



THE CONSULTATIVE GROUP TO ASSIST THE POOREST  
[A MICROFINANCE PROGRAM]

# Format for Appraisal of Microfinance Institutions

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**Format for Appraisal of Microfinance Institutions**

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# Foreword

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The Consultative Group to Assist the Poorest (CGAP) produced this guide to appraising microfinance institutions (MFIs) for the use of its staff and consultants. Copies have been requested by many colleagues from other organizations, and we are happy to share it, though users should note some important caveats:

- *The format is not a one-size-fits-all tool.* It calls for a lot of detail and analysis because it was designed for use with relatively mature MFIs (generally with more than 3,000 clients and three years' experience) being considered for large investments (often several million dollars). For smaller or newer MFIs, or for smaller investments, a less intense review may be appropriate. It would be unfortunate if indiscriminate use of the format resulted in MFIs being burdened with requirements to produce information that is either unnecessary or unlikely to be used by the donor or investor requesting it.
- *The format assumes the involvement of a highly knowledgeable analyst.* It is essentially a checklist of information to be gathered, and the analyst's judgment is critical in deciding which information is worth pursuing and in evaluating the information collected. If the person conducting the appraisal lacks substantial experience with MFIs and good financial analysis skills, the results will not be reliable.
- *The format gives limited attention to assessing the poverty of the MFI's clients.* (CGAP is beginning work on a new analytical tool for this purpose.) And it makes no effort to quantify the benefits for clients of using the MFI's services. Instead, the format focuses heavily on estimating the likelihood that the MFI will become financially sustainable, reflecting CGAP's policy to support a retail MFI only if sustainability is a strong prospect. Not all donors share this strategic priority.
- *The format gives only brief treatment to savings services.* This does not reflect a view that savings services for the poor are unimportant; in fact, deposits are probably important for more poor people—especially the very poor—than are loans. The format gives cursory treatment to savings because it was designed for the market niche CGAP deals with most: credit-focused institutions that have not yet achieved financial sustainability and therefore could not ensure the safety of significant voluntary deposits.
- *The format calls for little analysis of the MFI's business plan and financial projections,* because of the structure of CGAP's investment analysis. CGAP first forms a general view of the strength of an institution, through the appraisal process. If that view is positive, it asks the MFI to prepare a business plan, at

the heart of which is a rigorous financial and operational projection. To support this work, CGAP recently published software and a manual for business planning by MFIs, *Business Planning and Financial Modeling for Microfinance Institutions: A Handbook* (Washington, D.C.: CGAP, 1998).

The format is a work in progress, and suggestions for improvements in possible future editions are most welcome. Please send comments or suggestions by email to Brigit Helms (bhelms@worldbank.org) or Richard Rosenberg (rrosenberg@worldbank.org) or contact them at the CGAP Secretariat offices (mailing address: 1818 H Street NW, Washington, DC 20433, USA; fax 202-522-3744).

Ira Lieberman  
July 1999  
*Chief Executive Officer*  
*Consultative Group to Assist the Poorest*

# Acknowledgments

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# Instructions for Analysts

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This format is an outline of information to be compiled for the appraisal of microfinance institutions (MFIs) for CGAP funding. A few points need to be noted at the outset:

- At issue is the appraisal of an institution, not of a specific project to be financed.
- Items marked with a star (★) are considered essential. Other items require the analyst's judgment in weighing the work required to secure the information against its likely effect on the decisions based on the appraisal.
- The questions in shaded boxes are meant to focus the analyst's attention on the key issues raised in a section.
- Gathering and analyzing the information described here will require substantial preparatory data collection by the institution and its accountants. The appraisal itself will take about two to three weeks of an analyst's time, depending on how much information is readily available from the MFI. Investing the time required by this exercise will be appropriate only in cases where preliminary discussions have yielded reasonable indications of a possible collaboration between CGAP and the institution.
- The format assumes appraisal by an experienced external analyst. It is principally a checklist of information to be collected. Occasionally it may suggest perspectives for interpreting the information, but these observations are not meant to be definitive or exhaustive, nor can they substitute for the experience and judgment of the analyst.
- Well in advance of a visit, the analyst should transmit to the institution an appropriate subset of the items outlined here, to be collected before his or her arrival. Because some of these items relate to intangible matters such as management attitudes, it may be appropriate to send an abbreviated version or list of questions, including the tables, to avoid the risk that the MFI will express the "right" attitude in responding, rather than its real attitude.
- Some of the information requested may be irrelevant for a particular MFI or unavailable as a practical matter. In such cases the analyst may wish to note briefly why the information is irrelevant or unavailable.
- When discussing loan amounts, the analyst should always indicate whether figures represent outstanding balances or initial loan amounts disbursed.
- The format sometimes specifies the presentation of financial data in U.S. dollars. However, the analyst can choose to express data in either U.S. dollars or the local currency, as required by the situation.

- Several of the calculations require per capita GNP (*not* adjusted for purchasing power parity) and historical inflation and exchange rates. The analyst may wish to obtain these data before the visit. Average inflation and exchange rates over a period should be used to adjust flows (income statement items), while end-of-period figures should be used to adjust stocks (balance sheet items).
- The format sometimes specifies a method for collecting or calculating an item. Where this method could not be used, the analyst should explain the alternative method used and the reason for its use.
- For ease of review, the analyst's conclusions and recommendations should be inserted at the relevant points throughout the outline. The most important conclusions and recommendations should be repeated in the executive summary.
- The diskette included with the format contains three files. The Word file contains the text of the appraisal format and can be used to produce reports. The *appraise.xls* file contains the spreadsheet model of all the tables used in this document. The *yieldcal.xls* file can be used to analyze interest rate yields in section 5.7. All data should be calculated in the *appraise.xls* file, then imported into the Word file as a final step in producing the report.

**Box 1****Useful references**

Useful guidance, especially on financial analysis methodologies, is provided by the Inter-American Development Bank's *Technical Guide for the Analysis of Microenterprise Finance Institutions* (Washington, D.C.: Inter-American Development Bank, 1994; available from the bank at 202-623-2509) and Martin Holtmann and Rochus Mommartz's *Technical Guide for Analyzing the Efficiency of Credit-Granting Non-Governmental Institutions* (Saarbrücken: Verlag für Entwicklungspolitik, 1996; available from Verlag für Entwicklungspolitik, tel.: [49] 68-93-98-60-94, fax: [49] 68-93-98-60-95). Other useful references are the SEEP Network and Calmeadow's *Financial Ratio Analysis of Microfinance Institutions* (1995; available from Pact Publications, 777 United Nations Plaza, New York, NY 10007, tel.: 212-697-6222, fax: 212-692-9748, Website: [www.pactpub.com](http://www.pactpub.com)) and Robert Peck Christen's *Banking Services for the Poor: Managing for Financial Success* (Washington, D.C.: ACCION International, 1997; available from ACCION Publications Department, 733 15th Street, NW, Suite 700, Washington, D.C. 20005, tel.: 202-393-5113, fax: 202-393-5115).

In addition, CGAP has published a series of handbooks relating to microfinance: CGAP, *External Audits of Microfinance Institutions: A Handbook* (Washington, D.C.: CGAP, 1998); Tony Sheldon and Charles Waterfield, *Business Planning and Financial Modeling for Microfinance Institutions: A Handbook* (Washington, D.C.: CGAP, 1998); and Charles Waterfield and Nick Ramsing, *Management Information Systems for Microfinance Institutions: A Handbook* (Washington, D.C.: CGAP, 1998). All these are available from Pact Publications, at the address above.

# 1 Executive Summary

---

## 1.1 Key data

Provide information in table 1.1 for each of the three most recent years, if possible. If the appraisal is being conducted more than six months after the end of the MFI's fiscal year, try to provide current information as well (for example, as of the most recent midyear). For the first five items, give projections for the next three years.

## 1.2 Summary of major conclusions and recommendations

In addition to any other material, this section should include conclusions on the likelihood that the MFI will develop into an entity capable of expanding independent of further donor resources, able to reach massive numbers of poor clients while relying on predominantly commercial funding.

- To what extent is the institution's vision focused on achieving this stage of development?
- What financial and nonfinancial factors bear on the institution's ability to reach this stage? What fundamental operating changes would be required? What other hurdles must be overcome?
- If the MFI is expected to reach this target, how long is it likely to take? (This estimate will be subject to revision if the institution will be preparing a new business plan.)

TABLE 1.1  
Summary of key data

	Actual			Projected		
	---	---	★ Most recent year	---	---	---
			Current, as of			
1. Number of active loans (line 2 of table 4.1)	---	---	---	---	---	---
2. Total outstanding loan balance (US\$) (line 1 of table 4.1)	---	---	---	---	---	---
3. Average loan balance (US\$) (line 2 divided by line 1)	---	---	---	---	---	---
4. Number of voluntary savings clients (line 5 of table 4.1)	---	---	---	---	---	---
5. Total balance of voluntary savings accounts (US\$) (line 4 of table 4.1)	---	---	---	---	---	---
6. Loan loss rate (line 7 of table 5.7)	---	---	---	---	---	---
7. Portfolio-at-risk delinquency rate (more than 30 days late) (line 9 of table 5.7)	---	---	---	---	---	---
8. Administrative efficiency (line 1 of table 5.6)	---	---	---	---	---	---
9. Portfolio yield (line 5 of table 5.8)	---	---	---	---	---	---
10. Operational self-sufficiency (line 4 of table 5.5)	---	---	---	---	---	---
11. Return on assets (line 1 of table 5.5)	---	---	---	---	---	---
12. Adjusted return on assets (line 2 of table 5.5)	---	---	---	---	---	---
13. Year-end free market exchange rate (local currency/US\$)	---	---	---	---	---	---
14. Per capita GDP (US\$)	---	---	---	---	---	---

## 2 Institutional Factors

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Some microfinance programs are lodged in a larger institution that also conducts other, nonfinancial activities. In such cases, provide the information requested in this section for the larger institution, the finance division, or both, depending on what is most meaningful. The main focus should be on the microfinance program, however, especially in sections 2.2, 2.4, and 2.5. (For simplicity, the term *microfinance institution* is used indiscriminately, embracing stand-alone finance programs as well as programs embedded in a larger, multi-purpose institution.)

