

# Self-Help Groups as Financial Institutions

## Policy Implications Using a Financial Model

by R. Srinivasan

**Abstract:** This paper uses a spreadsheet financial model to identify key financial policy parameters that influence the performance of self-help groups (SHGs) whose primary activity is microfinance. The focus is on long-run (ten-year) performance. There is bad news for those policy makers and practitioners who focus unduly on growth as measured by loan activity. A conservative financial policy that does not inject external funds into the SHG in the initial years and, when it does, does so with moderation, seems appropriate in the long run. Additionally, a high loan interest rate policy produces SHGs that are strong financial institutions.

**T**his paper uses a spreadsheet financial model to identify key financial policy parameters that influence the performance of self-help groups (SHGs) that have microfinance as a major activity. It also examines the consequences of a conservative financial policy and of a high interest rate policy at the SHG level. It is assumed that these SHGs operate under the umbrella of a microcredit institution (MCI).<sup>1</sup> The conclusions, based as they are on a simulation model and not on field evidence are, hopefully, useful.

While some issues at the MCI level are discussed, the central purpose of this paper is to enhance understanding of SHGs. As a by-product, the model can be used by an individual MCI in its planning process. However, this model is simply not designed as a substitute for a comprehensive planner, such as Microfin.<sup>2</sup> In other words my concern is with SHGs; my focus on the MCI is to ensure that the understanding of SHGs is within an understanding of the total system.<sup>3</sup>

A disclaimer is in order here. I am conscious that a successful microfinance program may not appropriately be viewed as a “financial institution” activity alone. The importance of social relations and institutional features is stressed in Woolcock (1999). I recognize the importance of these but also believe that creating good financial institutions qua financial institutions does contribute to the success of such programs. I, therefore, proceed to look at SHGs and MCIs solely as financial institutions.

The rest of this paper is organized as follows. The first section provides a brief description of the SHG-MCI system and describes the financial model used. The second contains an analysis of the policy implications of the financial model output, with SHG “best practices” as a point of reference. The third section concludes the paper.

## Financial Modeling Self-Help Groups

### *SHG-MCI System*

A typical SHG consists of twelve to thirty members (Rutherford, 2000). The group is not merely a savings and loan association, but serves as an “affinity” group that provides a platform for a range of issues (such as watershed development, awareness building, and family planning—see Fernandez, 1994, for a comprehensive description of such SHGs). An SHG meets regularly (often weekly), and in these meetings,

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*R. Srinivasan is professor and coordinator of the Finance & Control Area at the Indian Institute of Management, Bangalore. Email: rsrini@iimb.ernet.in*

members contribute savings and take decisions on loans to members of the group. Group leadership is by rotation. The SHG may initially lend out of its own pool of funds and after gaining some experience with lending (and recovering loans), it may borrow from an MCI for on-lending to members.

Briefly, the SHG-MCI system has financial linkages as follows. Each SHG in the system raises funds from individual members and borrows from the MCI. Each SHG lends to members and saves with the MCI. I will assume that there are no regulatory restrictions<sup>4</sup> on the SHG activities. The MCI raises funds from three sources: capital, SHG savings, and borrowings from outside. The MCI lends to SHGs, invests outside, and maintains a cash balance. The MCI may have regulatory restrictions on assets, liabilities, and interest rates.

### *Financial Model*

The spreadsheet financial model<sup>5</sup> (created in Microsoft Excel) was developed to analyze possible strategies using what-if analysis. The model generates two sets of outputs: SHG-level and MCI-level projections. The model generates these projections based on input values provided for a number of factors at SHG and MCI level.

A stylized description of the functioning of SHGs and the MCI is provided, with the various input assumptions. To simplify computation, a month has been taken as the standard interval. Thus members save monthly, repay in monthly installments, and so on.

### *Financial Model Inputs: SHG*

- An SHG is formed by an initial set of members and the group remains constant. (Initial membership fees are ignored; they make little difference to the model output.)
- Each member saves a specified amount with the SHG. The SHG pays interest on this amount. The members' saving should desirably be regular, but in practice it is often irregular (not all members may save in a given month or there may

be a shortfall in the individual saving quantum). The model incorporates some irregularity in savings (this is not any implied defense of irregularity).

