

PA-102-633

# FINANCIAL MANAGEMENT OF MICRO-CREDIT PROGRAMS





ERRATA SHEET

Financial Management of Micro-Credit Programs

- P. 53 Last line should read: The Liquidity Adequacy Ratio (Formula 13) measures liquid assets as a proportion of the next month's total credit demand.
- P. 56 Title of Box with Formula 17 should read: Ratio of Fixed or Variable Costs to Current Portfolio
- P. 65 Formula at bottom of page should read:  
Installment payment =  $P \times \frac{i \times (1 + i)^n}{(1 + i)^n - 1}$
- P. 70 Second Component of Table III should read:  
Expected loan loss
- P. 89 The fifth variable listed in the top box should read:  
FC = fixed costs

PN-ABL-633

**FINANCIAL MANAGEMENT  
OF  
MICRO-CREDIT PROGRAMS**

PN-ABL-633  
12/1/89

# **FINANCIAL MANAGEMENT OF MICRO-CREDIT PROGRAMS**

**A GUIDEBOOK FOR NGOs**

by Robert Peck Christen

ACCION INTERNATIONAL

JUNE 1990

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## **FOREWORD**

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This manual is a practical, hands-on guide to financial management of micro-enterprise credit programs. It is aimed primarily at those executive directors, financial and accounting officers and other managers directly involved in the implementation of such programs.

The majority of micro-enterprise credit programs around the world are run by non-governmental organizations. Many have limited resources yet, as part of their efforts to expand, find it necessary to develop more complete and sophisticated financial management systems. This manual should be particularly helpful to these organizations. Others, such as bi-lateral and multi-lateral institutions, foundations, government agencies, and consulting entities will hopefully also find it useful as a tool in designing, assisting and evaluating programs.

The manual draws on the collective experience of the affiliate organizations of ACCION International throughout Latin America. The material included was tested and utilized in a series of financial workshops for key personnel of these organizations organized by ACCION and led by the author, Robert Christen, over the past two years.

The need for non-profit organizations to expand their credit outreach to many more micro-entrepreneurs in developing countries will only increase in the future. To meet this demand such organizations must become serious intermediate financial institutions. It is our hope that this manual will provide some of the essential tools needed to speed this process along.

**William W. Burrus  
Executive Director  
ACCION International**

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## **ACKNOWLEDGEMENTS**

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Funding from the Calmeadow Foundation made this manual possible. I wish to acknowledge our appreciation for their support.

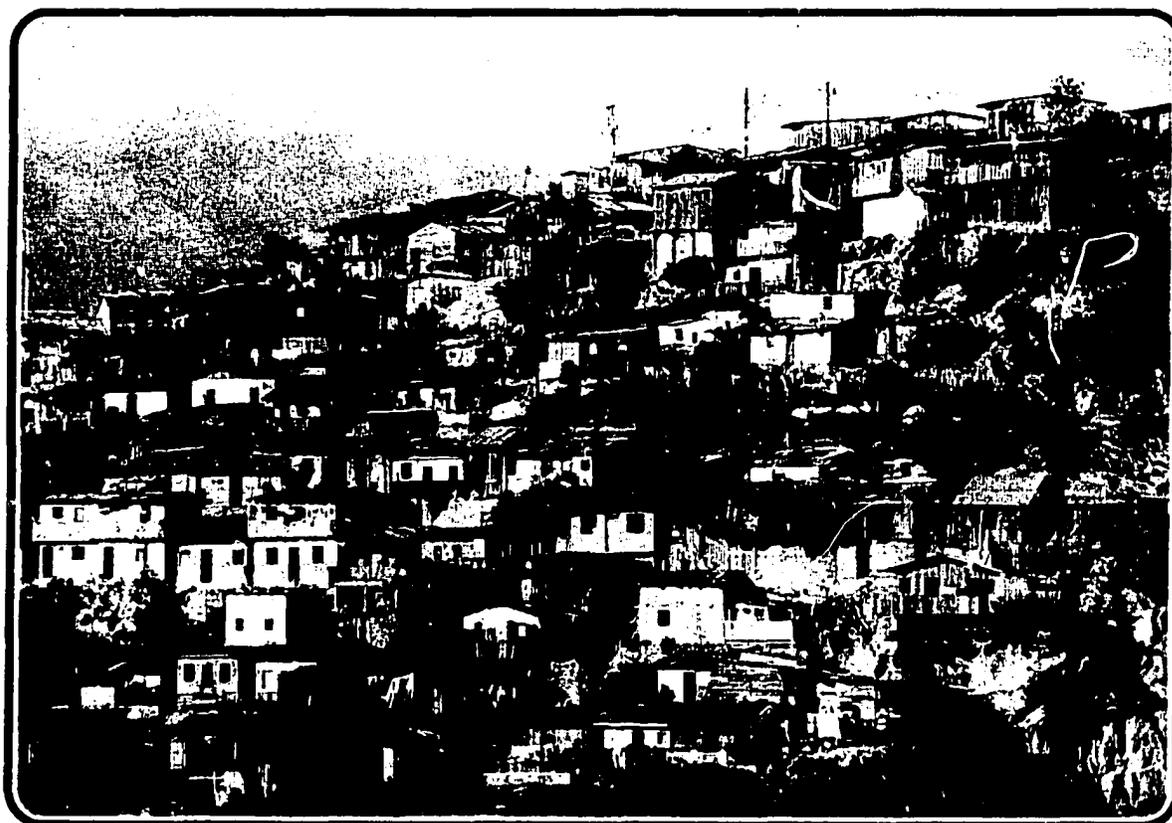
The Inter-American Foundation and the GEMINI Project of Development Alternatives Inc. have provided funding for the publication of this manual in both english and spanish.

The material and concepts for this manual resulted from a series of visits to micro- enterprise programs, affiliates of ACCION International. Martin Burt, Francisco Otero, Pedro Jimenez, Benito Cabello, Mirta Olivares, Carlos Castello and Manuel Montoya opened the programs to me and willingly discussed sensitive aspects of financial management. Bill Burrus, Steve Gross, and Cathy Quense provided helpful comments on the first draft.

I would like to recognize the efforts of Maria Otero who provided extensive comments on the first draft and Diego Guzman who prepared the document for printing.

