776	1.0081	0.98144
23	Sanghamithra	1.1163	1.1913	1.2304	1.2169	1.2276	1.1965
24	Sarala	1.2701	1.8262	1.5357	1.5175	1.4442	1.51874
25	Sarvodaya Nano Finance	0.9966	1.0472	1.054	0.761	1.1593	1.00362
26	SCNL	1.0718	1.1414	1.0613	1.039	1.0601	1.07472
27	SKDRDP	1.0134	1.127	1.1159	1.1197	1.2048	1.11616
28	SMILE	1.1488	1.1937	1.3834	1.1943	1.086	1.20124
29	Sonata	1.4442	1.0834	1.3816	1.282	1.1575	1.26974
30	Spandana	1.6629	1.8004	1.0005	0.5636	0.1784	1.04116
31	Swadhaar	0.3118	0.4924	0.7937	1.0179	1.0594	0.73504
32	Trident Microfinance	1.1417	1.3473	0.8408	0.4333	0.0415	0.76092
33	UF SPL	1.0859	1.2429	1.1016	1.0322	1.0796	1.10844
34	Ujjivan	0.9767	1.165	1.1301	1.0142	1.2661	1.11042
35	VFS	1.1608	1.1026	1.402	1.1606	1.0582	1.17684
36	WSE	1.0422	1.2477	1.3222	1.1198	1.042	1.15478
Number of OSS MFIs		34	34	34	27	29	

Table 1.3: Operational self-sufficiency and financial self-sufficiency of the MFIs, 2008-2012

	2008	2009	2010	2011	2012	Average
OSS (%)	1.20	1.25	1.154	1.01	1.027	1.131
FSS (%)	1.08	1.24	1.15	1.011	1.022	1.103

Table 1.3 show the operational self sufficiency and financial self sufficiency of sample microfinance institutions in India. One should note that operationally self sufficient MFIs are those which are having OSS ratio of 100% (=1) or more (>1). Similarly Financially self sufficient MFIs are those which are having FSS ratio of 100% (=1) or more (>1). It can be understood from the trend analysis that there was a declining trend of OSS and FSS over the period of the study. Large down fall was observed from the year 2010. The trend analysis shows that the MFIs registered low OSS and FSS ratios since 2010, the reason might be the crisis in the sector. The overall average Operating Self Sufficiency of sample MFIs was found to be 113%. The OSS ratio in the year 2008 is 120% which reduced to 102% in the year 2012. The overall average Financial Self

Sufficiency of sample MFIs was found to be 110%. The FSS ratio in the year 2008 is 108% and it was reduced to 102% in the year 2012.

The figure 1.1 below shows the sustainability of sample Indian MFIs from the year 2008 to the year 2012. From the table 1.1, the overall average financial self sufficiency of Indian MFIs ranges from 0.73(73%) for Swaadhar to 1.60(160%) for Bandhan. More specifically Bandhan (160%), Sarala (151%), MMFL(135%), Asirvad(127%) and Sonata(126%) were found to be financially sustainable institutions when compared to other MFIs. On the other hand , Swaadhar(73%),Trident Microfinance(76%), Basix(77%), Samasta(87%) and AML(89%) were found to be the least sustainable MFIs (i.e.; with less than 90% FSS).The figure 1.1 below shows the trend of OSS & FSS of Indian Microfinance Institutions. It is evident from the results that Indian MFIs have experienced a downfall in OSS from 120% in 2008 to 102% in the year 2012; similarly the selected MFIs also experienced a decline in FSS from 108% in 2008, there by an increase in FSS ratio to 124%, followed by a continuous fall up to the year 2012(102%). Finally, one can say from the analysis that there was a drastic fall in both OSS and FSS figures since 2010.