- A loan cycle represents the repayment period of a loan to members made by the SHG. The model accepts loan cycles ranging from 1 to 24 months. The SHG accumulates savings over the first loan cycle and maintains this with the MCI (i.e., no lending is done in the first loan cycle).
- Thereafter, the SHG lends a fraction of the available funds to members over several loan cycles (referred to as the self-cycle phase). The balance is saved with the MCI. The loan to members is repayable in monthly instalments over the loan cycle period. Interest is paid monthly over the loan cycle. A fraction of the loans are delinquent with members taking three months more than the loan cycle to repay. Of these, a fraction will default; defaulting members pay neither interest nor principal.
- At the end of the self-cycle phase, the SHG raises funds from the MCI and lends a fraction of the total available funds (member savings, surplus retained, and borrowing from MCI) to members. The balance is saved with the MCI. The loan from the MCI can be back-to-back (i.e., identical in tenor to the SHG loan to members), or range for periods from 1 to 24 months.
- The SHG incurs an annual operating cost expressed as a fraction of the common fund (member savings plus accumulated operating surplus).
- The SHG makes annual profits (losses) that add to (reduce) the accumulated surplus.

*Financial Model Inputs: MCI*

- The MCI starts with a certain capital base. It can raise a multiplier of this capital and accumulated surplus by borrowing from outside.
- The MCI adds SHGs over a period of five years. The number of SHGs stabilizes thereafter.

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- The MCI has to maintain a minimum fraction of its borrowing and SHG savings as cash and maintain another minimum fraction in approved investments. The remaining funds are available for lending to the SHGs. A fraction of the loans to SHGs are delinquent and a smaller fraction default.
- The MCI incurs an annual operating cost expressed as a fraction of its borrowings plus SHG savings.
- The MCI makes annual profits (losses) that increase (reduce) the total accumulated surplus.

The MCI capital is not an input item. The model generates annual capital requirements (consistent with the inputs) as an output.<sup>6</sup> Table 1 contains the definitions of inputs based on these assumptions.

### *Financial Model: Output*

The model produces the following output at SHG and MCI levels:

- Balance sheets for 10 years.
- Income statements for 10 years and an aggregate income statement for the 10-year period.
- Financial analysis.
- Sensitivity analysis.

In addition, funds flow statements for 10 years and an aggregate funds flow statement for the 10-year period are produced at the SHG level

## Policy Implications

Table 1 contains definitions of inputs and numerical values for the base case. I do not claim that the base numbers are realistic, although many of these numbers are in the realm of possibility in India. A deliberate major deviation from realism has been made at the SHG level. The interest rate that the SHG charges on loan to members is, at 20% on outstanding balances, unrealistic. The number chosen is convenient, as it straddles the 10% or so-called “politically correct” interest rates that a

financial institution would have been compelled to charge in India and the 30% plus rate that SHGs actually use.<sup>7</sup> There has been fear expressed that a government that seeks to regulate microfinance may impose ceilings on interest rates making microfinance unsustainable (Peck & Rosenberg, 2000). Use of this intermediate rate of interest of 20% is to help highlight the positive contribution to organization performance that a higher rate of interest can make.

A good benchmark for understanding some of these inputs is provided by Mysore Resettlement and Development Agency (MYRADA). The financial criteria for SHGs rated as “good”<sup>8</sup> by MYRADA include the following: At least 95% of members save the minimum stipulated amount per month. At least 95% repay against demand. The common fund (the total pool of funds from members consisting of deposits and surplus retained in the SHG) is rotated at least 100%. There is no idle capital and there should be minimum balances with the MCI. Good practices also require that when an SHG seeks MCI credit, the SHG will have run at least one self-cycle. Internal over-dues should not be more than 15% of total outstanding loan amount. The savings to borrowing ratio should not be more than 1:3. MYRADA compares borrowing with savings. This model compares borrowing with the entire common fund (member savings plus accumulated operating surplus). The MYRADA ratio of 1:3 is roughly equal to the borrowing multiplier of 1:2, which I used.<sup>9</sup>

With these base numbers, sensitivity analysis provides certain implications. I have divided these into three categories: key financial policy parameters (essentially focusing on the relative importance of input assumptions), the “cost” of financial conservatism at SHG level, and the consequences of a “high-interest” rate lending policy at the SHG level.

Sensitivities are specified with respect to a set of measures of performance, at SHG and MCI levels, measured after 10 years. (The spreadsheet provides an intermediate sensitivity analysis after five years, but that will not be used in this paper.)

Table 2 contains the definition of output financial measures used in this paper.