For microfinance programs within a larger institution, also characterize the relationship between the microfinance activities and the rest of the institution. Does the institution keep separate accounts for microfinance activities? How large are the microfinance activities relative to the institution as a whole?

### ★ 2.1 Legal structure

What is the MFI's legal structure (nongovernmental organization, credit union, bank)? If it is international, indicate its country of domicile and its legal status in the location studied. Are there any obvious legal or policy obstacles to eventual mobilization of deposits?

### ★ 2.2 History

When was the MFI founded? Briefly note the stages of its evolution. Provide details of donor support in table 2.1. For current loans, the terms should be detailed in section 5.8.1.

TABLE 2.1  
Donor support

Source	Date	Amount (US\$)	Terms	Currency	Status
1. Development Bank	1993	500,000	Loan, 40 years, 1%	U.S. dollars	Fully disbursed
2.					
3.					

## ★ 2.3 Ownership and board of directors

### 2.3.1 *Ownership*

Who owns or effectively controls the MFI? Describe the nature and frequency of their participation. What is their degree of commitment, and how is it evidenced?

### 2.3.2 *Board*

Describe the structure of the board of directors or equivalent body. Who names the directors? List the current board members along with their outside affiliation (for example, Ms. X, finance ministry, permanent secretary; Mr. Y, president of a major bank; Ms. Z, microentrepreneur). How often does the board meet? Does it keep formal minutes? (Review these when possible.) How is succession handled?

Describe, if possible, the quality of the relationship between the MFI's managers and its board. How often do they interact? Characterize the level of control exercised by the board. What is the policy, if any, on which issues the board gets involved in and which it leaves to management? What were the most recent key issues discussed, or decisions made, by the board?

Try to talk to individual board members to determine their vision for the institution.

## 2.4 Alliances

Describe the institution's most important strategic alliances (national and international networks, sources of technical assistance, and local political or commercial influence). What is the level of each partner's commitment? Has there been any evidence of that commitment in the past two years? What does the MFI get out of the relationship?

Do the charter, ownership structure, strategic alliances, and leadership of the MFI ensure adequate quality control of its operations, especially in the face of adverse conditions? For multipurpose institutions, does the organizational structure generate any tensions that are likely to affect the integrity of the microfinance program?

If relevant, describe a recent crisis and how it was handled at different levels (such as by the board, management, staff, and donors).

## ★ 2.5 Leadership

Describe the key leader or leaders who principally determine the MFI's vision and operations. Comment on any notable strengths or weaknesses that are apparent.

How willing are the leaders to talk candidly about problems facing the institution? How open are they to advice related to improving their program? Have they sought professional assistance in the past to deal with specific problems?

- ★ If any of the key leaders leave, are there others in the institution who could replace their contributions? How hard would it be to recruit people with the needed qualities outside the institution?
- ★ How does the institution build its future leaders? Do employees have opportunities to advance from within the ranks?

## 2.6 Human resource management

### 2.6.1 *Statistical summary*

Provide information in table 2.2 for each of the three most recent years, indicating where amounts are estimated. If the appraisal is being conducted more than six months after the end of the MFI's fiscal year, current information (for example, as of the most recent midyear) may be presented as well.

### ★ 2.6.2 *Structure*

Does the MFI have a personnel department? Are there clear personnel policies set out in a written personnel manual? What is the institution's promotions policy?

### 2.6.3 *Recruitment*

How does the MFI recruit?

### ★ 2.6.4 *Formal training*

Describe the institution's formal training program for staff. Is it institutionalized? Is it permanent? What is its estimated cost? How are the managers trained (in-house; by foreign advisers or commercial banks; through formal training)?

How long does it take for loan officers to reach full capacity on average?

TABLE 2.2  
Human resources statistical summary

			★ Most recent year	Current, as of
	—	—	—	—
Number of total staff, end of period				
Number of staff hired during period				
Number of staff who left during period				
Turnover rate (staff who left as a percentage of average number of staff)				
Number of loan officers, end of period				
Loan officers as a percentage of total staff				
Number of administrative staff, end of period <sup>a</sup>				
Number of line staff, end of period <sup>b</sup>				
Average annual loan officer compensation (US\$) <sup>c</sup>				
Typical annual compensation for veteran loan officers (US\$)				
Average loan officer compensation as multiple of per capita GDP				
Average loan officer compensation as multiple of average outstanding balance per loan				
Staff training expenditures as a percentage of annual administrative budget (excluding financial and loan-loss costs)				

a. Administrative staff includes management, finance, bookkeeping, internal control, and management information system (MIS) staff; it does not include loan officers, cashiers, and others who spend most of their time dealing with clients.

b. Line staff includes loan officers, cashiers, and other staff with direct and continual client contact.

c. Include in loan officers' annual compensation such benefits as the "thirteenth-month" premium, accrued severance pay (even if not paid annually), typical incentive bonuses, and the like, as well as employer social security contributions.

How adequate is the staff training, especially for new staff?

★ 2.6.5 *Loan officer profile*

Describe the typical profile of a loan officer, including age, education, experience, and socioeconomic background. Is this profile appropriate for the institution's clientele and type of service?

★ 2.6.6 *Salary*

How is staff compensation divided among basic salary, benefits, and incentives?

Describe any performance-based incentive systems. How does the average salary for loan officers compare with salaries at other MFIs, for account officers in the banking sector, and for similar positions in the general economy? How does the average salary for administrative staff compare with salaries for similar positions in the economy?

★ *2.6.7 Turnover*

Is staff turnover a problem?

*2.6.8 Atmosphere*

Describe the general work atmosphere. Does it foster productivity and high service quality? How is morale? What seems to motivate staff (sense of mission, professional pride, loyalty to the institution, wages)?

*2.6.9 Labor relations*

Does the MFI face current or potential labor relations problems, such as a risk of wage disputes or strikes?

*2.6.10 Dependence on outside consultants*

How much does the institution depend on domestic or foreign consultants? Is there a plan for phasing out outside technical assistance?

*2.6.11 Other human resource issues*

Are there other human resource issues that materially affect the performance of the MFI?

How high a priority are human resources for general and area managers?  
How is this evidenced? Is the MFI investing in its human resources in a way that will ensure that it can sustain expected levels of growth?

## **2.7 Organizational structure**

Attach the institution's current organizational chart.

Are the lines of authority clear? Is there any redundancy in key operational decisionmaking processes?

Is the staff made accountable for results? How? What are the key indicators on which the performance of staff and branch managers is assessed?

How decentralized are operational decisions such as loan approval?

- ★ Are branches treated as cost or profit centers? How does this system work? How are head office costs allocated among branches?
- ★ How standardized are operational procedures (across branches, for example)? Do practices at the branch and loan officer level conform to institutional policy as articulated by headquarters—for example, regarding treatment of delinquent borrowers or approval of repeat loans?
- ★ Do the organizational structure and management style appear to promote accountability and efficiency in operations?

## 2.8 Management information system

### 2.8.1 *Hardware and software*

Describe the hardware configuration and the software used for the management information system (MIS).

### ★ 2.8.2 *Reports*

Describe the types of reports generated by the MIS:<sup>1</sup>

- What information do they contain? Who receives them? How often and with what time lag are they distributed (that is, how old are the data)?
- Do they allow an immediate assessment of the performance of staff members and operating units?
- Do they allow an immediate assessment of the status of every loan?
- How accurate is the information?

### ★ 2.8.3 *Use*

Describe how the MIS is used (in actual practice, not in theory) by branch staff, supervisors, and top management.

### 2.8.4 *Staff*

Assess the capability of the MIS staff to manage and modify the system.

### 2.8.5 Security

Describe the basic security features of the MIS.

### 2.8.6 Processes and supporting information

Are there underlying manual processes that are fully and consistently developed? Does the MFI have a manual of procedures for the MIS? Is the manual updated regularly? What kind of chart of accounts is used (commercial, banking, agricultural, cooperative)? Is the chart of accounts appropriate for the MIS?

- ★ Are the MFI's information systems adequate for current operations? Are operational and financial managers making optimal use of the MIS in day-to-day operations? Is the MIS flexible enough to handle the addition of new products? Is the MIS adequate for expected growth in the medium term? Should it be upgraded, and if so, how? Does the MFI need to fix its MIS so that stakeholders can trust its numbers?

Given the analyst's experience and the time available for the appraisal, will a separate review by an MIS expert be necessary to answer these questions?

## 2.9 Internal control system, audits, and supervision

### ★ 2.9.1 Internal control system

Describe the internal controls in place. Comment on the security of cash management systems. What are the different levels of control (who is assigned to which functions)? Are duties suitably segregated to ensure effective controls? How formal is the internal control system (is it written into manuals, procedures, job descriptions)?

### 2.9.2 External audit

Who are the external auditors? Are they internationally affiliated? What is their local reputation? Do they provide assistance to the MFI in designing or maintaining its accounting or internal control system? Do they certify its financial statements? Do they issue management letters to the institution? If so, review recent management letters. Do they contain meaningful recommendations, or are they mainly boilerplate? Does the institution follow up on the recommendations?

Do the board and management regard external audit as a useful tool or a pro forma requirement? Is the audit function managed by the board or essentially delegated to management?

If possible, contact the audit team member responsible for reviewing the MFI's loan portfolio and ask for a description of the tests conducted. Characterize the adequacy of those procedures. (CGAP's audit handbook provides a useful benchmark.<sup>2</sup> External audits seldom furnish meaningful assurance about the quality of an MFI's portfolio.)

★ *2.9.3 Internal audit*

Does the MFI have an internal audit function? Is it provided by in-house staff or by an outside party such as the institution's external audit firm? To whom do the internal auditors report? Is the internal audit meaningfully independent of management? Describe the main tasks carried out by the internal auditors, focusing on the relationship of the internal audit function to the institution's internal control system and the interaction between internal and external auditors.