Figure 1.1: Operating self-sufficiency and financial self-sufficiency, 2008-2012

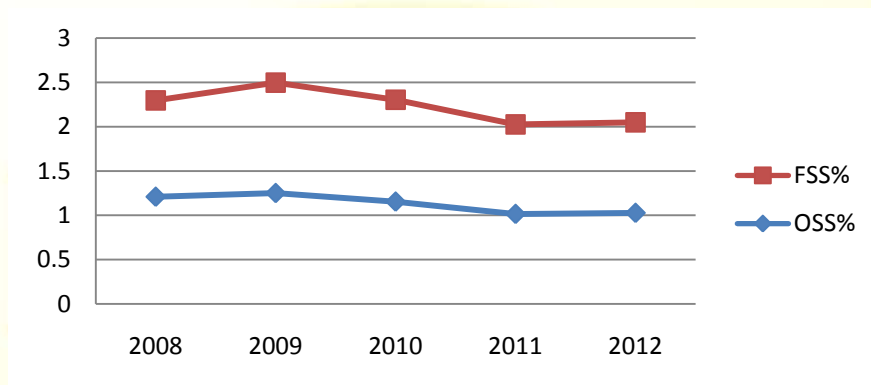


Table 1.4: Sustainability comparison (for the year 2012)

Sustainability	Indian MFIs	Asian MFIs	World MFIs
OSS	102	120.8	110
FSS	102	114.6	103

Based on MIX market data

The table 1.4 above shows the financial self sufficiency and operational self sufficiency figures for the year 2012, which are compared with the benchmark figures (2010) of Asian and World MFIs(as per MIX Market database). It was observed that Indian MFIs recorded operational self sufficiency and financial self sufficiency of 102% which is low when compared with Asian MFIs and World MFIs' OSS and FSS figures. The Asian MFIs OSS and FSS figures are 120.8% and 114.6% respectively, while the World MFIS recorded OSS and FSS figures as 110% and 103% respectively.

Table 1.5: Return on Assets and Return on Equity for the period 2008-2012

	2008	2009	2010	2011	2012
ROA (%)	1.88	2.45	1.98	-1.82	-4.23
ROE (%)	28.23	26.89	15.73	7.3	-24.95

The Indian microfinance sector has witnessed decline in sustainability which was also reflected with the drastic fall in the profitability indicators (Return on assets and Return on equity) of sample microfinance institutions which was represented in the table above. The ROA indicates how well an institution is managing its assets to optimize its profitability. It provides an indication of the ability of a microfinance institution to expand profitably with unsubsidized funding and it should be positive. The ROE, on the other hand, measures the returns produced by MFIs for the owners. It is an indicator of microfinance's profitability and growth potential. The Return on Assets figure for the study period 2008-2012 ranges from 1.88% in 2008 to -4.23% in 2012. The Return on Equity figure for the study period 2008-2012 ranges from 28.23% in 2008 to -24.95% in 2012.