At the SHG level, these include a measure of total resources (SHG funds); two measures of cumulative operating performance (SHG surplus) and the proportion of cumulative surplus to the total common fund (SHG surplus/common fund); and two measures of lending performance, cumulative loan disbursements (SHG loan disbursed to members) and lending in a year relative to the common fund (SHG common fund rotation).

At the MCI level, these include a measure of total resources (MCI total assets); a measure of cumulative operating performance (MCI surplus); a measure of capital requirements (MCI capital) and a return on capital measure (MCI return on equity—MCI ROE).<sup>10</sup>

### *Key Financial Policy Parameters*

Table 3 (Panel A) contains output from a sensitivity analysis. I realize the problems of comparing deviations from base case (for instance, is a 1% increase in the loan interest rate to members at par with a 1% increase in the members' loan delinquency rate?). Since a large number of input and output measures are used, the corresponding input from Table 1 (output) and Table 2 (item number) is provided in parentheses in the analysis below. The input assumptions in Table 3 exclude a number of items in Table 1 that are unimportant in a financial sense (in that the output measures are insensitive to changes in these items). The broad implications are as follows.

For SHGs, the SHG funds (O1) and the SHG surplus (O2) are strongly determined by default of SHG members (I12), the loan interest rate to members (I07), the loan interest rate charged by MCI on its lending to the SHG (I20), the SHG operating cost (I09), and the SHG borrowing multiplier from MCI (I06). SHG loan disbursed to members (O4) is additionally influenced by the length of the loan cycle (I05). The pool of funds available with the SHG and, therefore, its lendable resources are influenced strongly by the amount of money

the SHG borrows from the MCI and the annual surplus the SHG makes. This surplus is in turn determined by the rate of interest at which the SHG lends, the rate of interest at which it borrows, default by members, and the operating cost of the SHG.

Further insight is provided by Table 3 (Panel B) where sensitivity is “normalized” by looking at changes required to produce the same increase (roughly 13%) in SHG loan disbursed to members (O4). The loan interest rate charged by the SHG to members (I07), the loan interest rate charged by the MCI to the SHG (I20), SHG operating cost (I09), and default by members (I12) all produce similar impacts on SHG Funds (O1),<sup>11</sup> SHG Surplus (O2), SHG surplus/common fund (O3), and SHG loan disbursed to members (O4). This is unsurprising since all act through the income statement. Increasing the SHG borrowing multiplier from MCI (I06) leads to smaller surpluses, as does reducing the SHG savings rate (I03). Again this is expected: both of these lead to an immediate increase in funds available for disbursement as loans to members without adding significantly to operating surplus. Reducing the loan cycle (I05) adversely impacts surplus because of the assumption that delinquent loans are delayed by three months, irrespective of the original tenor of the loan.

At the MCI level, the MCI surplus is strongly influenced by default, either by SHGs or by members (I12 and I24 respectively), by the MCI borrowing multiplier from outside (I14), the SHG borrowing multiplier from MCI (I06), and the loan interest rate charged by MCI on its lending to the SHG (I20). Beyond this brief summary, I do not intend to discuss MCI level output.

### *Financial Conservatism at SHG level*

The building blocks of a conservative financial policy at the SHG level include self-financing loan cycle (I08), the borrowing multiplier from MCI (I06), and the SHG savings rate with the MCI (I03—the fraction of SHG funds with the MCI, serving as a self-imposed reserve requirement). By conservative I



mean what would be described as prudential in mainstream banking. A longer self-financing cycle would put the members' money at risk but not the outsiders'. A lower borrowing multiplier from the MCI again would put less of the outsiders' money at risk. A higher SHG savings rate with the MCI reduces the loan exposure to members. This, in the context of an SHG, matters less as will be discussed later on.

The self-financing cycle (I08) does not influence the SHG operations in a major way. Reducing the cycle to 1, from the base of 2, increases SHG loans disbursed to members (O4) by 1.64%. Increasing the cycle to 3 from the base of 2 reduces loans disbursed by 2.55%.<sup>12</sup> Thus if there is a strong belief that operating with their own money initially can establish desirable group processes within the SHG, there is no operational reason to hurry.