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Photograph: Steen Johansen

# I INTRODUCTION

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The informal sector is the largest and, in many countries, the fastest growing part of the private sector. Micro-businesses will generate a majority of the 120,000 jobs per day that will be required in the developing world between now and the year 2000, particularly those needed by women, recent immigrants from rural areas, the uneducated, youth, and the very poor.

In Lagos, for example, 50% of all employment is in the informal sector. In Bombay, the figure is 55%. In Lima, it is estimated that 78% of the furniture and 90% of the clothing are produced in the informal sector and that 85% of bus transportation is informal. In San Salvador, 85% of the houses in the poorest barrios are home to a business.

Recent research and project experience have shown that it is possible to assist even the smallest economic activities of the poor effectively and efficiently. Simple infusions of small amounts of credit (\$10 to \$500) over a period of one to twelve months, coupled with appropriate orientation and encouragement, can lead to significant increases in income, production, and employment. The best of these assistance programs combine quick access to credit with the best management techniques of the private sector, thereby enhancing the number of micro-entrepreneurs that can be reached efficiently and inexpensively.

Consequently, international donor agencies are significantly increasing funding levels to micro-business credit programs. The majority of these credit programs are managed by small, non-profit, private development agencies. The availability of these new resources presents non-governmental organizations (NGOs) with heretofore unseen opportunities for growth.

If NGOs are to meet the challenge of reaching even a relatively small percentage of needy micro-businesses they must design and implement effective financial

**4** management systems. Successful micro-enterprise lending requires a high volume of transactions relative to the total amounts lent, which translates into a need for tremendously efficient operations. NGOs, constituted in many cases to implement social or charitable programs, must usually make adjustments in their basic administrative structure to accommodate this activity.

This manual offers basic financial management tools to executive directors, financial managers, and accountants of NGOs who administer micro-enterprise credit projects. Financial directors of micro-enterprise credit projects implemented by other types of institutions, such as credit unions or development banks, may also find this manual useful.

This work grows out of the project experience and future program needs of 35 ACCION International affiliated micro-enterprise credit projects throughout Latin America. These programs currently disburse over two million dollars monthly to more than 40,000 participating tailors, cobblers, mechanics, street vendors, and the like. Repayment is almost 100%.

As a result, the recommendations contained in this manual reflect the credit and program methodology utilized by ACCION International. Project goals, such as reaching large numbers of micro-businesses and reaching financial self-sufficiency in the medium term, are assumed. Techniques and examples presented in this manual are a selection of the more effective techniques and policies used by participating institutions.

This manual is a practical, hands-on treatment of specific issues that are particularly important to credit-program operators. It does not repeat general themes of financial management found in standard texts, nor does it attempt to be exhaustive in covering all of the available techniques in a particular area. It concentrates on workable solutions that are easy to implement in institutions with scarce human and material resources by non-specialized personnel.

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Photograph: Sergio Solano



## INFORMATION SYSTEMS

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Information systems are the heart of good financial management; without them, good managers can't manage. Information systems must provide timely and accurate data about institutional activities in an efficient (low-cost) manner. A system must be relatively easy to maintain and operate. It must allow for dynamic, changing program needs. It must incorporate necessary security measures to protect confidential or sensitive information.

When managers can sit down at the end of each day, week, month, or year and analyze all the key variables, they can make informed decisions that balance conflicting program needs. Only up-to-date and effective information systems can provide managers with the detailed data necessary to fine-tune program performance.

Developing a good information system requires the investment of substantial resources (human, financial, creative) as well as discipline. To maintain up-to-date information systems requires methodical, painstaking work every day of the year. It requires constancy.

We frequently see management by "crisis" due to inadequate information systems. Managers become aware of problems only when those problems are too big to resolve easily. Information systems that can't provide managers with timely detailed information on all aspects of operations ensure that managers will simply rush from one frantic analysis to another, completely losing the big picture. Micro-enterprise credit programs simply move too fast.

Good information systems appear expensive. Most NGOs prefer to allot their scarce resources to serving the poor, to the detriment of information systems. Unfortunately, service quality usually suffers in the end because NGOs do not have

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**8** a clear picture of either their client's characteristics or their own service-delivery capacities. This is particularly true for NGOs who manage micro-credit programs.

Today we are in the incipient stages of the "Information Age". More than ever before, the solutions to mankind's problems are seen to lie in access to and utilization of information. Men and women who manage computers dominate in this age. They set the standards; they are on the competitive cutting edge.

We in micro-business credit programs are no exception. Computerized information systems allow us to reach far greater numbers of participants more efficiently than ever before. Without question, the computerization of information systems is essential for micro-enterprise credit programs. Computers offer the only real possibility of ensuring massive program impact and long-term sustainability. Computers free scarce resources for other, more "productive" uses.

However, managers must understand that bringing computers on line in their institutions is a complex process. They must opt for simple solutions rather than succumb to the temptations of an apparent panacea. More than anything else, they must realize that computerization will not eliminate administrative chaos; it will only exacerbate it. Managers must first eliminate chaos so that computers can be useful management tools.

## **II.A HARDWARE CONFIGURATIONS**

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Even for the well informed, the array of possible hardware configurations (combinations) is confusing. One can rapidly get lost in salesman's talk about bytes, RAM, ROM, and configurations. The bottom line is that hardware decisions are far less important than decisions about software and computer management. Aside from two or three basic variables, equipment availability and price should probably play the greatest role in deciding what hardware combination to use. These basic variables are discussed below.

### **II.A.1 Capacity**

There are many ways to measure a computer's capacity, computing speed, disk access speed, user available memory, storage capacity, and other main features. The fact is that during the initial three- to five-year start-up phase, most new microcomputers are more than adequate for the purposes of micro-business credit program management, especially if they have a hard disk of at least 20 MB. It is easy to overestimate the usefulness of computer capacity. A well

conceived information system can operate efficiently with computers of very limited capacity. For instance, in Lima, Peru, ACCION Comunitaria de Peru (ACP) managed a \$1.5 million portfolio with over 6,000 beneficiaries for years with an IBM XT with only 10 MB of hard disk capacity. While not ideal, the system provided the minimum data necessary to manage a program whose loan delinquency rate was less than three percent of its current portfolio and which handled about 500 loans a month.

The principal capacity bottleneck with microcomputers is not the individual capacity of each machine, but rather terminal access time. The large volumes of data that must be entered to maintain the system up-to-date are usually more than one machine can handle in a medium-sized program. We highly recommend that programs with over a thousand active participants have at least two fully operative computers.