Table 1.6: Return on Assets

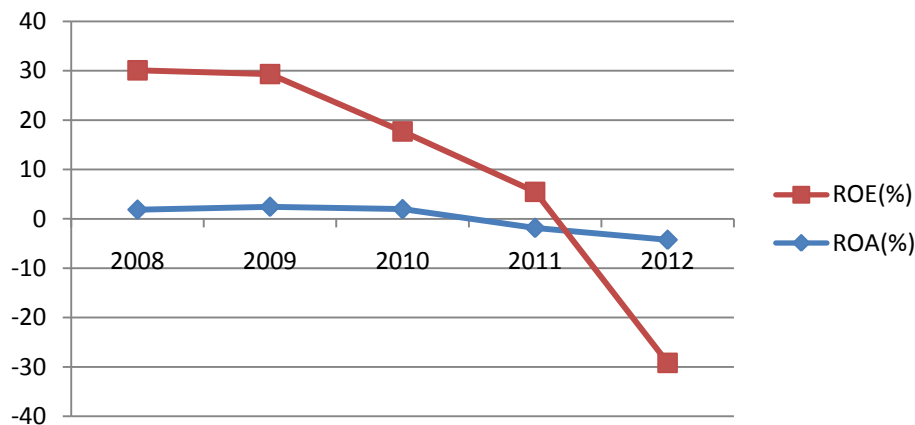
S.No.	MFI	2008	2009	2010	2011	2012	Average
1	Adhikar	3.07%	2.66%	0.17%	0.63%	0.14%	1.33%
2	AML	5.33%	4.31%	1.30%	- 11.91%	- 51.09%	-10.41%
3	Arohan	3.53%	2.02%	0.32%	- 16.05%	-0.27%	-2.09%
4	ASA India	5.00%	5.45%	2.29%	0.87%	-1.97%	2.33%
5	Asirvad	5.21%	7.40%	4.22%	1.54%	2.43%	4.16%
6	Bandhan	8.66%	3.52%	5.32%	6.44%	4.73%	5.73%
7	BASIX	1.80%	3.12%	0.66%	- 63.54%	- 35.20%	-18.63%
8	BJS	2.89%	1.56%	2.73%	5.50%	2.83%	3.10%
9	BSS	6.34%	0.78%	1.65%	0.18%	1.10%	2.01%
10	Cashpor MC	3.50%	3.99%	2.57%	2.50%	3.61%	3.23%
11	Equitas	1.52%	4.50%	3.63%	2.28%	2.74%	2.93%
12	ESAF	0.77%	0.25%	0.57%	2.13%	1.95%	1.13%
13	FFSL	7.00%	7.04%	2.52%	-8.50%	-5.96%	0.42%
14	GFSPL	0.17%	0.40%	1.00%	-1.01%	2.19%	0.55%
15	Grama Vidiyal Microfinance Ltd.	4.13%	3.65%	3.04%	0.05%	0.56%	2.29%
16	IDF Financial Services	0.30%	2.93%	0.44%	0.76%	0.93%	1.07%
17	Mahasemam	2.36%	0.78%	1.49%	1.73%	2.08%	1.69%
18	MMFL	5.42%	4.41%	4.29%	1.86%	3.53%	3.90%
19	NEED	2.84%	2.47%	2.28%	3.00%	3.32%	2.78%
20	RGVN	4.66%	3.25%	1.15%	3.49%	3.18%	3.15%
21	Sahara Utsarga	5.16%	5.86%	5.06%	3.51%	2.75%	4.47%
22	Samasta	0.98%	-2.38%	0.33%	-0.35%	0.42%	-0.20%

23	Sanghamithra	1.69%	2.47%	3.22%	2.93%	3.43%	2.75%
24	Sarala	4.30%	8.42%	5.66%	5.78%	5.59%	5.95%
25	Sarvodaya Nano Finance	-0.16%	0.18%	0.49%	-4.68%	2.03%	-0.43%
26	SCNL	0.91%	1.82%	0.86%	0.52%	0.80%	0.98%
27	SKDRDP	0.15%	1.29%	1.03%	1.56%	2.55%	1.32%
28	SMILE	1.65%	1.51%	4.73%	3.01%	1.00%	2.38%
29	Sonata	7.36%	1.12%	4.94%	3.64%	1.61%	3.73%
30	Spandana	6.89%	8.99%	-0.30%	-9.89%	-46.92%	-8.25%
31	Swadhaar	-44.91%	-20.75%	-5.89%	0.92%	1.15%	-13.90%
32	Trident Microfinance	1.86%	3.90%	-3.16%	-8.57%	-72.82%	-15.76%
33	UFSPL	3.00%	3.84%	1.35%	0.45%	0.80%	1.89%
34	Ujjivan	-0.60%	3.17%	2.01%	0.25%	3.36%	1.64%
35	VFS	1.74%	1.10%	5.74%	2.16%	0.71%	2.29%
36	WSE	3.10%	3.30%	3.52%	1.24%	0.46%	2.32%
AVERAGE		1.88%	2.45%	1.98%	-1.82%	-4.23%	0.05%