The SHG savings rate (I03) does make a difference to SHG performance. For instance, reducing the savings rate from 10% to 5.6% (see Table 3, Panel B) has the same impact on SHG loan disbursed to members (O4) as increasing the SHG loan interest rate to members by 1%. However, an SHG is not like other banks where the pool of depositors and the pool of borrowers do not overlap. In such banks, a "reserve" requirement offers some protection for the depositors. In the case of an SHG, the pool of depositors and of borrowers would be co-terminus in the long run. In a sense, to talk of a "reserve" availability is devoid of meaning. Borrowing from the MCI and saving with the MCI are both essentially the same net activity (except that a deposit can make cash available in an emergency).

Increasing the borrowing multiplier (I06) from 2 to 3 increases the loans disbursed to members (O3) by 57% and the SHG surplus (O2) by 46% (Table 3, Panel C). But all it takes is an increase in loan default by members (I12) by 0.4% to effectively leave the surplus at the base level.<sup>13</sup> In other words, if an increase in lending to members is accompanied by even a small increase in default, then the SHG surplus remains at the same

level as with a lower lending volume. Raising the multiplier to 4 increases the loans disbursed to members (O3) by 134% and the SHG surplus (O2) by 105%. But again all it takes is an increase in the loan default by members (I12) by 0.7% to effectively leave the surplus at base level.

With a borrowing multiplier of 3, default of about 3.2% is enough to wipe out the entire SHG surplus (O2). In the base case, default of about 3.4% would use up the entire SHG surplus (O2). Unlike in the previous paragraph, we are dealing here with the entire SHG surplus (and not just incremental over the base level). This and the previous paragraph taken together imply the following: higher lending volumes will lead to a higher SHG surplus if default levels can be maintained at base level. A slightly higher-than-base level default will wipe out any SHG surplus gains from increased lending. With higher lending volumes, defaults hurt the SHG more than with lower lending volumes. As a consequence, the overall SHG surplus can be exhausted entirely at lower default rates than at the base level of lending. While loan portfolio quality is always important, increasing the borrowing multiplier makes the need for assuring quality of the loan portfolio even more important. The implication of this for the organizations involved, both SHGs and the MCI, is examined below.

The quality of the loan portfolio of an MCI is a function of three factors. The first is the loan absorptive capacity of individual SHG members, their ability to deploy loan funds (and indeed their own funds) effectively in their individual businesses. Business development interventions address this. The second is the effectiveness of loan management at the SHG level, reflecting the quality of the SHG's loan appraisal, disbursement, monitoring, and recovery activities. The third is the effectiveness of loan management at the MCI level. Thus any planned growth of the loan activity has to ensure that these three factors are addressed. There is some evidence that mature SHG programs have a higher average portfolio at risk (PAR greater than 60 days—measured at MCI level) than new

programs (M-CRIL, 2001). This could possibly imply that the third factor, the effectiveness of loan management at the MCI level, has been less than adequately addressed. However, given the relatively brief history of even the so-called mature programs in India, I would hesitate to cite this as clinching evidence that loan management effectiveness falls as the size of the loan portfolio increases. But there is a cautionary tale here; growth for both SHGs and an MCI makes loan portfolio quality an overriding concern.

### *A High Interest Rate Policy*

A high interest rate on the loans to members (I07) not only dramatically increases (see Table 3, Panel C) the loans disbursed to members (O4), but also enhances the SHG Surplus (O2). Thus, an increase from the base interest rate of 20% to 30% increases loans disbursed to members (O4) by 291% and the SHG surplus (O2) by 894%. The loan default has to go up to 7.2% to wipe out the surplus. Rutherford (2000) provides an insightful analysis of interest rates and growth rates in the context of an ASCA. Essentially, a high interest rate policy (keeping default rates constant) can rapidly add to the SHG surplus and, therefore, to the pool of funds available for lending. This drives growth. A high interest rate policy (within reasonable limits) not only facilitates growth, but can provide a cushion for default by building the SHG surplus.

It is important to note that the SHG, in this model, is viable even with a 20% rate of interest. In this case an increase to 30% is not based on a need to meet transaction costs. It is based on the premise that the enhanced surplus, derived from a higher interest rate, can strengthen the pool of funds members have with the group and promote growth based on owned funds.