The optimal hardware distribution is probably to have at least one relatively new "high" capacity microcomputer with 30 MB hard disk capacity and two or three other computers with a smaller capacity, for entering data, word-processing (printing loan documentation), budgeting, and accounting. The high capacity computer should have a micro-processing chip that allows for processing at least at 8 MHz. Otherwise, large databases can take too long to process.

It is usually more comfortable to purchase the auxiliary computers with hard-disk capacity since programs can be resident in the memory and there are fewer problems with the operation. Hard disks are now so inexpensive that one doesn't save much by buying a computer with two disk drives.

### **II.A.2 Compatibility**

For the past decade or two, IBM has set the industry standard for microcomputers with business applications. A tremendous variety of hardware and software systems has grown up around IBM. Therefore, it is generally advantageous to buy equipment that is IBM-compatible.

What is indispensable is that all of an NGO's computers be able to talk among themselves with no difficulty, the only possible exception being a computer used exclusively for word-processing. It would create serious bottlenecks if the primary program computers were not 100% compatible. In an emergency, functions could not be transferred to other functioning computers. If program needs change over time and one needs to expand the software, incompatible hardware could limit possibilities.

### **II.A.3 Features**

One of the most fun but least essential parts of hardware packages are special features such as color monitors, graphics capabilities, modems, specialized printers, and external disk drives. Unless NGO managers have a surplus of funds available to purchase equipment, these features are probably not necessary and will probably not improve the productivity of the system.

One key feature, which is always tempting to employ when users have more than one microcomputer, is communications software. This software allows computers to "talk" to each other. Simple communications programs (Brooklyn Bridge) allow one computer to treat the disk drives of another computer as though they were its own. The "slave" computer is dependent on the "master" computer. Operators can not work independently on both machines simultaneously.

More sophisticated programs allow the partitioning of hard-disk capacity on one computer for use by other computers simultaneously, although they cannot necessarily do the same function simultaneously. Even more sophisticated software and hardware combinations allow completely interactive operation among microcomputers.

Basically, the cost of these more sophisticated systems is more than they are worth to micro-credit programs. It is usually sufficient to distribute functions among separate microcomputers and then "dump" data for processing to a central computer through diskettes or simple dummy modem communications software. This solution costs less than U.S.\$200 and is adequate. Interactive communications systems may cost as much as the basic hardware itself.

### **II.A.4 Technical support**

The quality of technical support and maintenance service in a particular country for a particular computer is a vital concern. Due to harsh conditions such as dust, voltage irregularity, temperature extremes, and misuse, computers are relatively more exposed to damage than they are in developed countries. It is essential that NGOs have access to high-quality local service and technical support for the equipment they purchase. Otherwise, in a relatively short period, they may find themselves without a functioning computer due to the unavailability of spare parts or knowledgeable technicians.

It is sometimes useful to sign a maintenance agreement that will ensure against rapid deterioration in unfavorable conditions. Certainly, institutions should budget

computer maintenance into their general operating expenses in accordance with the cost of replacement parts (given local tax treatment).

**II.A.5 Protection**

Voltage irregularity in energy supply to computers can cause problems ranging from excessive wear and shortened work life to outright burn-up of mother-boards (the main computational unit, representing 70% of the value of the computer). In most developing countries NGOs should invest in voltage-regulating equipment according to the severity of the problems encountered locally.

There are three basic types of equipment:

**TABLE I**

<b>VOLTAGE-REGULATING EQUIPMENT</b>	
<b>TYPE</b>	<b>ESTIMATED COST, FUNCTION</b>
Voltage Power Regulator	U.S.\$200-350 Protects against spikes in supply to computer
UPS	U.S.\$1000 Provides uninterrupted power supply in case of external power interruption (black-out). Provides some spike protection and smoothes out wide fluctuations in voltage.
Line Conditioner	U.S.\$1500 Smoothes out power supply within pre-determined range (on better models user sets range). This is ideal for extending a computer's work life, particularly in situations where brown-outs are common.

**II.B SOFTWARE DESIGN**

There is a wide variety of excellent software available commercially for use on IBM-compatible computers. However, most NGOs will find that the combined demands of portfolio management and fund accounting will require them to develop specialized software.

Most NGOs that host micro-enterprise credit programs should be using fund accounting, a cost-accounting system that separates income and expenditures according to the source of funds (cost centers). Basic accounting reports can be generated either on a fund level or consolidated into a general monthly or annual

financial statement. The only commercially available fund- accounting program (Accountmate) is in English and designed to be used in the U.S., so is not wholly compatible with Latin American accounting systems. Commercially available cost-center accounting packages that are compatible with those systems and that could be easily adapted to fund-accounting needs can be found in most Latin American countries.

Most certainly, loan portfolio packages are available in Latin America that could also be adapted to the needs of micro-credit programs. However, adding the client information NGOs need to track credit impact and integrating this package with the fund- accounting package would probably cost more than tailor-made software that would directly meet the NGOs needs.

The cost of developing a locally generated software package that integrates the accounting and portfolio-management functions is probably between 3,000 and 6,000 dollars. We highly recommend that NGOs who are considering the management of a sizeable micro- credit portfolio invest in software development in the early stages of program implementation.

Several integrated packages are available from ACCION-affiliated programs that can serve as the basis for such a system, although the local institution will probably find that it will cost about as much to adapt these programs as it would to write a new one. The advantage to writing a new program is that it is easier to tailor the program to the idiosyncracies of the local NGO. The advantage of adapting a tested product is that it will be on-line more quickly, and pose less risk of major programming problems. In either case the decision will depend on local programming capabilities and the specific changes the NGO wishes to incorporate.

NGOs who manage micro-credit programs face two major information tasks: 1) tracking client participation in the program through credit and technical assistance, and 2) fund (cost-center) accounting. Each of these tasks is ideally suited to automation (computerization) and should be integrated.

The first system (client management) contains all the client- specific information that institutions need to operate and report on activities. The second system (accounting) manages the accounting ledgers. Client accounts payable and receivable (sub- sub-accounts) are managed in the client-management system, similar to the standard "accounts receivable" software packages commercially available. The interface may be either electronic or manual (preferably electronic) and consists of a summary statement of the daily movements in client accounts. This system is an integral part of the entire accounting system.