As part of the internal audit function or as a separate function, do people with client management experience (such as former loan officers) carry out regular, unannounced spot checks of the MFI's branches, loan officers, and clients?

★ *2.9.4 Fraud control*

How are credit operations audited or controlled for fraud? Once detected, how is fraud dealt with in the institution? (Give examples.)

★ *2.9.5 Public and prudential supervision*

Describe the supervision (type, frequency, and extent) of the MFI by public agencies. If the institution is subject to supervision by a bank superintendency or similar agency that supervises financial institutions, how competent is that agency thought to be?

- ★ How adequate are the control, audit, and supervision systems for the current operations of the MFI? How adequate will they be for its operations projected for the medium term? How could they be improved?

★ **2.10 Financial manager**

Who is the MFI's principal financial manager? Are his or her financial skills adequate for the institution's present needs? For its future needs?

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★ **2.11 Experience and recommendations of other donors**

How do other donors that have supported the MFI characterize their experience? Would they recommend that CGAP support the institution? Do their recommendations include any significant qualifications? Do other donors' plans for future support conflict or overlap with potential CGAP support?

**Notes**

1. See Charles Waterfield and Nick Ramsing, *Management Information Systems for Microfinance Institutions: A Handbook* (Washington, D.C.: CGAP, 1998).

2. See CGAP, *External Audits of Microfinance Institutions: A Handbook* (Washington, D.C.: CGAP, 1998).



## 3 Services, Clientele, and Market

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### 3.1 Services

#### ★ 3.1.1 Loans

Describe the institution's principal loan products, including information on compulsory savings (savings required as a condition for loans). For each class of loan (broken out by product and delivery vehicle—for example, solidarity group working capital loans and individual equipment loans) indicate:

- ★ • The loan delivery methodology.
- ★ • The length of time between a client's first contact with the MFI and the disbursement of the client's initial loan, and between a client's final payment of one loan and the disbursement of a repeat loan to that client.
- The terms of a representative transaction (the amount and timing of all payments or receipts, including all interest, commissions, or other charges, and complete details on compulsory saving or compensating balance requirements). This information must be specific enough to permit computation of the theoretical interest yield for the institution and the cost of a loan to the client.
- ★ • The theoretical interest yield for the institution, expressed as an annual percentage rate (APR), and the cost to the client for each class of loan service. Use the computation methodology in the annex and show the full details of the computation.
- ★ • The initial loan size, and the schedule or rules determining how much the loan amount can increase for repeat loans.
- The size distribution of loans across reasonable ranges based on outstanding balances or initial loan size—whatever breakout the institution can provide. When possible, provide information on the median loan or outstanding balance, currently and over time.
- ★ • Dropout and retention rates. Provide any information that the institution has on the likelihood that a client will come back for a repeat loan. Either of the following calculations will produce a useful dropout rate for a given period: they are not sensitive to the rate of growth in the number of clients, and they allow for the fact that clients often return for repeat loans after “sitting out” for a time.

$$(1) \quad DR = 1 - (FL / LPO),$$

where  $DR$  is the dropout rate for the period,  $FL$  is follow-up loans (all new loans issued during the period other than initial loans to first-time clients), and  $LPO$  is loans paid off during the period.

$$(2) \quad DR = \frac{NC - (AC_{\text{end}} - AC_{\text{begin}})}{AC_{\text{begin}}}$$

where  $DR$  is the dropout rate for the period,  $NC$  is the number of new clients taking out first-time loans during the period,  $AC_{\text{end}}$  is the number of active clients at the end of the period, and  $AC_{\text{begin}}$  is the number of active clients at the beginning of the period.

- ★ Does the institution's management monitor dropout rates? Is it aware of the cost of dropouts in terms of higher administrative expenses to process new borrowers and lower interest revenues due to smaller loans? Does it investigate reasons for client dropout and factor this information into its product design?

For village banking or other models in which the MFI does not lend directly to individual customers, provide the information listed above for the grant or loan transactions between the institution and the village banks and for the transactions between the village banks and their borrowers.

### 3.1.2 *Voluntary savings*

Provide the following information for each voluntary deposit instrument, such as passbook savings and time deposits (compulsory savings are described as part of loan services, in the previous section):

- The number of current depositors
- The distribution of accounts by size, if available, or the average account balance
- The estimated administrative cost of capturing deposits, as a percentage of the amount mobilized.

### 3.1.3 *Other financial services*

Describe any financial services other than loans or deposits. Do they enhance the

MFI's core loan and deposit services? Are they tied to these core services, or may customers freely choose whether to use them?

In addition, indicate:

- The number of customers using the service in the most recent period
- The costs and revenues associated with the service in the most recent period.

Comment on the quality of each financial service in terms of:

- ★ • Timeliness
- ★ • Appropriateness of loan terms and conditions given the customer profile
- ★ • Convenience and transaction cost for customers
- Client relations
- Other relevant characteristics.

#### ★ 3.1.4 *Nonfinancial services*

Describe all nonfinancial services:

- Are the nonfinancial services tied to financial services (for example, is business training required as a condition for a loan)?
- Do clients pay for the services? If so, how much for each service? What percentage of the fully loaded cost of the service is this amount?
- Is the provision of the services viewed as important to enhance the financial services provided, or do they have a separate purpose?
- How does the provision of the nonfinancial services affect the financial services? For example, do the financial ones cross-subsidize the nonfinancial ones?
- Are the nonfinancial services managed separate from the financial services? If not, does their provision impede financial management?
- Can the institution's accounting system credibly separate the financial from the nonfinancial operations?

For each nonfinancial service conducted by the MFI and included in its financial statements, give the following information:

- The number of customers using the service in the most recent period
- The operational income related to the service
- The operational expense related to the service, including allocation of overhead
- The profit (loss) related to the service.

### 3.2 Outreach

★ 3.2.1 *Branch structure*

Where does the institution provide its services (table 3.1)? Classify these sites by size and type (for example, large cities, secondary cities, towns, or rural villages). What approximate share of customers are rural, and what share urban? What is the population size of the cities in which the institution operates?

★ 3.2.2 *Loans*

To the extent possible, provide information in table 3.2 for each type of loan product identified in section 3.1.1. If historical data for previous years are easily available, include them. (Some of this information is repeated in section 5.5.)

Where a client can have more than one loan outstanding at a time, provide if possible the total number of active clients (that is, clients with one or more loans outstanding) in addition to the total number of loans outstanding. If the MFI has “members” who may not have a loan outstanding at a given point, provide if possible the total number of members for comparison with the number of active loans and the number of active loan clients.

### 3.3 Clientele

3.3.1 *Market*

★ What has the MFI defined as its market or markets? If the institution has estimates of its market size, include them and briefly describe how they were derived. Do not ask its managers to generate new estimates of market size for the appraisal.

TABLE 3.1

**Distribution of the institution**

	— —	— —	★ Most recent year	Current, as of
	— —	— —	— —	— —
Branch offices				
Posts (service-providing units not located in permanent, dedicated quarters)				
Village (or communal) banks				
Employees per branch				
Loan officers per branch				

*Note:* Branches, posts, and village banks are only three of the possible options for geographic organization. This table can be modified to reflect the appropriate unit of analysis.

TABLE 3.2  
**Outreach summary**

			★ Most recent year	Current, as of
	—	—	—	—
<i>Loan product 1:</i> _____				
★	1. Number of active loans at end of period			
★	2. Percentage of clients who are women			
★	3. Average balance per loan (specify currency)			
★	4. Average balance per loan as a percentage of per capita GDP			
<i>Loan product 2:</i> _____				
	.			
	.			
	.			
<i>All loan products</i>				
	.			
	.			
	.			

- ★ What mechanisms does the MFI have to generate feedback from clients or potential clients about the services it offers or might offer? What determines the design of the services it offers? Does the institution conduct regular market studies? How?
- ★ What other formal institutions serve the same microfinance market? How are their services similar to, and different from, the MFI's? What are the MFI's comparative advantages and disadvantages in relation to these providers?

Are there noteworthy external threats or opportunities that bear on the MFI's ability to penetrate its market?

### 3.3.2 *Clients and poverty targeting*

How does the MFI describe its clients? Can it stratify these clients into different groups that share important characteristics (such as market vendors, clothing manufacturers, and the like)?

- ★ What is the nationally defined poverty line? How is it set? What percentage of the national population is below it?
- ★ How does the institution characterize the socioeconomic level of its clients? In what range on the national income scale does it think its clients lie? (Relate this

to the poverty line, if possible.) Is this characterization based on research or analysis? How, if at all, does the institution screen its clients on the basis of their means? Does it use any proxy indicators? What are the main ways in which the client group is “marginalized”?

## 4 Strategic Objectives

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### 4.1 Mission and objectives

- ★ Describe the organization's mission and key objectives, focusing more on the vision of leaders than on formal charters.
- ★★ Try to convey a tangible feel for the vision that motivates the MFI's management and staff. Do they think of themselves as helping the poor? Creating opportunities for the poor? Building the businesses of their clients? Providing efficient financial services? Do they think of the people who use the institution's services as beneficiaries or customers?
- ★ How strongly do these objectives appear to affect the energy and behavior of staff throughout the organization? (This question can usually best be answered through private interviews with randomly selected staff, especially loan officers.)
- ★★ How large a clientele does the institution want to reach over the long term? What does management think it will have to do to achieve this size?
- ★★ In particular, does management intend to leverage commercial resources? Does it have any concrete plan for doing so? Does it have a realistic understanding of the hurdles the institution will have to surmount to do so?
- ★★ How do management and staff's vision, mission, and objectives bear on the likelihood that the MFI will reach massive numbers of very poor clients with sustainable financial services?

### 4.2 Objectives for the near to medium term

This section need not be based on a formal business plan.

- ★ *4.2.1 General direction*  
Where does the MFI want to go in the next one to three years?