The issues are two-fold: with high interest rates, will there be enough takers of loans, and do such high interest rates breed default? There is considerable empirical support that low interest rates can indeed damage the credit environment. Adams (1984) and Von Pischke (1991) argue that the essential issue is

not whether credit is cheap, but who has access to financial services and what does it cost to provide these services. Rosenberg (1996) provides a justification of a high-interest rate policy, contending that “There is overwhelming empirical evidence that huge numbers of poor borrowers can indeed pay interest rates at a level high enough to support microfinance institution sustainability.” This would support the model’s assumption that there will be takers for loans at high interest rates, but with the three factors that affect loan quality, listed in the previous section, addressed. The truth is more complex; high interest rates that are still lower than in the informal sector may strengthen SHGs but render them less useful for the very poor.

Given that even these high rates are usually lower than rates prevailing in the informal sector, I would argue that too low an interest rate may even tempt a member to borrow from the SHG, not for production/consumption within her household, but for on-lending in the informal market, possibly increasing the loan portfolio risk considerably.

On the whole, a high interest rate policy may be justified not on the grounds of transaction costs alone, but from the financial strength of the SHG derived from enhanced surplus creation and retention.

## Conclusion

For policy makers and MCI managers involved with SHGs, the central message is to not be in a hurry. SHGs are somewhat fragile (as indeed are most financial institutions), and a small reduction in the loan portfolio quality can seriously damage it. In the first few years of an SHG, institutionalizing group processes is much more important than accelerating lending. Size is as much an issue as quality. Over a sustained period, an emphasis on growth is probably unwise and unwarranted.

At an operational level, this paper attempts to enhance awareness of the relationship between decisions on interest rates and borrowing multipliers (and the entire list of items described here as input assumptions), and outcomes, such as operating surplus, funds, and loan disbursement.

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## Notes

1. This shows that I started on this paper some time back before microcredit enlarged in scope and became microfinance. I find the thought of making changes in a range-named EXCEL file alarming, so please bear with me.

2. See the CGAP website: [http://www.cgap.org/html/mfis\\_technical\\_guides.html](http://www.cgap.org/html/mfis_technical_guides.html). Again, for those whose concern is the financial performance of the MCI, the microCAMEL website <http://www.gdrc.org/icm/micro-camel.html> is a good source.

3. For instance, default by an SHG is, in a shortsighted sense, good for the SHG, but not good for an MCI at all.

4. Peck and Rosenberg (2000) discuss the regulation of microfinance institutions, including small-community based ones.

5. The model is accessible at <http://202.41.106.14/~rsrini/shgmodel.xls>. Feel free to use or adapt with acknowledgement. Remember that it is a research model, not a practitioner's one.

6. Because capital is an output, the MCI operating cost is dependent on borrowing and SHG savings and not on capital. This ensures that the model has no circular references.

7. Also, many SHGs do not pay any interest on members' savings with them, while I have assumed an interest payment.

8. While I have focused on the financial measures, MYRADA provides a number of other measures.

9. India's National Bank for Agriculture and Rural Development (NABARD) stipulates a higher 1: 4 ratio. Both the NABARD and the MYRADA guidelines are available on Hari Srinivasan's fascinating website: <http://www.gdrc.org/icm/>.

10. The MicroBanking Standards Project [<http://www.microbanking-mbb.org/>] provides a number of measures intended primarily at the MCI level. With my focus on SHGs, I have attempted a short list of measures that capture size, viability, and lending activity.

11. These MCI measures are comparable to those in the "Microfinance definitions draft for comment," in the website <http://www.microrate.com/>. What is called "Surplus" in this paper is referred to as "Retained Earnings" in the draft definitions.

12. I would like to downplay default by members. I would hate to mislead any reader into associating default positively with good performance.

13. These results are not in the table.

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**Table 1. Input Definitions and Base-Case Values**

Item No.	Item	Definition	Value	Dimension
I01	Members: Number	Number of members in SHG, throughout the plan period.	20	No.
I02	Members: Monthly Savings	Average monthly savings per member	40	Rs
I03	SHG: Savings rate	Percentage of total funds saved with the MCI	10.0%	%
I04	SHG: Savings-intrate to members	Interest rate [annual] paid on members' savings by SHG	5.0%	%
I05	SHG: Loan cycle	Scheduled repayment period [months] of loan by SHG to members	10	Months
I06	SHG: Borrowing multiplier from MCI	Multiplier of common fund [member savings plus surplus] that SHG can borrow from the MCI	2.0	Times
I07	SHG: Loan-intrate to members	Interest rate [annual] paid on borrowings from SHG by members	20.0%	%
I08	SHG: Self-financing cycle	Number of loan-cycles over which SHG lends to members without borrowing from the MCI	2.0	No.
I09	SHG: Operating cost	SHG annual operating cost as a percentage of the common fund, at year-end	4.0%	%
I10	Members: Savings regularity	Percentage of scheduled savings by members deposited	95.0%	%
I11	Members: Loan delinquency	Percentage of loan disbursed to members, whose repayment is delayed	5.0%	%
I12	Members: Loan default	Percentage of loan disbursed to members, in default [should be less than item I12]	1.0%	%
I13	MCI: Fixed Assets	Fixed assets of MCI	100000	Rs