Table 1.7: Return on Equity

S.No.	MFI	2008	2009	2010	2011	2012	Average
1	Adhikar	44.30%	26.51%	0.99%	2.80%	0.46%	15.01%
2	AML	55.52%	40.07%	10.06%	-46.37%	-48.76%	2.10%
3	Arohan	14.93%	13.56%	1.63%	-65.12%	-0.62%	-7.12%
4	ASA India	12.00%	11.95%	8.64%	3.24%	-4.73%	6.22%
5	Asirvad	11.83%	28.20%	18.32%	5.28%	8.14%	14.35%
6	Bandhan	125.62%	38.21%	41.12%	37.62%	26.08%	53.73%
7	BASIX	15.63%	23.29%	4.73%	27.35%	29.27%	20.05%
8	BJS	56.40%	35.27%	76.53%	85.16%	25.38%	55.75%
9	BSS	40.64%	4.87%	9.61%	1.01%	5.77%	12.38%
10	Cashpor MC	57.70%	147.03%	52.65%	35.37%	30.69%	64.69%
11	Equitas	4.02%	12.38%	10.77%	8.15%	12.62%	9.59%
12	ESAF	8.38%	1.44%	3.35%	9.54%	11.31%	6.80%
13	FFSL	45.70%	45.77%	11.59%	-25.27%	-19.92%	11.57%
14	GFSP	1.16%	2.56%	6.45%	-6.02%	12.61%	3.35%
15	Grama Vidiyal Microfinance Ltd.	21.62%	25.47%	20.95%	0.30%	3.33%	14.33%

16	IDF Financial Services	2.33%	15.76%	1.93%	3.13%	3.28%	5.29%
17	Mahasemam	29.96%	10.54%	22.48%	19.39%	16.84%	19.84%
18	MMFL	26.50%	15.89%	15.72%	13.22%	35.25%	21.32%
19	NEED	26.50%	23.72%	20.36%	19.90%	14.81%	21.06%
20	RGVN	124.86%	101.46%	19.40%	29.52%	22.42%	59.53%
21	Sahara Utsarga	41.00%	41.10%	34.66%	18.30%	11.54%	29.32%
22	Samasta	-7.40%	-7.45%	1.26%	-1.60%	2.61%	-2.52%
23	Sanghamithra	12.49%	18.21%	22.83%	20.50%	22.84%	19.37%
24	Sarala	95.76%	118.57%	59.01%	46.10%	25.06%	68.90%
25	Sarvodaya Nano Finance	-1.03%	0.91%	1.74%	-9.67%	4.05%	-0.80%
26	SCNL	4.68%	13.08%	4.82%	1.82%	4.25%	5.73%
27	SKDRDP	4.12%	30.06%	19.94%	63.33%	69.66%	37.42%
28	SMILE	49.15%	19.22%	12.10%	8.27%	3.47%	18.44%
29	Sonata	36.24%	3.28%	13.97%	9.83%	4.20%	13.50%
30	Spandana	51.16%	55.67%	-1.89%	-43.02%	-96.06%	-186.83%
31	Swadhaar	-61.85%	-38.73%	-11.46%	1.72%	2.58%	-21.55%
32	Trident Microfinance	4.67%	19.64%	-23.04%	-31.58%	-58.39%	-57.74%
33	UF SPL	19.50%	19.52%	8.33%	1.30%	1.96%	10.12%
34	Ujjivan	-1.31%	9.45%	10.11%	1.18%	11.79%	6.24%
35	VFS	8.90%	7.07%	26.30%	6.92%	2.45%	10.33%
36	WSE	34.50%	34.57%	30.28%	11.25%	5.63%	23.25%
AVERAGE		28.23%	26.89%	15.73%	7.30%	-24.95%	10.64%

Figure 1.2: ROA and ROE Trend for the period 2008-2012

The figure 1.2 shows ROA and ROE trend of Indian microfinance institutions for the period 2008 to 2012. Majority of Indian microfinance institutions have witnessed a fall in ROA and ROE since 2010. The MFIs which recorded largest ROA ratio were Sarala, Bandhan, Sahara Utsarga, Asirvad and MMFL with ROA figures 5.95%, 5.73%, 4.47%, 4.16% and 3.90% respectively. While the MFIs which recorded largest ROE ratio were Sarala, Cashpor, RGVN, BJS and Bandhan with ROE figures 68.90%, 64.69%, 59.53%, 55.75% and 53.73%.