**II.B.1 Client-management systems**

Any complete client-management system should include the following minimum functions. The report formats shown here are only illustrative; each program will have to decide how it needs this basic information broken down for analysis. For some the basic unit of analysis might be a geographic area, for others the credit agent, or the fund to which the credit belongs.

*II.B.1.a Maintain general client information*

The system should maintain information about all program participants: names, ID numbers, addresses, phone numbers, type of business, references, sex, age, and other pertinent general data. The system should emit periodic reports with these client-identifying characteristics, ordered alphabetically. Two types of client list are shown below; Sample Report 1 is a client list used by field staff to locate program participants and contains addresses and telephone numbers, in addition to key identification numbers. Sample Report 2 is a client list for office use which interrelates all relevant identification numbers used internally for data verification and file location.

**SAMPLE REPORT 1**

No. 1					
<b>GENERAL INFORMATION REPORT</b>					
LOAN SYSTEM					
FIELD WORKER 001 — GABRIEL ARAYA GAETE					
PARTICIPANT No.	NAME	ADDRESS	PHONE	ADDRESS FIRM	ACTIVITY
000132	LOPEZ, MARTA	SANTIAGO, 428 SAN JOAQUIN	—	SAME	SEAMSTRESS
000138	...	...	...	...	...
...	...	...	...	...	...

**SAMPLE REPORT 2**

No. 2				
<b>ALPHABETICAL LIST OF BORROWERS</b>				
DATE: 2/12/88 PAGE 1				
LOAN SYSTEM				
PARTICIPANT NAME	No. OPERATION	No. CLIENT	I.D. No.	FIELD WORKER
AGUILERA, MORENA A.	02200020-01	00020	6,592,277-0	001
AHUMADA, LEIVA R.	04012001-01	00110	9,218,025-5	003
ALCALDE, ALVAREZ S.	02022006-01	00006	7,898,895-0	004
...	...	...	...	...

II.B.1.b Maintain client's business information

In order for NGOs to measure credit impact on micro-businesses it is essential that they create and maintain databases with client's socio-economic and financial data. This includes business data such as employment levels and classification, levels of sales, equipment, inventories, and monthly expenses; and socio-economic data such as number of dependents, educational level, marital

**SAMPLE REPORT 3**

No. 3			
CLIENT'S BUSINESS INFORMATION			
LOAN SYSTEM			DATE: 1/15/89
I.D. No. 789321	ALCALDE ALVAREZ SERGIO ANTONIO		
PRODUCTION/SERVICE:		Furniture	
YRS. EXPERIENCE:		1 yr.	
No. EMPLOYEES:		4	
DATE OF APPLICATION:		9/27/88	
EMPLOYEES	FAMILY	NON-FAMILY	
Full-time	00	4	
Piece workers	00	00	
Part-time	00	00	
<b>Current Assets</b>	---	<b>Current Liabilities</b>	
Cash	---	Accounts Payable	---
Bank	---	Loans Payable	---
Accounts Receivable	---	Accrued Liabilities	---
Inventories	---	Advances for production	---
Raw Material	---	Other	---
Unfinished Products	---		
Finished Products	---	<b>Long-Term Debt</b>	
Other	---	Mortgage	---
<b>Non-Current Assets</b>	---	Banks	---
Machinery	---	Other	---
Tools	---		
Supplies	---		
Vehicles	---		
Property	---	<b>Total Liabilities (Eligible)</b>	---
<b>Other Assets</b>	---	Capital	---
<b>Total Assets</b>	<b>1,080,000</b>	<b>Total Capital and Liabilities</b>	<b>1,080,000</b>
<b>Sales</b>		<b>Total Sales</b>	---
Paid cash	---		
On credit	---		
Other	---		
<b>Expenses</b>		<b>Total Expenses</b>	---
Raw Material	---	Gross Utility	---
Labor	---	Personal Salary	---
Rent	---		
Gas, Utilities	---	<b>Profit from Business</b>	---
Transport	---		
Telephone	---		
Depreciation	---		
Other Expenses	---		

status, and personal capital accumulation, as shown in Report 3. This data is normally monitored in monthly reports that classify the current portfolio by relevant impact variable, as in the example shown in Report 4 (current portfolio), and Report 5 (this month's disbursements). This data may be analyzed later with statistical packages such as SPSS or SAS.

**SAMPLE REPORT 4**

No. 4		
<b>CURRENT PORTFOLIO REPORT GENERAL SUMMARY</b>		
LOAN SYSTEM	PAGE 1	DATE: 2/14/89
	No. OPERATIONS	BALANCE (PESOS)
<b>SEX</b>		
MALE	97	7,318,288
FEMALE	18	958,347
<hr/>		
<b>ACTIVITY</b>		
25. FOOD PROCESSING	6	322,028
26. SEAMSTRESSES/TAILORS	10	510,302
27. WEAVING	7	454,782
28. SHOEMAKING	12	916,382
29. CARPENTRY	16	1,154,172
30. METAL WORK	20	1,675,888
...		
35. REPAIRS (AUTO)	2	97,149
<hr/>		
<b>No. DEPENDENTS</b>		
0 - 1	3	131,900
2 - 3	16	1,098,876
4 - 6	18	5,767,987
7 - 99	18	1,278,765
<hr/>		
<b>SIZE OF LOAN</b>		
0 - 30000	8	158,835
31000 - 50000	34	1,397,530
51000 - 70000	24	1,765,606
... - 99999	0	0
<hr/>		
<b>SIZE OF ENTERPRISE</b>		
0 - 25000	10	316,639
25100 - 50000	19	912,738
51000 - 100000	37	2,520,579
<hr/>		
...		