### 4.2.2 Key indicators of scale and outreach

Give three years of historical year-end data and three years of projections for the indicators in table 4.1, to the extent the information is applicable and available. If the appraisal is being conducted more than six months after the end of the MFI's fiscal year, try to provide current information as well (for example, as of the most recent midyear). If the institution does not have future-year projections for the indicators in the table, it need not construct them for this appraisal. It is sufficient at this stage to report its plans and aspirations in whatever degree of detail it has worked them out.

### ★ 4.2.3 Key changes

Describe any major changes expected in:

- Services to be offered
- Operational methodology (for example, the loan technology)
- Organizational structure

TABLE 4.1

### Projected performance

	Actual			★ Projected		
	—	—	★ Most recent year	Current, as of	—	—
★ 1. Total outstanding loan balance (US\$) <sup>a</sup>						
★ 2. Number of active loans <sup>a</sup>						
★ 3. Average loan balance (US\$) (line 1 divided by line 2) <sup>a</sup>						
★ 4. Total balance of voluntary savings accounts (US\$)						
★ 5. Number of voluntary savings clients						
★ 6. Average voluntary savings balance (US\$)						
7. Total balance of certificates of deposit (time deposits) (US\$)						
8. Number of holders of certificates of deposit						
★ 9. Number of staff						
★ 10. Number of branch offices						

a. Historical data are disaggregated in section 5.5.1.

- External relations and supervision
- Methods of financing.

#### ★ 4.2.4 *Business planning and financial modeling*

- ★ Does the MFI have a medium-term—say, three- to five-year—strategic financial or business plan? Does it generate overall annual budgets—that is, beyond budgeting for specific projects? Does it generate management reports comparing actual results with its strategic plan, business plan, or budgets? Describe the planning or global budgeting process. Does it include all the major actors responsible for producing overall institutional results? Attach the most recent strategic or business plan, financial projections, overall budget, and report of performance against budget, if they exist. Assess the quality and usefulness of this planning.

*Do not prepare a financial projection for the MFI.* Such projections should be prepared by the institution itself (with external assistance if necessary), in a process that usually requires several months. Business plans prepared by consultants in response to external requirements, with “input” from the client organization, almost always end up just sitting on the shelf.

- ★ Provide an assessment of the projections, including answers to these questions:

- ★ • Is the financial projection consistent across different accounts?
- ★ • Is the projection built on assumptions (on costs, number of loans per staff, growth rates, and the like) that appear reasonable in light of the institution’s past experience and the experience of similar MFIs elsewhere? In particular, do the assumptions about loan officer or branch productivity square with the performance of the institution’s more mature loan officers or branches?
- What is the basis for the projection of portfolio growth? (Among other factors, distinguish growth in average loan size from growth in the number of clients.) Are the assumptions about average loan size based on historical analysis of actual loan demand by longtime clients?

#### ★ 4.2.5 *Challenges*

Evaluate the main challenges facing the MFI in institutional development and organizational structure (section 2) in light of its near- and medium-term strategic objectives (section 4).



# 5 Financial Performance

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## ★ 5.1 Income statement and balance sheet

Provide an income (profit and loss) statement and a balance sheet (before adjustments for inflation and subsidies), for the three most recent years if possible.<sup>1</sup> To the extent possible, format the statements into the chart of accounts shown in tables 5.1 and 5.2. Place the following notation just below the date for each column: *P* for preliminary (not yet fully reconciled or approved internally), *U* for unaudited (final data prepared internally), and *A* for audited (by independent external auditors). Provide explanatory notes for all appropriate items, especially any derived using a method that differs from the instructions here.

If the institution provides nonfinancial services that are not an integral part of its financial services delivery, to the extent possible present the income, expenses, assets, and liabilities associated with those services separately and briefly indicate the method used for allocating costs or other items among the different services.<sup>2</sup> *Where such a separation is not possible, explain why it is not.*

State whether the institution uses cash or accrual accounting. If it uses accrual accounting, explain in precise detail the policy with regard to stopping and reversing the accrual of interest income on nonperforming loans, including the period after which loans are classified as nonperforming.

Some financial ratios compare income statement items with balance sheet items. Revenues and expenses found in the income statement are flows during a period, and balance sheet items are end-of-period stocks. For any ratio used here that divides a flow in the numerator by a stock in the denominator, take the average of the stock value to ensure the comparison of equivalent values. Use monthly averages when possible, particularly for calculating the average outstanding portfolio. Clearly identify whether averages are calculated on a monthly or yearly basis.

Some ratios are typically expressed on an annual basis, including adjusted return on assets, adjusted return on equity, administrative efficiency, operational efficiency, and yield on portfolio. When working with partial-year data, it is necessary to annualize such ratios for comparison with previous years. While more accurate annualization methods could be used, the simplest method is to calculate the ratio for the partial-year period (such as six months) and then annualize the *ratio* (not the raw

TABLE 5.1

**Income statement**

Account	Explanation
<i>Operating income</i>	
1. Interest and fee income from loans	All income on loans to clients (Use cash basis, or separate accrued interest from actual receipts. When loans become nonperforming, new accrual of unpaid interest should cease and old accruals of unpaid interest should be reversed.)
2. Income from other finance-related services (indicate which)	Fees for savings passbooks, insurance premiums, and the like
3. Income from investments	Interest from bank accounts or investments in market instruments used primarily for liquidity management
4. Total operating income	
<i>Operating expenses</i>	
5. Interest and fee expense	Interest and fee expenses for all loans, deposits, or other liabilities funding the financial services operations
6. Loan loss provision expense	Cost of creating and maintaining the loan loss provision (If current period write-offs exceed reserves, take this expense here.)
7. Administrative expense, personnel	All staff and consultant costs, including payroll taxes and fringe benefits (preferably on an accrual basis, especially for major future benefits such as severance pay obligations)
8. Other administrative expense	Broken out into no more than 10 categories (for example, rent, transportation, supplies, utilities, fees, depreciation, and other)
9. Total operating expenses	
10. Net operating profit (loss)	
<i>Nonoperational income</i>	
11. Cash donations for financial services	All income not produced by financial services operations Should exclude in-kind donations of goods and services, which are reflected in section 5.2.2
12. Other nonoperational income (if any)	Income from investments that play no part in the delivery of financial services, from nonfinancial services, from the sale of land, from consultancies, and the like
13. Nonoperational expenses	Any expenses not related to the institution's financial services business, such as an evaluation or impact study mandated by a donor
14. Total consolidated profit (loss)	Net operating profit (loss) plus nonoperational income, minus nonoperational expenses

TABLE 5.2

**Balance sheet**

Account	Explanation
<i>Assets</i>	
15. Cash and due from banks	Cash on hand, sight deposits, checking accounts, and other instruments paying little or no interest
16. Reserves in central bank	Relevant only for licensed financial intermediaries
17. Short-term investments in market instruments	Interest-bearing deposits and investments in financial instruments, where the principal purpose is liquidity management
18. Total loan portfolio	Total outstanding balances of loans to clients, including loans past due but not written off
19. (Loan loss reserve)	A negative asset account, set aside against estimated future losses on problem loans not yet written off
20. Other short-term assets	Accounts receivable, accrued interest on loan portfolio, and the like
21. Long-term investments	Stock in other enterprises or other long-term, illiquid assets that earn returns
22. Net fixed assets	Land, buildings, and equipment, net of accumulated depreciation
23. Total assets	
<i>Liabilities</i>	
24. Savings accounts, compulsory	Compulsory savings required as a condition for loans
25. Savings accounts, voluntary	Liquid deposits from the general public
26. Time deposits	Certificates of deposit held by the general public
27. Loans, commercial	Loans to the institution at market rates from banks or other financial institutions
28. Loans, central bank	Rediscount or other special lines of credit from the central bank
29. Loans, subsidized	Concessional loans from donors and others
30. Other short-term liabilities	Accounts payable, accrued interest to be paid on loans and deposits, and the like
31. Other long-term liabilities	Mortgages on property and the like
32. Total liabilities	
<i>Equity</i>	
33. Paid-in equity from shareholders	Equity contribution of owners of stock
34. Donated equity, prior years, cumulative	Equity received through cash donations from sources that do not receive stock (In-kind donations are reflected in section 5.2.2.)
35. Donated equity, current year	Equity received through cash donations from sources that do not receive stock (from line 11)

*(table continues on next page)*

TABLE 5.2

**Balance sheet (continued)**

Account	Explanation
36. Prior years' retained earnings (losses), not including cash donations	Accumulated earnings from prior periods only
37. Current year's retained earnings (losses)	From line 10
38. Other capital accounts	Any special reserves or other capital accounts, plus any retained earnings from nonfinancial operations (line 12 minus line 13)
39. Total equity	
40. Total liabilities and equity	Must be the same as line 23

financial statement data) by dividing by the number of months for which data are available and multiplying by 12. State clearly which annualization method is used.

The loan portfolio should be adjusted to include estimates of likely loan losses (see line 19 of table 5.2). If the MFI has a provisioning method derived from a reasonable analysis of past loss experience, that method may be used in estimating the loan loss reserve. If not, the provisioning method illustrated in the Inter-American Development Bank's *Technical Guide for the Analysis of Microenterprise Finance Institutions* (see box 1) or the following, slightly more lenient provisioning schedule could be used:

- 1–30 days late: 10 percent of full remaining unpaid balance
- 31–90 days late: 25 percent of full remaining unpaid balance
- 91–180 days late: 50 percent of full remaining unpaid balance
- More than 180 days late: 100 percent of full remaining unpaid balance.

In the absence of information to support a more sophisticated provision policy, a simple alternative is to provision a fixed percentage (say, 2 percent) of every loan at the time of its disbursement.

The choice of provisioning method can have a substantial impact on certain financial ratios. Thus whatever method is used should be fully explained in a note to the balance sheet.

There are several accounting methods for booking donor funds for an MFI. The important principle here is that all donor funds for current and previous years should appear separate from retained earnings and other items in the equity section of the balance sheet. Whether donor funds flow through the income statement from line 11 or are booked directly into the balance sheet on line 35 (or in a subaccount or subaccounts under line 35), the balance sheet should transparently show the distribution of equity among retained earnings, donor contributions, and other accounts.