The MFIs which recorded lowest ROA ratio were BASIX, Trident Microfinance, Swaadhar, AML and Spandana with ROA figures -18.63%, -15.76%, -13.90%, -10.41% and -8.25% respectively. While the MFIs which recorded lowest ROE ratio were Spandana, Trident Microfinance, Swaadhar, Arohan and Samasta with ROE figures -186.83%, -57.74%, -21.55%, -7.12% and -2.52% respectively.

Table 1.8: Profitability comparison (for the year 2012)

Profitability	Indian MFIs	Asian MFIs	World MFIs
ROA	-4.23%	2	0.5
ROE	-24.95%	11.3	2.6

Based on MIX market data

The table 1.8 above presents the profitability performance of Sample Indian microfinance institutions. It can be observed that ROA and ROE figures of Indian MFIs for the period 2012 are compared with the benchmark figures (for the year 2010 given by MIX). It was observed that Indian MFIs were very poor in performance in terms of profitability in the year 2012 when compared to Asian MFIs and World MFIs. Indian MFIs ROA and ROE figures were -4.23% and -24.95% respectively as against Asian MFIs which recorded ROA and ROE figures as 2% and 11.3% respectively and World MFIs which recorded ROA and ROE figures of 0.5% and 2.6% respectively.

Determinants of Financial sustainability

Table 1.9: Description of Variables selected for determining financial sustainability

Nature of Variables	Variable	Description
Dependent Variable	Financial Self Sufficiency	Adjusted revenue/Adjusted(Financial Expense +Impairment Losses on Loans +Operating Expense)
Independent Variables	Age	Age of MFIs in years since establishment
	Size(total assets)	Size of MFIs in terms of total assets
	Active borrowers	Number of borrowers who currently have an outstanding loan balance with the MFI
	Loans	Ratio of loans outstanding to total assets
	Deposits_loans	Ratio of savings to loans
	Loan size	Total value of loans/Number of credit clients
	Ownership	Type of Ownership(NGO or NBFI)
	Debt Equity Ratio	The ratio of debt capital to equity capital of MFIs
	Cost per borrower	The ratio of operating expense to number of active borrowers
	Borrowers per staff member	Number of borrowers per staff member
	Write off ratio	The share of total amount of loans that are written-off from the gross loan portfolio
	Portfolio at risk>90 days	The ratio which indicates portfolio which is at risk for a period greater than 90 days

Statements of Hypotheses

- H₀₁: The age of MFIs does not effect financial self sufficiency of MFIs in India.
- H₀₂: The size (in terms of total assets) of MFIs does not effect financial self sufficiency of MFIs in India.
- H₀₃: The number of active borrowers of MFIs does not effect financial self sufficiency of MFIs in India.
- H₀₄: The loans of MFIs does not effect financial self sufficiency of MFIs in India.
- H₀₅: The deposits to loans ratio does not effect financial self sufficiency of MFIs in India.
- H₀₆: The loan size of MFIs does not effect financial self sufficiency of MFIs in India.
- H₀₇: The ownership of MFIs does not effect financial self sufficiency of MFIs in India.
- H₀₈: The debt equity ratio of MFIs does not effect financial self sufficiency of MFIs in India.
- H₀₉: The cost per borrower of MFIs does not effect financial self sufficiency of MFIs in India.
- H₁₀: The borrowers per staff member of MFIs does not effect financial self sufficiency of MFIs in India.
- H₁₁: The write off ratio of MFIs does not effect financial self sufficiency of MFIs in India.