**SAMPLE REPORT 5**

No. 5			
<b>TOTAL LOANS DISBURSED (LAST TO DATE) FUND: GENERAL SUMMARY</b>			
LOAN SYSTEM			DATE: 2/14/89
SEX	No. TRANSACTIONS		AMOUNT
FEMALE	2	...	40%
MALE	3	...	60%
<b>TOTAL</b>	<b>5</b>	<b>325,527</b>	<b>100%</b>
<b>ACTIVITY*</b>			
353 SHOEMAKING	1	38,270	11,75%
362 FURNITURE	2	122,731	37,70%
386 CARPENTRY	1	100,936	31,01%
901 ELECTRICAL REPAIR	1	63,590	19,53%
<b>TOTAL</b>	<b>5</b>	<b>325,527</b>	<b>100%</b>
<b>No. DEPENDENTS</b>			
0 - 1	1	.....	...
2 - 3	2	.....	...
4 - 6	2	.....	...
7 - 99	0	.....	...
<b>TOTAL</b>	<b>5</b>	<b>325,527</b>	<b>100%</b>
<b>SIZE OF LOAN</b>			
0 - 30000	0	0	
31000 - 50000	1	.....	...
51000 - 70000	2	.....	...
70001 - 100000	1	.....	...
100001 - 150000	1	.....	...
<b>TOTAL</b>	<b>5</b>	<b>325,257</b>	<b>100%</b>
<b>SIZE OF FIRM</b>			
0 - 250000	2	.....	...
251000 - 500000	3	.....	...
..... - 9999999	0	.....	...
<b>TOTAL</b>	<b>5</b>	<b>325,527</b>	<b>100%</b>
<b>EMPLOYEES</b>			
FAMILY (FULL TIME)	0		
INDIVIDUAL (FULL TIME)	9		
FAMILY (BY PIECE)	0		
INDIVIDUAL (BY PIECE)	2		
FAMILY (PART TIME)	0		
INDIVIDUAL (PART TIME)	0		
<b>TOTAL</b>	<b>11</b>		

\* Numbers filled in as example of information obtained.

II.B.1.c Track individual loans

The client-management system must be capable of tracking individual loan performance. Data about the loan due date, amortization schedule, and late repayments provide the raw material for credit agents and field staff to effectively manage their assigned portfolio. The system should produce lists for each of the field staff, listing current portfolios (Report 6), loan and payment due dates (Reports 7 and 8), and individual loan performance for each of their clients (Reports 9 and 10).

These reports should be produced either daily or weekly, depending on the urgency of the response required. Some of these reports may contain pertinent information about the client's address or phone number which can facilitate the field agent's response.

**SAMPLE REPORT 6**

NO. 8									
OUTSTANDING LOANS									
LOAN SYSTEM								PAGE 1	
FIELD WORKER:		001 - GABRIEL ARAYA						DATE: 2/07/89	
TYPE LOAN:		2 - WORKING CAPITAL							
No. OPERATION	N/ME BORRO- WER	AMOUNT LOAN	LOAN PERIOD (Months)	INTE- REST (Montly)	GRACE PERIOD	AMOUNT PAYMENT	DATE NEXT PAY- MENT	DATE LAST PAY- MENT	FINAL PAY- MENT DUE
0220000301	LOPEZ JOSE	44,088	6	2.5%	0	6,036	3/14/89	12/06/88	08/20/89
0220000401	LARA RAUL	68,880	6	2.5%	1	13,842	2/10/89	11/16/88	03/20/89
0220000501	LOBOZ JUAN	98,592	5	2.5%	0	21,222	2/14/89	11/22/88	02/27/89

**SAMPLE REPORT 7**

No. 7										
LOANS (MATURITY)										
										MICRO-COMMERCE
										DATE: 1/13/89
DATE LOAN DUE	FIELD WORKER	NAME SOLIDARITY GROUP	CODE	LOAN No.	AMOUNT	INT. <sup>1</sup>	PAY- MENT	No PAY- MENTS	DATE DISB. <sup>2</sup>	NAME GROUP COORDINATOR
1/16/89	06	WHITE ROSES	5156	1694	2500	2.0	13751	14	9/26/88	CALLE, JUAN
1/16/89	...	....	...	...	...	...	...	...	...	...
...	...	....	...	...	...	...	...	...	...	...

1 Interest (Monthly)  
2 Disbursement

**SAMPLE REPORT 8**

No. 8						
LOANS DUE BY FIELD WORKER FROM 3/3/89 TO 3/4/89						
						DATE: 3/14/89
LOAN SYSTEM						
FIELDWORKER: 001 GABRIEL ARAYA						
No. TRANSACTION	NAME	AMOUNT	TERMS WEEKS	PAYMENT	No. PAYMENTS	DATE DUE
040128	ROJAS, MARTA	74,447	6	16,486	2	3/4/89
040320	...	...	...	...	...	...
...	...	...	...	...	...	...
<b>TOTAL FOR FIELD WORKER</b>		<b>428,377</b>		<b>90,261</b>		

**SAMPLE REPORT 9**

No. 9		OVERDUE LOANS					DATE: 03/14/88				
LOAN SYSTEM		FIELD WORKER: 001 GABRIEL ARAYA									
		TYPE: WORKING CAPITAL									
TRAN- SAC- TION No.	NAME	No. OF LOAN	FIRST PAY- MENT	AMOUNT	BALANCE	DATE LAST PAY- MENT	OVER- DUE	5 TO 15 DAYS	16 TO 30 DAYS	MORE THAN 30 DAYS	
0002004	LARA, PEDRO	03	1/16/88	63,800	51,324	3/4/89	25,028	00	12,668	12,668	
...	...	...	...	...	...	...	...	...	...	...	
...	...	...	...	...	...	...	...	...	...	...	
TOTAL 101 TRANSACTIONS				9,084,085	5,905,431		267,248	94,761	105,541	65,946	
15 OVERDUE LOANS							4.5%	1.6%	1.8%	1.12%	

**SAMPLE REPORT 10**

No. 10		PORTFOLIO AT RISK WORKING CAPITAL					DATE: 3/14/88				
TRAN- SAC- TION No.	NAME	No. OF LOAN	FIRST PAY- MENT	AMOUNT	BALANCE	DATE LAST PAYMENT	DELIN- QUENT	5-15 DAYS	16-30 DAYS	MORE THAN 30 DAYS	
020220004	LARA RAUL	01	01/15/88	83,380	51,324	01/04/89	25,028	0.00	0.00	51,324	
020220005	LOBOS PEDRO	01	02/20/88	98,592	40,905	02/01/89	20,200	0.00	40,905	0.00	
...	...	...	...	...	...	...	...	...	...	...	
TOTAL 101 OPERATIONS				9,024,065	5,908,431		287,248	241,435	319,325	306,207	
15 OVERDUE OPERATIONS							4.53%	4.08%	5.41	5.18%	

*I.B.1.d Summary portfolio statistics*

Another function any portfolio-management information system should perform is to track general portfolio performance. Information about levels and evolution of late repayments, amounts disbursed and recovered, the current portfolio, and numbers of active clients are critical for upper-level managers (Report 11). This information should appear in summary form and be disaggregated in categories such as: field staff, region or branch office, or other criteria that managers need to evaluate the relative performance of different actors within the institution (Sample Report 12).