**Table 1 Cont'd.**

Item No.	Item	Definition	Value	Dimension
I14	MCI: Borrowing multiplier from outside	Multiplier of net worth [capital plus surplus] that MCI can borrow	1.0	Times
I15	MCI: Minimum investment	Minimum investment that MCI must maintain as a percentage of borrowings and deposits	20.0%	%
I16	MCI: Cash	Minimum cash that MCI must maintain as a percentage of borrowing and deposits	5.0%	%
I17	MCI: Borrowing-intrate from outside	Interest rate [annual] paid on borrowings from outside by MCI	10.0%	%
I18	MCI: Savings-intrate to SHG	Interest rate [annual] paid on savings of SHGs by MCI	5.0%	%
I19	MCI: Investment-intrate	Interest rate [annual] earned on investments by MCI	9.0%	%
I20	MCI: Loan-intrate to SHG	Interest rate [annual] paid on borrowings from the MCI by SHGs	15.0%	%
I21	MCI: Operating cost	MCI annual operating cost as a percentage of total borrowing and SHG savings, at year-end	4.0%	%
I22	MCI: Loan cycle	Scheduled repayment period [months] of loan by the MCI to SHGs	10	Months
I23	SHG: Loan delinquency	Percentage of loan disbursed to SHGs by the MCI, whose repayment is delayed	5.0%	%
I24	SHG: Loan default	Percentage of loan disbursed to SHGs by the MCI, in default [should be less than item I23]	1.0%	%
I25	MCI: SHG addition	Number of SHGs added annually	100	No.



**Table 2. Output Definitions**

Item No.	Item	Definition
O1	SHG funds	Total assets of SHG <i>Measure of size</i>
O2	SHG surplus	Cumulative profits earned and retained (corresponds to reserves in standard accounting parlance) <i>Measure of cumulative operating performance</i>
O3	SHG surplus/common fund	The common fund is member savings plus surplus <i>The common fund is a measure of the members' stake in the SHG</i>
O4	SHG loans disbursed to members	<i>The SHG surplus/common fund is a measure of the proportion of this stake from operating surplus</i> Cumulative value of loans disbursed to members <i>Measure of absolute cumulative lending performance</i>
O5	SHG common fund rotation	Loans disbursed in a period divided by the average common fund <i>Measure of relative periodic lending performance</i>
O6	MCI total assets	Total assets of MCI <i>Measure of size</i>
O7	MCI surplus	Cumulative profits earned and retained (corresponds to reserves in standard accounting parlance) <i>Measure of cumulative operating performance</i>
O8	MCI capital	Capital <i>Measure of capital requirement</i>
O9	MCI return on equity	MCI surplus divided by MCI equity (capital plus surplus) <i>Measure of return on capital employed</i>

**Table 3. Sensitivity Analysis**

Item No.	Item	INPUT base	SHG	Funds O1
			INPUT new	
<b>Panel A</b>				
I07	SHG: Loan-intrate to members	20%	21%	19.00%
I20	MCI: Loan-intrate to SHG	15%	14%	13.54%
I04	SHG: Savings-intrate to members	5%	4%	4.27%
I18	MCI: Savings-intrate to SHG	5%	6%	2.04%
I06	SHG: Borrowing multiplier from MCI	2.00	2.10	5.81%
I14	MCI: Borrowing multiplier from outside	1.00	1.10	0.00%
I03	SHG: Savings rate	10%	9%	2.44%
I10	Members: Savings regularity	95%	96%	1.05%
I05	SHG: Loan cycle	10	11	2.65%
I08	SHG: Self-financing cycle	2	3	-2.56%
I09	SHG: Operating cost	4%	3%	6.94%
I21	MCI: Operating cost	4%	3%	0.00%
I11	Members: Loan delinquency	5%	4%	0.71%
I12	Members: Loan default	1%	0%	51.85%
I23	SHG: Loan delinquency	5%	4%	-0.37%
I24	SHG: Loan default	1%	0%	-25.20%
<b>Panel B</b>				
I07	SHG: Loan-intrate to members	20%	21.00%	19.00%
I20	MCI: Loan-intrate to SHG	15%	13.62%	19.20%
I04	SHG: Savings-intrate to members	5%	1.13%	16.51%
I06	SHG: Borrowing multiplier from MCI	2.00	2.25	14.95%
I03	SHG: Savings rate	10%	5.6%	11.23%
I05	SHG: Loan cycle	10	8	-7.38%
I09	SHG: Operating cost	4%	1.47%	18.62%
I12	Members: Loan default	1%	0.57%	19.42%
I24	SHG: Loan default	1%	1.56%	18.74%
<b>Panel C</b>				
I07	SHG: Loan-intrate to members	20%	30%	529.01%
I06	SHG: Borrowing multiplier from MCI	2	3	69.33%