Does the MFI adhere to accepted accounting standards? Are the financial statements reliable? Explain in detail any potential sources of distortion or other concerns. If significant reformatting of the MFI's financial statements was necessary to conform to the suggested format, describe the process and problems encountered.

## 5.2 Adjustments for inflation and subsidies

### ★ 5.2.1 *Shadow prices*

For each of the three most recent years indicate the local currency rates in table 5.3 as of the year-end.

For the interest rates use annual percentage rates (APR) when available (starting with the effective rate for one period, annualize the rate by multiplying it by the number of periods in a year) and indicate when rates are not annual percentage rates. Indicate the source (preferably nongovernmental) for each indicator.

### ★ 5.2.2 *Adjustments*

The subsidized cost of funds adjustment calculates the cost of an MFI's liabilities as if it were raising funds on local commercial markets (see line 3 of table 5.4). The price of such commercial funds is called the shadow price. If the institution already borrows commercial funds, use the marginal rate to the institution for the shadow price (see table 5.3). In the absence of a more precise yardstick, use the

TABLE 5.3

#### Shadow prices

(percent, except where otherwise indicated)

	Most recent year		
	—	—	—
Inflation rate			
GDP deflator			
Interbank lending rate			
90-day certificate of deposit rate			
Prime rate paid by commercial bank borrowers			
Marginal commercial rate available to the MFI <sup>a</sup>			
Per capita GDP (US\$)			
Exchange rate (local currency/US\$)			

a. For MFIs with access to commercial funds the marginal commercial rate is the rate at which the institution can expect to borrow additional commercial funds in the immediate future. Justify this rate in the text.

TABLE 5.4  
Adjustments for inflation and subsidies

	— —	— —	★ Most recent year	Current, as of
	— —	— —	— —	— —
1. Unadjusted operating expenses in local currency (line 9 of table 5.1)				
2. Inflation adjustment (average equity minus average net fixed assets, times the inflation rate) <sup>a</sup>				
3. Subsidized cost of funds adjustment				
4. In-kind donation adjustment				
a. Personnel				
b. Other				
5. Adjusted operating expenses (sum of lines 1–4)				
6. Adjusted operating profit (loss) (line 4 of table 5.1 minus line 5 above)				

*Note:* Include supporting calculations in the text for lines 2 and 3.

a. If possible, calculate monthly averages by summing the opening balance and the end-of-month balances and then dividing by the number of months plus one. As an alternative, use quarterly or annual balances. If the income statement and balance sheet (tables 5.1 and 5.2) include an inflation adjustment according to generally accepted practice in the MFI's country, leave this section blank. The use of average balances here and in the accompanying spreadsheet is a simplified deviation from standard inflation accounting. Analysts who wish may use opening balances instead; in this case, a separate adjustment should be calculated if there has been some major change in the balance sheet during the year (for example, a large grant), using the accumulated inflation between the time of the grant and the end of the year.

inflation rate or the rate that commercial banks charge conventional medium-grade customers, whichever is higher. If using a bank deposit rate lower than the rate for 90-day certificates of deposit as a yardstick, add an appropriate amount to reflect the institution's likely cost of administering such deposits. Indicate what kind of yardstick rate has been selected and the source for determining that rate. The formula for this adjustment is to multiply the shadow price (or marginal cost of funds) by average funding liabilities (from all sources; lines 24–29 of table 5.2). From this amount, subtract interest and fee expense (from line 5 of table 5.1).

If an MFI funds a significant percentage of its portfolio with compulsory savings, and expects to continue funding the same percentage with compulsory savings as it expands in the future, the procedure in the previous paragraph will overstate the additional funding costs the MFI will face as it moves toward unsubsidized operations. In such a case the compulsory savings liability and the interest expense paid on this liability can both be excluded from the calculation of the subsidized cost of funds adjustment.

In estimating the in-kind donation adjustment, include the cost, or fair market value, of goods and services whose costs do not show up on the MFI's books but

that are important to the conduct of its business—for example, a rent-free building or a donor-paid technical adviser (see line 4 of table 5.4). For long-term foreign advisers any such arrangement should be described in detail, including how long the institution expects to require these expatriate services and how appropriate the services appear to be.

To adjust partial-year data, use partial-year inflation rates and shadow prices. Since inflation and interest rates are stated in annual terms, divide them by 12 and then multiply by the number of months. Use these rates to adjust the partial-year data. For example, if inflation is 12 percent a year and six months of data are available, apply 6 percent to average equity minus average fixed assets to get the inflation adjustment for the six-month period.

### ★ 5.3 Profitability

Provide information in table 5.5 for each of the three most recent years, indicating whether amounts are estimated. Be sure to annualize partial-year ratios for lines 1–3 (see section 5.1). Where possible, use monthly averages (see note a to table 5.4).

TABLE 5.5

#### Profitability (percent)

			★ Most recent year	Current, as of
	—	—	—	—
1. <i>Return on assets</i>				
	Operating profit (line 10 of table 5.1) divided by average total assets (averaged from line 23 of table 5.2)			
2. <i>Adjusted return on assets</i>				
	Adjusted operating profit (line 6 of table 5.4) divided by average total assets (averaged from line 23 of table 5.2)			
3. <i>Adjusted return on equity</i>				
	Adjusted operating profit (line 6 of table 5.4) divided by average equity (averaged from line 39 of table 5.2)			
4. <i>Operational self-sufficiency (excluding cost of funds)</i>				
	Operating income (line 4 of table 5.1) divided by sum of loan loss, personnel, and administrative expenses (lines 6–8 of table 5.1)			
5. <i>Operational self-sufficiency</i>				
	Operating income (line 4 of table 5.1) divided by total operating expenses (line 9 of table 5.1)			
6. <i>Financial self-sufficiency</i>				
	Operating income (line 4 of table 5.1) divided by adjusted operating expenses (line 5 of table 5.4)			

- ★ Is the MFI profitable? If not, why not? What is management's attitude toward profitability? Are subsidy and inflation adjustments, or at least the concept behind them, part of management's regular thinking about the institution and its objectives? Since a history of declining losses is no guarantee that an MFI will reach profitability, express a view on whether, and when, the institution can be expected to become profitable (that is, when the adjusted return on assets exceeds zero). If the institution has future-year financial projections, do they show profitability after the adjustments described in this section?

How does the institution compare with other microfinance institutions at comparable stages in their evolution?

Do trends in the distribution of the institution's assets, liabilities, and equity have an important effect on profitability?

## 5.4 Efficiency

### 5.4.1 Indicators

Give data for the indicators in table 5.6 for the three most recent years. Be sure to annualize partial-year ratios for lines 1 and 2 (see section 5.1). Where possible, use monthly averages (see note a to table 5.6).

### 5.4.2 Contributing factors

Describe factors that enhance or detract from the institution's actual or potential efficiency.

In a rapidly growing MFI most clients, staff, and branches are new, so today's efficiency performance may not indicate the performance likely in the future, when growth slows and clients, staff, and branches are more mature. Present any information that the institution can produce about the performance of mature loan officers or branches on any of the indicators in table 5.6.

Does the institution have substantial excess capacity? Is it in a high-growth phase? If so, and if there is no substantial change in its service delivery methodology, what kind of efficiency indicators can reasonably be expected in the medium term, as excess capacity is taken up, growth slows, and the average size of outstanding loans increases?

If management is contemplating substantial change in the loan methodology—for example, an increase in the maximum loan officer caseload—what kind of performance can reasonably be expected in the medium term?

TABLE 5.6

**Efficiency**

			★ Most recent year	Current, as of
			--	--
★	1. <i>Administrative efficiency</i> Personnel expense (line 7 of table 5.1) plus other administrative expense (line 8 of table 5.1) plus in-kind donation adjustment (line 4 of table 5.4), divided by average net portfolio (the average of total loan portfolio, from line 18 of table 5.2, minus loan loss reserve, from line 19 of table 5.2) <sup>a</sup>			
	2. <i>Operational efficiency</i> Operating expenses (line 9 of table 5.1) plus in-kind donation adjustment (line 4 of table 5.4), divided by average net portfolio (as in line 1 above)			
	3. <i>Administrative cost per active loan</i> Personnel expense (line 7 of table 5.1) plus other administrative expense (line 8 of table 5.1) plus in-kind donation adjustment (line 4 of table 5.4), divided by average number of active loans for the year (averaging data from line 2 of table 4.1)			
★	4. <i>Personnel costs as a percentage of total administrative costs</i> Personnel expense (line 7 of table 5.1) plus in-kind donation adjustment for personnel (line 4a of table 5.4), divided by personnel expense (line 7 of table 5.1) plus other administrative expense (line 8 of table 5.1) plus in-kind donation adjustment (line 4 of table 5.4)			
	5. <i>Number of line staff as a percentage of total staff, end of period</i>			
★	6. <i>Number of active loans per staff member, end of period</i>			
★	7. <i>Number of active loans per loan officer, end of period</i>			
★	8. <i>Outstanding portfolio per loan officer, end of period</i>			
	9. <i>Number of loans per branch office, end of period</i>			

a. If possible, calculate monthly averages by summing the opening balances and the end-of-month balances, then dividing by the number of months plus one. As an alternative, use quarterly or annual balances.

How committed is management to efficiency? How does the institution compare with “best practice” MFIs on efficiency indicators, taking into account its stage of evolution?<sup>3</sup> Is a high interest spread camouflaging unnecessarily high operating costs?

## ★ 5.5 Loan portfolio analysis

### ★ 5.5.1 Portfolio data

Provide data on the indicators in table 5.7, broken out if possible for each loan product identified in section 3.1.1. Where possible, use monthly averages (see note a to table 5.6). If there is more than one loan product, include a table showing totals for all loan products.