**SAMPLE REPORT 11**

No. 11								DATE 3/14/89
<b>ARREARAGE REPORT SUMMARY</b>								
DATA	TRANSAC- TIONS	AMOUNT LENT	BALANCE DUE	DELIN- QUENT	5-15 DAYS	16-30 DAYS	MORE THAN 30 DAYS	
WORKING CAPITAL	101	9,084,055	5,905,431	267,243	94,781	106,541	85,948	
TOTAL IN ARREARS	15			4.53%	1.60%	1.80%	.12%	
EQUIPMENT PURCHASE	...	...	...	...	...	...	...	
TOTAL IN ARREARS	...	...	...	...	...	...	...	
.....	...	...	...	...	...	...	...	
.....	...	...	...	...	...	...	...	
.....	...	...	...	...	...	...	...	
.....	...	...	...	...	...	...	...	
TOTAL LOANS	...	...	...	...	...	...	...	
TOTAL ARREARAGE	...	...	...	...	...	...	...	

**SAMPLE REPORT 12**

No. 12								DATE: 3/14/89
<b>ARREARAGE REPORT BY FIELD WORKER</b>								
FIELD WORKER: 001 GABRIEL ARAYA GAETE								
DATA	TRANSAC- TIONS	AMOUNT LENT	BALANCE DUE	DELIN- QUENT	5-15 DAYS	16-30 DAYS	MORE THAN 30 DAYS	
WORKING CAPITAL	38	5,623,891	2,870,140	120,545	57,402	40,181	22,961	
TOTAL IN ARREARS	7			4.2%	2.0%	1.4%	.08%	
EQUIPMENT PURCHASE	...	...	...	...	...	...	...	
TOTAL IN ARREARS	...	...	...	...	...	...	...	
.....	...	...	...	...	...	...	...	
.....	...	...	...	...	...	...	...	
.....	...	...	...	...	...	...	...	
.....	...	...	...	...	...	...	...	
TOTAL LOANS	44	...	...	...	...	...	...	
TOTAL ARREARAGE	9	...	...	...	...	...	...	

*II.B.1.e Maintain client credit history*

NGOs should be able to access a client's entire credit history with that institution instantly. This information should include the dates, capital amounts, classification of payments received on prior loans according to timeliness, and an overall creditworthiness rating assigned by the computer (Report 13).

**SAMPLE REPORT 13**

NO. 13		<b>DATA ON PARTICIPANT</b>				DATE: 7/28/89					
<b>CLIENT</b>	<b>NAME OF PARTICIPANT</b>					<b>ACTIVITY</b>					
00002	QUILAPI CABRAPAN JUAN EDUARDO					TAILOR					
<b>ADDRESS</b> Gavia 1729 Carro Navio Santiago											
<b>LARGEST LOAN</b> 390,000			<b>LARGEST PAYMENT</b> 83,000			<b>STATUS</b> A		<b>RATING</b> C			
<b>TRANSACTION No.</b>	<b>DATE START</b>	<b>AMOUNT</b>	<b>TERMS</b>	<b>PURPOSE</b>	<b>AMOUNT PAYMENT</b>	<b>GUARAN-TEE</b>	<b>PAYMENTS OVERDUE (DAYS)</b> 0 1-4 6-15 15-30 +30				
020220002-01	10/11/88	158,954	6 WEEKS	WORKING CAPITAL	28,858	600,000	4	0	1	0	1

*II.B.1.f Emit loan documentation*

Another function of credit portfolio management systems is to systematize the emission of loan documentation (guarantees, contracts, coupons, and others). By including the emission of loan documentation in the information system, institutions save precious time and commit fewer errors. The same data entry steps used to emit the documentation also serve to enter data into the system, eliminating the double or triple entry necessary when these steps are done either

manually or separately. The inclusion of this process as an integral part of the information system can reduce the secretarial or keypunch load by as much as 75 percent.

If appropriate verification procedures are used, errors can also be reduced significantly. Most errors creep into manual or mixed information systems as a result of copying data several times in different places. These types of errors are eliminated when there is only one data-entry point in the entire system. In integrated computerized information systems, care must be taken to enter the correct data into the system and good verification procedures must be developed.

*II.B.1.g Provide information on expected financial flows*

Portfolio-management information systems should also generate important financial data for cash-flow projections. Managers, on the basis of expected repayments and loan disbursements (utilization of credit lines), can accurately project cash flows over a 30- to 60-day period. This facilitates effective liquidity management, a key for any financial institution.

**II.3.2 Fund accounting system**

Most credit programs receive support from various sources, be these private donations, private bank loans or soft development loans. Most of these funds are restricted: institutions must use them in specific activities and must report on those activities either during or after they are completed. Under normal accounting systems, this requirement creates an administrative nightmare and NGOs typically spend enormous time reconstructing, disaggregating, and reformulating financial transactions reports to satisfy donors that their monies have been used appropriately.

Fund accounting organizes NGO financial transactions according to the source and use of restricted funds. A well organized fund- accounting system produces reports instantaneously on the status of any one of dozens of specific restricted grants while at the same time consolidating these results into the general accounting ledger of the institution. Much the same way a large conglomerate would generate independent balances for each of several wholly-owned companies, which it would ultimately consolidate for its own financial statements, fund accounting generates separate internal financial statements for each donation (or other liabilities), which it then consolidates into the official external financial statements.

The advent of microcomputers has put fund accounting within the reach of even the smallest NGOs. A well designed fund-accounting computer package can assure financial managers that funds are continually balanced, and that transactions are being correctly recorded. Computerization eliminates much of the complexity and the potential for error of a manual fund-accounting system. Modern NGOs should consider fund (cost-center) accounting to be an absolutely essential administrative tool.

A fund (cost-center) accounting system should include the following capabilities:

- Generate "legal" general ledger and financial statements
- Generate receipts and journal entries
- Handle independent funds (cost centers) separately
- Handle cost centers within funds

*II.B.2.a Generation of "legal" general ledger and financial statements*

The fund-accounting system should generate the legally acceptable financial statements and supporting documentation required by auditors and government regulatory agencies. These requirements vary from country to country and so therefore will specific report formats. Nevertheless, the consolidated reports generated by the system should be sufficient for all legal requirements, eliminating the need for parallel, handwritten, "official" ledgers.