Note: Columns O1 to O8 indicate the percentage change over the base case value, column O9 indicates the change from the base case return on net worth (Years 6 to 10) of 8.10%.

Item no.	SHG surplus O2	SHG surplus/ common fund O3	SHG loan dis- bursed to members O4	SHG common fund rotation O5	MCI total assets O6	MCI surplus O7	MCI capital O8	MCI ROE O9
I07	32.11%	11.02%	12.89%	0.56%	15.07%	9.27%	15.29%	-0.15%
I20	22.89%	8.23%	9.16%	0.41%	10.74%	-16.54%	12.97%	-1.78%
I04	7.21%	2.82%	3.34%	0.08%	3.72%	2.75%	3.75%	-0.03%
I18	3.45%	1.38%	1.45%	0.06%	1.66%	-2.31%	1.97%	-0.27%
I06	4.05%	1.61%	5.02%	3.41%	6.98%	6.41%	7.26%	-0.03%
I14	0.00%	0.00%	0.00%	0.00%	0.60%	-7.99%	-3.81%	-0.29%
I03	4.12%	1.64%	2.81%	1.19%	1.77%	1.98%	3.33%	-0.07%
I10	1.05%	0.00%	1.05%	0.00%	1.05%	1.06%	1.05%	0.00%
I05	4.48%	1.78%	-6.37%	-7.59%	1.95%	-0.89%	1.99%	-0.06%
I08	-4.32%	-1.81%	-4.18%	0.02%	-2.69%	-7.02%	-2.68%	-0.12%
I09	11.74%	4.48%	4.88%	0.21%	5.62%	3.66%	5.69%	-0.05%
I21	0.00%	0.00%	0.00%	0.00%	0.00%	17.07%	-1.42%	1.29%
I11	1.20%	0.49%	0.74%	0.27%	0.57%	0.36%	0.58%	-0.01%
I12	87.65%	23.57%	33.34%	0.23%	40.64%	24.78%	41.27%	-0.34%
I23	-0.62%	-0.26%	-0.25%	-0.01%	-0.30%	0.44%	-0.35%	0.05%
I24	-42.61%	-23.26%	-18.17%	-0.92%	-20.88%	29.02%	-24.58%	4.17%
I07	32.11%	11.02%	12.89%	0.56%	15.07%	9.27%	15.29%	-0.15%
I20	32.46%	11.12%	12.92%	0.57%	15.17%	-23.53%	18.35%	-2.45%
I04	27.90%	9.78%	12.93%	0.28%	14.41%	10.66%	14.53%	-0.09%
I06	10.32%	3.97%	12.82%	8.54%	17.89%	16.30%	18.63%	-0.07%
I03	18.98%	6.97%	12.92%	5.25%	8.06%	9.00%	15.41%	-0.28%
I05	-12.47%	-5.50%	15.03%	20.18%	-5.72%	-0.04%	-5.82%	0.13%
I09	31.48%	10.84%	12.94%	0.52%	14.95%	9.60%	15.16%	-0.14%
I12	32.82%	11.23%	12.87%	0.09%	15.53%	9.80%	15.76%	-0.15%
I24	31.67%	10.90%	12.82%	0.54%	14.94%	-22.45%	17.97%	-2.36%
I07	894.24%	58.06%	291.50%	5.52%	358.92%	168.15%	368.11%	-1.59%
I06	45.64%	14.68%	57.27%	34.36%	81.43%	70.95%	84.95%	-0.25%