#### LOAN LOSS RATE

There are several methods for deriving an annual loan loss rate:

- For the unusual MFI with a sensible and consistently executed write-off policy, the year's write-off (line 5 in table 5.7) can be divided by the approximate average portfolio at the time the loans being written off this period were originated. (In a growing MFI, comparing today's write-offs with today's portfolio understates the actual loan loss rate.)
- For the very unusual MFI using scientific provisioning,<sup>4</sup> the annual increase in loan loss reserves, before write-offs, can be divided by the average outstanding portfolio for the year.

Finally, the recovery, or repayment, rate can be used to estimate annual loan losses as a percentage of the outstanding portfolio (see the following section). The numerator of the rate should reflect all loan payments actually received during the period, and the denominator should include all payments that fell due for the first time during the same period.

#### RECOVERY OR REPAYMENT RATE

If the institution is unable to produce a portfolio-at-risk delinquency rate, as called for in table 5.7, report a current recovery rate as an alternative, such as

$$\frac{\text{Total principal payments received this month}}{\text{Total principal payments falling due this month under the terms of the original loan contracts}}$$

for a series of recent periods. Principal plus interest totals could also be used in both numerator and denominator. Many institutions calculate such a rate on a cumulative basis, though a cumulative rate for several years may give little clue as to what has happened in recent periods. Over short periods this rate can exceed 100 percent as a result of late payments and prepayments.<sup>5</sup>

This kind of recovery, or repayment, rate is prone to a dangerous misinterpretation, however. It might easily be assumed that a recovery rate of 97 percent, for

TABLE 5.7

**Portfolio data***(U.S. dollars, except where otherwise indicated)*

			★ Most recent year	Current, as of
	—	—	—	—
<i>Loan product 1: _____</i>				
1. Total principal balance outstanding, end of period				
2. Number of active loans (clients), end of period				
3. Average principal balance per client (line 1 divided by line 2)				
4. Average principal balance outstanding over the period <sup>a</sup>				
5. Loan losses written off over the period <sup>b</sup>				
6. Increase in loan loss reserve over the period <sup>c</sup>				
7. Loan loss rate <sup>c</sup>				
	Amt %	Amt %	Amt %	Amt %
8. Total outstanding balance associated with loans that are: <sup>c,d</sup>				
On time (and never refinanced)				
On time (but have been refinanced)				
Late (at least 1 payment)				
• 1–30 days				
• 31–60 days				
• 61–90 days				
• 91–180 days				
• 181–360 days				
• 1 year or more				
9. Portfolio-at-risk delinquency rate (more than 30 days late)				
<i>Loan product 2: _____</i>				
·				
·				
·				
<i>All loan products</i>				
·				
·				
·				

a. If possible, calculate monthly averages by summing the opening balance and the end-of-the-month balances and then dividing by the number of months plus one. As an alternative, use quarterly or annual balances. If the income statement and balance sheet (tables 5.1 and 5.2) include an inflation adjustment according to generally accepted practice in the MFI's country, leave this section blank. The use of average balances here and in the accompanying spreadsheet is a simplified deviation from standard inflation accounting. Analysts who wish may use opening balances instead; in this case, a separate adjustment should be calculated if there has been some major change in the balance sheet during the year (for example, a large grant), using the accumulated inflation between the time of the grant and the end of the year.

b. Record write-offs, not provisions, here. Include the outstanding balance of loans with payment more than a year overdue, even if they have not been written off. The data reported here should be consistent with the write-off policy described in section 5.5.4.

c. If historical data are not conveniently available, provide current data only.

d. Use an aging scheme that corresponds to the repayment frequency of the loan product. For example, a loan repaid weekly would be aged 1–7 days late, 7–14 days late, and so on.

example, translates into an annual loan loss rate of 3 percent of portfolio. But this assumption is a serious error, because it fails to recognize that the recovery rate is based on loan amounts disbursed, which tend to be roughly double the outstanding portfolio appearing in the MFI's books, and that the amount of loss implied by the recovery rate occurs each loan cycle, not once a year. For an MFI that provides three-month loans repaid weekly, a 97 percent current recovery rate translates into a loss of 22 percent of its average outstanding portfolio each year.

If the current (or cumulative) recovery rate is computed, the following equation provides a tentative estimate of likely annual loan loss rates:

$$L = 2(1 - RR)^{12/t}$$

where  $L$  is the annual loan loss rate,  $RR$  is the cumulative, or average, recovery rate, and  $t$  is the average loan term in months. Averages should be weighted if possible. This method of approximating the annual loan loss rate can be superior to those suggested above if the MFI maintains reliable and accessible information on amounts recovered relative to amounts due, especially for the typical case in which the institution lacks suitable write-off and provision policies applied consistently over the years.

What is important in any of these cases is to avoid double counting in the denominator: for example, a payment not made on schedule on January 1 shows up in the January denominator, but just because it continues to be unpaid does not mean that it should be included in the February denominator.

#### ARREARS RATES

*In reporting rates of arrears, do not use the ratio of overdue payments to outstanding portfolio or to total original loan amount.* While common among MFIs, both these methods tend to camouflage the real level of portfolio risk. Whatever method is used should be explained in clear detail.

#### ★ 5.5.2 *Delinquency measurement*

How does the MFI routinely measure delinquency? Is this system adequate? Does the institution properly assess its risk with this measurement?

#### ★ 5.5.3 *Delinquency management*

If the institution's delinquency rate (portfolio at risk more than 30 days) exceeds 5 percent or the average current recovery rate for any of its loan products is less than 98 percent, does management have a realistic plan—and the will—to improve this performance in the near term (less than 12 months)?

★ *5.5.4 Provisioning*

Describe the institution's policy for provisioning and write-off for each type of loan product identified in section 3.1.1.

★ *5.5.5 Refinancing*

Describe the MFI's policy on refinancing delinquent loans. (Indicate in detail the treatment of refinanced or rescheduled loans for purposes of delinquency calculations.)

Is the MFI's provisioning and write-off policy prudently conservative, in light of historical performance and any other factors that bear on portfolio risk? Has the institution changed its provisioning, write-off, or refinancing policy dramatically over the past three years? What is the reason for the change (new regulations, new perception of risk, management letter from auditors)?

★ *5.5.6 Collection*

Describe the institution's collection procedures, indicating when and how it takes action. (For example, what happens when a loan is 1 day late, 90 days late, and so on?) Does actual practice correspond to its official collection policy?

★ *5.5.7 Crises*

Has the institution experienced any late-payment crises in the past seven years? (How does it define *crisis*?) If so, what did it do about each crisis, with what result?

How do the MFI's attitude and practice with regard to controlling delinquency compare with those of industry leaders?

## 5.6 Liquidity management

Describe the liquidity planning and management techniques used by the MFI.

- ★ Has the institution experienced periods of illiquidity that have caused credit services to deteriorate? Describe any such episodes and the institution's response.
- ★ Describe the institution's current and historical liquidity situation, using appropriate ratios and periods.

- ★ Does the MFI show a basic understanding of the need to manage liquidity in a way that avoids even temporary credit restrictions, taking into account the likelihood of unexpected delays in donor disbursements and the potential volatility of its deposit base? Has management been willing to change the terms, frequency of payments, or interest rates on loans to bring revenues into line with financial inflows?

## 5.7 Interest rate analysis

### ★ 5.7.1 *Actual compared with theoretical interest yield*

To calculate effective interest yields for single periods using a financial calculator, use the methodology outlined in the annex. If the rate is not stated as an annual rate, multiply the periodic rate by the number of periods in a year to produce an annual percentage rate (APR) yield; do not use a compounding method. If the program has compulsory savings, exclude these when calculating theoretical APR yields.

*Note that in some cases there may be a significant discrepancy between the way the methodology in the annex enters cash flows into the calculator and the way these cash flows show up in the MFI's accounting.* In performing a yield gap analysis, make sure that the theoretical (expected) yield is calculated the same way as the actual yield will be calculated from the institution's accounting information. This possible problem will be most pronounced where there are compulsory savings and where prepaid interest or other large amounts are deducted up front at the time of loan disbursement. In these cases a yield gap analysis is sometimes best done using a simple spreadsheet model rather than the financial calculator approach illustrated in the annex. A yield calculation module is available on the diskette included with this appraisal format.

- ★ How big is the gap between lines 4 and 5 in table 5.8? What causes it? Does management understand this dynamic?

If the gap is substantial, try to determine how much of the gap can be explained by the institution's reported delinquency.<sup>6</sup>

### ★ 5.7.2 *Rate setting*

Describe the process by which the institution sets, reviews, and changes loan and deposit interest rates.

TABLE 5.8  
Comparison of actual and theoretical yield

			Most recent year
	—	—	—
<i>Loan product 1:</i> _____			
1. Theoretical interest yield (APR)			
2. Loan product as a percentage of total outstanding year-end net loan portfolio (line 18 of table 5.2 minus line 19) <sup>a</sup>			
3. Line 1 times line 2			
<i>Loan product 2:</i> _____			
.			
.			
.			
<i>Loan product 3:</i> _____			
.			
.			
.			
4. Weighted theoretical interest yield (sum of line 3 for all loan products)			
5. Actual yield on portfolio (interest and fee income from loans [line 1 of table 5.1] divided by average net portfolio)			
6. Yield gap ratio (line 5 as a percentage of line 4)			

a. Use net loan portfolio here if numbers on reserves by product are available. Otherwise, use average gross portfolio. The sum of the values in line 2 for all loan products should equal 100 percent.

★ 5.7.3 *Legal constraints*

Are there legal constraints (for example, usury laws) that effectively limit the interest rates that the MFI can charge on loans—constraints that cannot be overcome by manipulating interest and fee structures?

★ 5.7.4 *Comparable rates*

How do the MFI's effective interest rates on its credit and savings products compare with those of other microfinance services available on the market?

- ★ Are the MFI's interest rates appropriate and responsive both to its own financial requirements and to external factors such as inflation? Do present lending rates fall below the level needed to achieve full financial self-sufficiency (see line 5 of table 5.5)? If so, by how much, and what is keeping the institution from raising its lending rates? If it believes that its clients are unwilling or unable to pay higher rates, what is the evidence for this?