H₁₂: The Portfolio at Risk > 90 days of MFIs does not effect financial self sufficiency of MFIs in India.

Table 1.10: Summary statistics of variables used in the empirical model

Variable	Obs	Mean	Std. Dev.	Min	Max
FSS	180	1.057	0.238	0.533	1.606
Age	180	12.52	6.27	5	31
Total assets	180	79367449	134334513	930547	605172351
Number of active borrowers	180	0.86	0.35	0	1
Average loan size	180	149.43	34.81	86.60	218.02
Debt Equity Ratio(der)	180	0.0620	0.087	-0.210	0.345
Cost per borrower(cpb)	180	16.12	11.76	4.2	73.4
Borrowers per staff member(bps)	180	344.23	289.55	90.64	1783.6
Ownership	180	0.25	0.439	0	1
Loans to assets	180	7042	9.5	4388	8603
Deposits to loans(dep_loans)	180	0.046	0.090	0	0.50
Write off ratio	180	0.92	0.97	0.00	3.92
Portfolio at risk>90days (par>90 days)	180	0.05	0.105	0.0002	0.36

Correlation Analysis

Correlation analysis has been performed to check for potential multicollinearity problem in the regression. Table 1.11 below provides summary on the degree of correlation between the explanatory variables used. The correlation matrix shows that in general the correlation between the included explanatory variables is not strong and hence that multi-co linearity may not be a serious problem to the study.

Table 1.11: Correlation between independent variables

	tot_assets	age	loan size	act_borr	owner	der	bps	dep_laons	loans	cpb	Write off	PAR > 90 days
tot_assets	1											
age	0.173	1										
loansize	0.455	0.276	1									
act_borr	0.229	0.294	0.229	1								
owner	-0.157	0.158	-0.309	-0.324	1							
der	-0.153	0.293	-0.122	-0.101	0.564	1						
bps	0.0005	-0.020	-0.168	-0.244	0.306	0.059	1					
dep_laons	-0.062	-0.010	-0.291	-0.067	0.405	0.119	-0.068	1				
loans	0.236	0.396	0.269	0.062	0.098	0.317	0.361	-0.472	1			
cpb	-0.121	-0.066	0.398	0.057	-0.193	-0.11	-0.361	0.165	-0.315	1		
writeoff	0.148	-0.100	0.269	0.202	-0.194	-0.357	-0.016	-0.177	0.023	-0.079	1	
par> 90days	0.341	-0.036	0.348	0.180	-0.227	-0.323	0.106	-0.127	0.244	-0.069	0.564	1

Regression analysis

Thus, multiple regression analysis was applied to analyse which of the variables greatly effects or influences the financial self sufficiency of the microfinance institutions in India. The results of regression are presented in the table 6.19 below.

Regression Statistics

Multiple R	0.872536
R Square	0.761319
Adjusted R Square	0.636789
Standard Error	0.14344
Observations	36

ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	12	1.509449	0.125787	6.113565	0.000106
Residual	23	0.473228	0.020575		
Total	35	1.982677			

Table 1.12: Results of regression

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.949543	0.292954	3.241273	0.003604
tot_assets	2.63E-10	2.36E-10	1.113888	0.276833
age	-0.00668	0.005006	-1.33519	0.194879
loan size	0.001658	0.001184	1.400141	0.174817
Active borrowers	0.17632	0.082893	2.127089**	0.044356
Ownership	0.066476	0.086749	0.766303	0.45129
Debt equity ratio	-0.16558	0.410945	-0.40294	0.690716
Borrower per staff member	-4.8E-05	0.000105	-0.45898	0.650554
Deposits to loans	0.411268	0.397537	1.03454	0.31164
loans	0.096594	0.427932	0.225723	0.823411
Cost per borrower	-0.01201	0.003005	-3.99693**	0.000567
Write off	-0.41014	3.368506	-0.12176	0.904149
par>90days	-1.8673	0.323565	-5.77101**	7.04E-06

T-statistic calculated at 5% level of significance.