These consolidated financial statements probably include, but are not necessarily limited to:

- General ledger
- Balance sheet
- Income and expense statement
- Trial balance
- Inventory of liquid assets
- Cash flow

Examples of a balance sheet and an income and expense statement follow in Sample Reports 14 and 15.

**SAMPLE REPORT 14**

No. 14				
<b>BALANCE SHEET TO OCTOBER 1988</b>				
		<b>PESOS</b>		
	<b>BALANCE TO 9-88</b>	<b>INCREASES</b>	<b>DECREASES</b>	<b>BALANCE TO 10-88</b>
<b>ASSETS</b>				
<b>Current Assets*</b>				
Cash	25,000	25,000		50,000
Bank	251,660		241,940	19,720
Investment	11,090,998		1,700,000	9,390,998
Accounts Receivable (Funds)	286,660		216,940	69,720
Accounts Receivable	42,907	31,965		74,872
Portfolio Placement	0	749,564		749,564
Various Lenders	348,700		32,718	315,982
Taxes (Receivable)	323,156	38,675		361,831
<b>Total Current Assets</b>	<b>12,379,081</b>		<b>1,346,394</b>	<b>11,032,687</b>
<b>Machine and Equipment</b>	...	...	...	...
<b>Total Machine and Equipment</b>	...	...	...	...
<b>Other assets:</b>				
Guarantees	...	...	...	...
<b>Total Other Assets</b>	...	...	...	...
<b>Total Assets</b>	...	...	...	...
<b>LIABILITIES</b>				
<b>Current Liabilities</b>				
Short-term	...	...	...	...
Accounts payable	...	...	...	...
Accrued Liabilities	...	...	...	...
Current portion of debt (fund)	...	...	...	...
<b>Total liabilities short-term</b>	...	...	...	...
<b>Total liabilities</b>	...	...	...	...
<b>Expenses</b>	...	...	...	...
<b>Total Statement Fund</b>	...	...	...	...
<b>Total Liabilities and Statement for Fund</b>	...	...	...	...
* Numbers filled in as example of information obtained.				

## SAMPLE REPORT 15

NO. 15			
INCOME AND EXPENSE STATEMENT TO OCTOBER 1988			
	PREVIOUS BALANCE	(PESOS) THIS MONTH	TOTAL
<b>TOTAL INCOME*:</b>			
Technical Assistance	0	25,430	25,430
National Program	17,615,360	0	17,645,360
Interest in Investments	...	...	...
Other Income	...	...	...
<b>Total Income</b>	<b>18,150,526</b>	<b>116,522</b>	<b>18,267,048</b>
<b>TOTAL EXPENSES</b>			
Salaries	1,402,948	852,070	2,255,018
Rent	...	...	...
Utilities	...	...	...
Insurance	...	...	...
Transport	...	...	...
Materials/Supplies	...	...	...
Public Relations	...	...	...
Maintenance	...	...	...
Outreach	...	...	...
Miscellaneous	...	...	...
Loans	...	...	...
<b>Total Expenses</b>	<b>...</b>	<b>...</b>	<b>...</b>
<b>Expenses</b>	<b>...</b>	<b>...</b>	<b>...</b>
* Numbers filled in as example of information obtained.			

*II.B.2.b Generate receipts and journal entries*

As one important way to reduce errors in the information system, the accounting software should prepare documentation necessary to include transactions in the accounting system. Once the transactions have been approved, and the check drawn and delivered, the transaction is registered electronically in the general ledger. This saves mistakes, which can occur if one prepares the transaction documentation by hand and then later keypunches it into the system. In this fashion, whatever is approved is what actually gets entered electronically.

*II.B.2.c Handle independent funds (cost centers) separately*

Essentially, fund accounting creates parallel account lists for each fund or cost center. It is the same as having a general ledger for each fund. All movements of resources between funds is handled through accounts payable to other funds so that at any point in time all funds balance.

*II.B.2.d Handle cost centers within funds*

Any one donor usually provides resources for a number of major activities, such as operating expenses, technical assistance, and staff training. These are actually sub-programs or sub-projects within the fund. It is convenient, although not essential, that software be able to manage these programs or projects separately within funds. When NGOs report on the use of these resources, this capacity reduces significantly the analysis required.

Ideally, the software would allow the NGO to manage both funds and sub-programs independently. This would allow for even greater analytical power. This would mean that sub-projects in which several donors participate can be consolidated electronically, and not just manually, as would be the case in the above situation.

<b>FUND</b>	<b>PROGRAM</b>
01 Patrimony Assets	01 Administration
02 USAID-OPG	02 Credit
03 Tinker Foundation	03 Technical Assistance
04 Guarantee Fund	04 External Evaluation
	05 Staff Training
	06 Public Education

*II.B.2.e Flexible consolidation capabilities*

The virtue of this type of accounting system is that NGOs can "cut" the accounting data in a variety of ways for different analytical and reporting needs. The software package should allow the NGO to generate partial financial statements on any combination of fund and sub-program. This provides timely and accurate financial information for donor reports and financial management. These reports should probably be similar to the "legal" reports the system generates on a consolidated basis.

**II.B.2.f Budget comparison**

Financial analysis and reporting can be further expedited if the software package includes a budget comparison function. With this function the NGO includes the estimated monthly budget for each of the funds and sub-programs and the computer compares the final results with the planned results. This is particularly useful when grant agreements include specific monthly budgets that NGOs must report on.

**II.B.3 System security measures**

It is essential that any software include system security measures such as password entry and control of system use (user list with date, time and functions accessed). Ideally, all general ledger entries should be made by the accountant, and not by systems operators. The accounting department should have exclusive use of their own microcomputer in order to protect against accidental damage to records or software by other users. Only one person should be responsible for the general ledger entries and final financial statements. Access of keypunchers should be limited to data entry steps only. Two backup copies of expired months should be kept, one in a safe and the other in the computer room for restricted use. Printed copies should be made of all final reports and kept as permanent records.

Since the client-management system is an integral part of the accounting system, the information pertaining to accounts receivable and payable should be strictly protected in the same way the accounting system is protected. Usually NGOs will choose to locate the client-management system on one computer and the accounting system on another computer. We highly recommend that neither of these two computers also be used for general user programs such as Lotus, word-processing, or games. This minimizes the possibility that system users will accidentally damage the databases through mismanagement of the operating system. Therefore, most medium sized NGOs will need a third computer for these functions.