## 5.8 Liabilities and cost of funds analysis

### 5.8.1 Liabilities

In table 5.9 describe in detail the current composition of the MFI's liabilities.

TABLE 5.9

#### Composition of liabilities

Data as of \_\_-\_\_

##### Liability 1

Creditor

Commercial or noncommercial liability (explain if necessary)

Balance outstanding (US\$ equivalent)

Currency in which repayment is due

Interest rate

Amortization schedule

Details of external guarantee, if any, backing the credit extended to the MFI

Other relevant information

##### Liability 2

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### 5.8.2 Cost of funds analysis

To what degree are the MFI's funds (liabilities and equity) being subsidized?  
Compare the cost of funds to the shadow prices in table 5.3.

What future sources of commercial funding are planned? Comment on the  
feasibility of these or any other commercial sources.

TABLE 5.10

#### Cost of funds analysis

			Most recent year	Current, as of
	--	--	--	--
1. Interest and fee expense (line 5 of table 5.1)				
2. Average funding liabilities (lines 24-29 of table 5.2)				
3. Line 1 as a percentage of line 2				

### 5.8.3 Commercial liabilities

To what extent does the MFI have commercial liabilities?

How high a priority does management put on moving away from dependence on donor funding? Do they have a feasible strategy for doing so? Are they taking the necessary steps? What rate of progress can be expected?

TABLE 5.11

#### Commercial liabilities

			Most recent year	Current, as of
	--	--	--	--
1. Commercial liabilities <sup>a</sup>				
2. Donor and government guarantees				
3. Net commercial liabilities (line 1 minus line 2)				
4. Total assets (line 23 of table 5.2)				
5. Line 3 as a percentage of line 4				

a. See section 5.8.1.

## 5.9 Capital management (solvency)

### 5.9.1 Equity multiplier

Is the MFI's current capital structure adequate to sustain a reasonable level of business risk?

TABLE 5.12

#### Equity multiplier

			Most recent year	Current, as of
	--	--	--	--
1. Total assets, end of period (line 23 of table 5.2)				
2. Total equity, end of period (line 39 of table 5.2)				
3. Line 1 divided by line 2				

★ *5.9.2 Sources of equity*

Where did the MFI's current equity come from (donations, retained earnings, other sources)? (See lines 33–38 of table 5.2.)

Describe how the capital structure relates, if at all, to “ownership” and governance issues. How do the sources of program capital (donors, shareholders, and the like) exercise ownership of the MFI? Do they put representatives on the board of directors or in any way require performance once their capital has been placed? If the institution is a credit union or an entity with a similar structure, pay particular attention to the effectiveness of member ownership.

★ *5.9.3 Capital planning*

What are the MFI's plans for increasing its equity?

- ★ Are these plans realistic? Is the planned expansion of equity adequate in light of the business risks entailed by projected portfolio growth?

## Notes

For all financial information, be sure to indicate the date as of which the information is current.

1. If the appraisal is being conducted more than six months after the end of the institution's fiscal year, try to provide the most recent midyear information as well as information for previous fiscal year-ends.

2. For details on the allocation of costs, revenues, and balance sheet items among different services for multiservice MFIs, see Brigit Helms, “Cost Allocation for Multi-Service Micro-Finance Institutions” (CGAP Occasional Paper 2, World Bank, Washington, D.C., 1998).

3. See the *Microbanking Bulletin* (Washington, D.C.: Calmeadow, 1999). The latest edition is available on the Internet at <http://www.calmeadow.com>.

4. See Robert Peck Christen, *Banking Services for the Poor: Managing for Financial Success* (Washington, D.C.: ACCION International, 1997, pp. 43–67).

5. For more details on calculating delinquency and arrears rates, see Richard Rosenberg, “Measuring Microcredit Delinquency: Ratios Can Be Harmful to Your Health” (CGAP Occasional Paper 3, World Bank, Washington, D.C., 1999).

6. See the analysis in Martin Holtmann and Rochus Mommartz's *Technical Guide for Analyzing the Efficiency of Credit-Granting Non-Governmental Institutions* (Saarbrücken: Verlag für Entwicklungspolitik, 1996, pp. 110–11).

## Calculating Theoretical Interest Yields

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A microcredit interest rate quoted at, say, 3 percent a month may be equivalent to a much higher effective monthly rate, depending on how the loan and its repayment are structured. The real cost to the borrower, and the lending institution's real income from its loan portfolio, can be raised significantly by such practices as:

- Computing interest on the original face amount of the loan (a flat interest charge) rather than on the declining balances remaining in the borrower's hands as successive installments of principal are repaid.
- Requiring payment of interest at the beginning of the loan (as a deduction from the amount of principal disbursed to the borrower) rather than spreading interest payments throughout the life of the loan.
- Charging a commission or fee in addition to the interest.
- Quoting a monthly interest rate, but collecting principal and interest weekly and counting four weeks as a month.
- Requiring a portion of the loan amount to be deposited with the lender as compulsory savings or a compensating balance.

As used here, the effective interest rate of a loan is the rate that the client is really paying, relative to the loan proceeds actually in the client's hands at each point during the life of the loan. It is equivalent to a rate charged on declining balances.<sup>1</sup>

### Computing effective interest rates

The computations of effective interest rate illustrated here can be performed using a basic financial calculator.<sup>2</sup> The user enters the known loan variables, and the calculator computes the remaining variable:

- $PV$  = present value, the net amount of cash disbursed to the borrower at the beginning of the loan.
- $i$  = interest rate, which must be expressed in the same time unit as  $n$ , below.
- $n$  = term (number of periods) of the loan.
- $PMT$  = payment made each period.<sup>3</sup>
- $FV$  = future value, the amount left in the client's hands after the loan is repaid, which is usually zero except in the case of a loan with a compulsory savings component.

The computations are illustrated through a base case and eight alternatives. In the base case, where interest is calculated on declining balances, the calculator is used to determine the necessary monthly payment amount. Each of the alternatives involves two steps. First, the actual cash flows received and paid by the client are computed. Next, those cash flows are entered into the calculator to determine the effective rate per period, which is then annualized by multiplying by the number of periods in a year.

The results show how wide a range of yields can be produced by loans with the same nominal (stated) rate but differences in the structure of charges and payments (table A.1).

#### *Base case: Declining balance*

The loan amount is 1,000, to be repaid in four equal monthly payments of principal and interest. The stated interest rate is 36 percent a year, or 3 percent a month, calculated on declining balances—that is, the interest is charged only on the amount of the loan principal that the borrower has not yet repaid. In this base case the effective monthly interest rate is the same as the stated rate.

*Compute monthly payment:*  $PV = 1,000; n = 4; i = 36/12 = 3$ . Solving for  $PMT$  yields a monthly payment of 269.03.

#### *Alternative 1: Up-front interest payment*

The parameters are the same as in the base case except that all interest is charged at the beginning of the loan.

*Compute cash flows:* Total payments of principal plus interest in the base case are 1,076.12 ( $269.03 \times 4$ ). Subtracting 1,000 of principal gives total interest of 76.12. Since in this case the interest is paid up front, it is for all practical purposes deducted from the loan disbursement, leaving the borrower with a net cash disbursement of 923.88 ( $1,000 - 76.12$ ). Monthly payments are principal only, in the amount of 250 ( $1,000/4$ ).

*Compute effective interest rate:*  $PV = 923.88; PMT = -250; n = 4$ . Solving for  $i$  yields an effective monthly rate of 3.24 percent, which is multiplied by 12 for an annual percentage rate (APR) of 38.9 percent.

#### *Alternative 2: Initial fee*

The parameters are the same as in the base case except that a 3 percent loan commission is charged up front.

*Compute cash flows:* The net disbursement to the borrower is 970 (1,000 – commission of 30). Monthly payments are 269.03, as in the base case.

*Compute effective interest rate:*  $PV = 970$ ;  $PMT = -269.03$ ;  $n = 4$ . Solving for  $i$  yields an effective monthly rate of 4.29 percent, which is multiplied by 12 for an APR of 51.4 percent.

### *Alternative 3: Weekly payments*

The parameters are the same as in the base case except that four months' worth of payments are paid in 16 weekly installments.

*Compute cash flows:* Total payments of 1,076.12 ( $269.03 \times 4$ ) are broken into weekly payments of 67.26 ( $1,076.12/16$ ).

*Compute effective interest rate:*  $PV = 1,000$ ;  $PMT = -67.26$ ;  $n = 16$ . Solving for  $i$  yields an effective weekly rate of 0.88 percent, which is multiplied by 52 for an APR of 45.6 percent.

### *Alternative 4: Flat interest*

The parameters are the same as in the base case except that interest is calculated on the entire loan amount rather than on declining balances and is prorated over the four monthly payments.

*Compute cash flows:* Total interest is 120 ( $1,000 \times 3$  percent  $\times 4$  months). Total principal plus interest is 1,120 ( $1,000 + 120$ ), or 280 each month ( $1,120/4$ ).

*Compute effective interest rate:*  $PV = 1,000$ ;  $PMT = -280$ ;  $n = 4$ . Solving for  $i$  yields an effective monthly rate of 4.69 percent, which is multiplied by 12 for an APR of 56.3 percent.

### *Alternative 5: Flat, with up-front interest*

The parameters are the same as in alternative 4 except that all the interest is paid up front at the beginning of the loan.

*Compute cash flows:* Total interest is 120, paid on loan disbursement. Thus the borrower's net disbursement is 880 ( $1,000 - 120$ ). Monthly payments of principal are 250 ( $1,000/4$ ).

*Compute effective interest rate:*  $PV = 880$ ;  $PMT = -250$ ;  $n = 4$ . Solving for  $i$  yields an effective monthly rate of 5.32 percent, which is multiplied by 12 for an APR of 63.8 percent.

*Alternative 6: Flat, with up-front interest and fee*

Flat interest is charged on the entire loan amount, and the total interest plus a 3 percent commission is collected up front, at the time of loan disbursement.