***significant at 5% level of significance*

In this section the study explains how the institution specific variables effect the dependent variable financial self sufficiency. The institution specific variables like age (number of years), size (total assets), number of active borrowers (outreach), loans, deposits to total assets, average loan size, cost per borrower, debt equity ratio, write off ratio, portfolio at risk greater than 90 days, borrowers per staff member and ownership were identified and the impact of these independent variables on the dependent variable Financial Self

Sufficiency or Sustainability was studied by applying multiple regression analysis. Thus, multiple regression analysis was applied to analyse which of the variables greatly effects or influences the financial self sufficiency of the microfinance institutions in India. The results of the multiple regression analysis are presented in the table 1.12 above. The result of t-ratio test reveals that only active borrowers cost per borrower and portfolio at risk >90 days are found to have statistically significant impact on financial self sustainability of MFIs. The value of R^2 show that about 76% of variation in the financial self sufficiency is explained by the variables included in the model. It was observed from the results that there is a positive and statistically significant relationship between active borrowers and financial sustainability of an MFI which indicates that larger the number of active borrowers of an MFI larger will be the amount that can be earned through interest income and the MFI will be financially self sufficient.

The coefficient of cost per borrower is negative and found to be statistically significant; it indicates that the variable cost per borrower negatively influences the financial sustainability of MFIs. This implies that decrease in the cost of borrower increases MFIs financial sustainability and vice versa. This is consistent with the studies and findings of Coning (1999); Nyamsogoro (2010); Quayes (2012); Dlamini (2012). Regarding PAR > 90 days, it is evident from the analysis that, Portfolio at Risk >90 days has a negative and statistically significant impact on financial sustainability of selected MFIs. This shows that higher the PAR >90 days ratio higher is the risk of loss of portfolio for MFIs which ultimately leads to loss of MFIs and hence gives indication of weaker risk management practices in the selected microfinance institutions in India. The higher the PAR implies low repayment rates and therefore less financial sustainability. A study by Nyamsogoro (2010) supports this negative relationship between PAR and financial sustainability.

While the variables total assets, average loan size, deposits to assets, loans to assets, debt equity ratio, write off, borrowers per staff member and ownership are found to be statistically insignificant which implies that the variables does not found to have any influence on the financial sustainability of sample Indian MFIs.

Findings

The selected MFIs in India have experienced decline in sustainability (both Operating Self Sufficiency and Financial Self Sufficiency) during the period of the study and large downfall was observed since 2010 followed by crisis. The FSS and OSS of MFIs in India were found to be low when compared to Asian MFIs and World MFIs. Also decrease in ROA and ROE was observed since 2010. Further it was observed from the analysis that the variables active borrowers, cost per borrower and Portfolio at Risk >90 days were found to have statistically significant relationship with sustainability of MFIs.

Suggestions

- In order to improve the sustainability, the MFIs should strive to gain the confidence of different stakeholders that they are operating with welfarist approach and trying to reach more number of poor people instead of making profits. This enables the MFIs to have access to more funds there by achieving sustainability.
- MFIs have to focus on effective delivery of services to larger number of poor and vulnerable sections of the society by implementing effective management practices and also by technology driven services through implementation of innovation in technology.

- MFIs should strive to reduce cost per borrower by adopting the best practices available across the globe. Technology based services can be a solution because more and more number of people can be reached at less time.
- MFIs should strive to achieve economies of scale by optimum utilization of their resources. MFIs need to develop strategies towards this end.
- The number of active borrowers is positively related to financial sustainability. Hence more number of clients can be added by providing customized services to clients and there by more interest income can be generated which ultimately leads to financial self sufficiency of MFIs.
- It is found that Portfolio at risk (PAR>90) is negatively related to financial self sufficiency (FSS). Hence, proper risk management practices need to be adopted by the MFIs to prevent delinquency by clients.

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