*Compute cash flows:* Total interest is 120 ( $1,000 \times 3$  percent  $\times 4$  months). The net disbursement to the client is 850 ( $1,000 - \text{interest of } 120 - \text{commission of } 30$ ). Monthly payments are 250 ( $1,000/4$ ).

*Compute effective interest rate:*  $PV = 850$ ;  $PMT = -250$ ;  $n = 4$ . Solving for  $i$  yields an effective monthly rate of 6.83 percent, which is multiplied by 12 for an APR of 82.0 percent.

*Alternative 7: Compulsory savings*

The parameters are the same as in the base case except that as a condition of the loan the client is required to make a savings deposit of 50 along with each month's payment. The savings account yields interest of 1 percent a month, un-compounded, and the client may make withdrawals at any time after paying off the loan.

*Compute cash flows:* The disbursement to the borrower is 1,000. Monthly payments are 319.03 (269.03 in principal and interest, as in the base case, plus a savings deposit of 50). The future value of the savings account to the client, its

TABLE A.1

**Annualized effective interest rates with different charge and payment structures**

Stated monthly rate	Alternative				
	Base case	4	5	6	8
1.0	12.0	19.0	19.8	35.6	38.9
1.5	18.0	28.5	30.3	46.6	51.5
2.0	24.0	37.8	41.0	58.0	64.5
2.5	30.0	47.1	52.2	69.8	78.0
3.0	36.0	56.3	63.8	82.0	92.0
3.5	42.0	65.5	75.8	94.7	106.6
4.0	48.0	74.6	88.3	108.0	121.8
4.5	54.0	83.6	101.3	121.7	137.6
5.0	60.0	92.6	114.8	136.1	154.2
5.5	66.0	101.5	128.8	151.1	171.4
6.0	72.0	110.4	143.5	166.7	189.5

*Note:*

*Base case:* Interest charged on declining balances; four equal monthly payments.

*Alternative 4:* Flat interest charged on initial balance, prorated over four monthly payments.

*Alternative 5:* Flat interest charged on initial balance and deducted from loan disbursement.

*Alternative 6:* Flat interest on initial balance and 3 percent commission deducted from loan disbursement.

*Alternative 8:* Same as alternative 6, with forced savings of 50 added to each payment, and 1 percent monthly interest paid on savings.

value at the end of the loan, is 203 (200 in deposits plus interest of 0.50 for the second month, during which the savings account has a balance of 50; 1.00 for the third month, during which the balance is 100; and 1.50 for the fourth month, during which the balance is 150).

*Compute effective interest rate:*  $PV = 1,000$ ;  $PMT = -319.03$ ;  $n = 4$ ;  $FV = 203$ . Solving for  $i$  yields an effective monthly rate of 3.26 percent, which is multiplied by 12 for an APR of 39.1 percent.<sup>5</sup>

This alternative and the following one assume that the MFI holds the compulsory savings, in which case the yield to the institution and the cost to the client are the same. If the compulsory savings are held by another entity, however, the amounts deposited should not enter into the computation of yield to the MFI. But the deposits do enter into a calculation of the loan's effective cost to the client. In this case comparing the client's cost and the MFI's yield can be instructive. Compulsory savings regimes in which the MFI does not hold the savings sometimes lead to a high effective cost to the client, a significant share of which is not captured as yield by the institution.

*Alternative 8: Flat, with up-front interest and fee, and compulsory savings*

The parameters are the same as in alternative 6 except that the client is required to make a savings deposit of 50 along with each month's payment. The savings account yields interest of 1 percent a month, un compounded, and the client may make withdrawals at any time after paying off the loan.

*Compute cash flows:* Total interest is 120 ( $1,000 \times 3$  percent  $\times 4$  months). The net disbursement to the client is 850 ( $1,000 -$  interest of 120  $-$  commission of 30). Monthly payments are 300 (principal of  $1,000/4$ , plus savings deposit of 50). The future value of the savings account to the client is 203 (200 in deposits plus interest of 0.50 for the second month, during which the savings account has a balance of 50; 1.00 for the third month, during which the balance is 100; and 1.50 for the fourth month, during which the balance is 150).

*Compute effective interest rate:*  $PV = 850$ ;  $PMT = -300$ ;  $n = 4$ ;  $FV = 203$ . Solving for  $i$  yields an effective monthly rate of 7.67 percent, which is multiplied by 12 for an APR of 92.0 percent.

### Yield gap computations

Sometimes an MFI needs to generate a theoretical expectation of interest and fee income on its loan portfolio, for comparison with the interest and fee income it actually receives. The purpose is to see whether there is a significant gap, which could signal such problems as delinquency, fraud, or accounting mistakes. When

using the calculation method set forth in this annex, such yield gap analysis can be complicated because the method sometimes reflects cash flows in a different way than an institution's accounting system would.

For example, in alternative 5 (flat interest paid up front) the calculator yields a present value of 880 (1,000 of loan amount – 120 of prepaid interest). On an MFI's accounting books, however, the portfolio would be increased by the full 1,000 of principal at the time the loan is disbursed, while the 120 of prepaid interest might be entered in a liability account for deferred interest (paid but not yet earned).

In fact, MFIs seldom use prepaid interest of the type illustrated in alternatives 5 and 6. Compulsory savings schemes such as alternatives 7 and 8 are much more common. These schemes also involve differences between the way an MFI's books are kept and the way a calculator produces an effective interest rate. The example of a flat interest computation at the end of the annex provides another case of a (relatively minor) discrepancy between how the calculator treats a series of cash flows and how an accounting system treats them.

When performing yield gap analysis for such cases, it is advisable to build a simple spreadsheet model that tracks the way loan principal and interest income are actually recorded to the MFI's accounts and build a theoretical yield expectation on that basis, rather than using a financial calculator.

### **A note on flat-rate computations**

When computing effective interest rates as in the examples above, a financial calculator uses a consistent method to determine the outstanding principal balance at any point in the loan. For each payment the calculator computes the amount needed to cover the interest on the previous period's balance. Then it assigns the rest of the payment to principal, thus reducing the loan balance for the next period. Under this method *the proportional division of each payment between interest and principal changes over the life of the loan*. At the time of the early payments the outstanding loan balance is relatively large, thus the portion of the payment devoted to interest also is relatively large, and the amount devoted to reducing principal relatively small. Later, this situation is reversed.

MFIs that charge interest on a flat-rate basis usually follow a different procedure. For the sake of simplicity, they assume that the division between principal and interest is the same for every payment. In alternative 4, for example, the MFI charges 3 percent flat interest per month on a four-month loan of 1,000. The total to be paid by the client is 1,120, split between principal of 1,000 and interest of 120 (3 percent  $\times$  4 months  $\times$  1,000). Dividing this total by the number of

payments produces a monthly payment of 280. On its books the MFI would probably allocate 250 of each month's payment to principal ( $1,000/4$ ), and 30 to interest ( $120/4$ ).

When an MFI uses this method to account for its outstanding loan portfolio, the average outstanding balance of its portfolio would be slightly smaller than the balance produced by the calculator's method, because the MFI would reduce the principal balance on early payments faster than the calculator would. Because of the smaller average outstanding portfolio, the interest income represents a slightly higher percentage of portfolio.

The difference between a financial calculator's method and an MFI's accounting system can be illustrated with alternative 4. The calculator computed an effective monthly rate of 4.69 percent. Implicit in this calculation is a schedule of loan balances that yields an average outstanding balance over the life of the loan of 639.32 (table A.2).

Dividing interest received (120) by that average outstanding balance, and dividing the result by four months, gives a monthly effective rate of 4.69 percent ( $[120/639.32]/4$ ).

But if the MFI's accounting system assigns exactly one-fourth of the principal (250) to each payment, the average outstanding balance over the life of the loan would be 625.00.

Performing the same computation as above, the MFI would put the effective rate at 4.80 percent ( $[120/625]/4$ ). As predicted, the effective yield on the portfolio as calculated by the MFI's accounting method appears slightly larger because it produces a slightly smaller average outstanding portfolio.

TABLE A.2

**Loan balances and effective interest rates under a financial calculator's method and an MFI's accounting system**

	Financial calculator's method	MFI's accounting system
During the 1st month	1,000.00	1,000.00
During the 2nd month	766.92	750.00
During the 3rd month	522.91	500.00
During the last month	267.45	250.00
Average over life of loan	639.32	625.00
Monthly effective interest rate (percent)	4.69	4.80

*Note:* The table is based on alternative 4, in which flat interest of 3 percent is charged, prorated over the four monthly payments.

## Notes

1. In standard practice the effect of compounding is included in calculating an annual effective rate: for example, if a borrower pays 3 percent every month, the effective annual rate is not 36 percent ( $12 \times 0.03$ ) but 42.6 percent ( $1.03^{12} - 1$ ). This compounded rate is the appropriate one to use when comparing the real cost to a borrower of different interest rate structures, especially when different time periods are involved.

But in this annex, when a weekly or monthly rate is annualized, an annual percentage rate (APR) method is used; that is, compounding is *not* taken into account. This produces an annual rate more in line with the actual income generated by an institution's portfolio: for example, a portfolio whose effective monthly yield is 3 percent—almost all of which is used to pay costs rather than reinvested—will generate returns of about 36 percent a year, not 42.6 percent. It is important to note that delinquency and other factors can reduce the actual yield on a portfolio well below the APR being charged on the loans making up that portfolio.

2. The computations can also be performed using the financial functions of a computer spreadsheet application such as Excel or Lotus 1-2-3.

3. Microloans are usually structured so that the borrower's payment is the same each period. Where the payment amount changes from one period to another (because of a grace period, for example), the computation requires a calculator with an internal rate of return function, or a computer spreadsheet.

4. On most financial calculators present value and payment must be entered with opposite signs, so if *PV* is positive, *PMT* must be negative, and vice versa.

5. This rate is the yield on the net amount of cash in the client's hands. An MFI wanting to estimate its theoretical annual interest income as a percentage of the loan portfolio shown on its books would take into account only the loan part of the transaction, ignoring the receipt or return of deposits and any interest on them.