**II.B.4 Additional tips on software development**

The following are some general tips managers should remember when they embark on a software development program:

**II.B.4.a Select a fourth-generation programming language**

Fourth-generation languages are very powerful programming tools for database management. They simplify the programming steps enormously and are relatively

user-friendly. This means that institutions can invest relatively few resources in training selected personnel in the use of these languages. Eventually these specially trained staff can effect minor changes in the program at very low cost.

Since institutional needs constantly evolve, software must be updated continually. This is far easier with a fourth-generation language such as DBASE III+ or FOX. Finally, a series of complementary programs are available such as compilers, screen formatters, report writers, etc. which make the job of programming even more speedy.

*II.B.4.b Seek maximum clarity in programming goals and tasks*

Lack of clarity in programming goals and tasks can cause some of the greatest problems in computerization. Institutions should spend significant time with programmers before they begin software development, defining the institution's needs exactly and determining which of those needs are most appropriately met through computerization. It will be necessary to prioritize the resulting wish list and focus on the more important tasks.

Once the institution has defined the programming goals and tasks clearly, it must resist the temptation to modify those goals and tasks. It must modify goals and tasks only when it is imperative to do so. The delays caused by constant modifications are the main source of manager's frustration with the computerization process. Inevitably, the resulting program is usually terribly inefficient because modifications have to be tacked on and cannot be incorporated into the core system.

*II.B.4.c Seek design and functional simplicity*

We frequently say that "the perfect is the enemy of the good". Nowhere is that more apparent than in software development. The temptation to ask the computer to do all of the drudge work is almost overwhelming. The second most important source of manager's frustration with the computerization process arises from this temptation.

The simpler a program, the faster it runs and produces results. A simple program is easily understood and modified without error. A complicated program is difficult to modify because it is difficult to track down, throughout the system, all of the repercussions of relatively minor changes.

Complex software should only be developed on the basis of relatively simple program modules that have been independently tested for independent functions. Managers should not be greedy. They must pick the five or six tasks that involve the most staff time due to their extreme repetitiveness, and program initially to solve those problems.

Simplicity in program goals and design will ensure satisfaction.

#### *II.B.4.d Do not let programmers become indispensable*

Some computer programmers are jealous of their work and try to protect it either by compiling the final version while retaining the source copy, by password protection, or by producing poor manuals. This is unacceptable and expensive for users. Internationally, the move is away from software protection and not towards it. Besides, micro-enterprise portfolio-management software is of very limited use to other institutions, even should they obtain a copy.

Programmers should be sought who are willing to establish an open communicative relationship with the institution. In the long run this is beneficial for both parties. Uncommunicative programmers cannot ultimately be good programmers since they cannot truly understand the institution's needs.

## **II.C BRINGING COMPUTERIZED INFORMATION SYSTEMS ON-LINE**

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Bringing computerized information systems on-line is a time-consuming, expensive task, especially in the short run. It usually requires institutional restructuring, procedural revamping, and personnel changes. It also requires double work for at least three to six months, depending on the complexity of the system employed. Productivity falls sharply initially and usually the net benefit is not felt until much later than expected. The following are recommendations for bringing computerized information systems on-line based on the experience of several ACCION-affiliated programs. It is not intended to be comprehensive but rather to mention the most relevant aspects of this process, which has been the nemesis of many institutions.

### **II.C.1 Hire additional personnel during start-up phase**

Data-entry demands and the demands of learning a new system will unduly stress existing staff. They will be forced to choose between their traditional manual duties and their new computerized duties. Since, to ensure accuracy,

both systems should be managed simultaneously during a period of three to six months, they will inevitably neglect one or the other. This creates chaos.

It is usually worthwhile to add a computer specialist to the staff to oversee the program's implementation. In addition, it is important to hire two to three temporary staff members to do basic tasks such as data entry, secretarial work, or book-keeping, in order to manage the parallel systems. It is important that these additional employees be temporary since the computer will, in the final analysis, actually reduce the previously existing staff's workload. Usually, constructive and vital new tasks can be found for previously existing staff who suddenly find themselves with excess time. If not, attrition without replacement will reduce the overall staff size.

#### **II.C.2 Standardize administrative procedures and methodologies**

To the degree that procedures and policies can be standardized, computers can be more effective. If, for instance, a loan officer makes different types of loans with vastly different conditions to each of his or her clients, computer programs will have to be relatively sophisticated to manage the portfolio.

To the extent that similar policies and routines are followed, the computer program can be more straightforward. Therefore, managers should standardize the maximum number of procedures possible, without compromising necessary program methodologies.

#### **II.C.3 Involve key members of the existing staff in the process**

To the extent that key members of the existing staff participate in bringing computerized information systems on-line and see that they are the primary beneficiaries of this process, they will be enthusiastic supporters and collaborators. This is fundamental. If the new system is seen as an appendage, it will not become an institutional priority and the process will be long and painful. It will have to be imposed by executive decree against opposition and perhaps even sabotage.

#### **II.C.4 Program computer utilization to avoid bottlenecks**

One common problem that institutions face is competition for scarce computer resources. Unfortunately, the most interested staffers are frequently not those whose functions are a priority for the institution to computerize. This creates a

conflict. Managers must ration computer time to ensure that vital tasks have priority over less important tasks.

It is common to see middle managers invest enormous time producing reports with Lotus spreadsheet programs that could be just about as efficiently produced by hand and typed. The temptation to "play" with the new toy is difficult to resist. In fact, staff should be encouraged to experiment with the computer as long as it doesn't interfere with fundamental tasks.

#### **II.C.5 Garbage in, garbage out**

Computers cannot improve on faulty entries. If the data that is entered is flawed, the reports will be flawed. Computers will not bring order where chaos previously existed. This is particularly important when making a decision about entering historical loan and client data. If that data is seriously flawed, and much of it can be, it will be a waste of time to enter it. If it varies significantly in its structure, or variables, then it is relatively useless.

Remember, flawed or incomplete data is virtually useless. Having 85 percent of the necessary data entered will not produce useful reports. When embarking on a process of data entry, enter only the essential data first for all clients. Enter the rest at a later date. This will ensure that 100 percent of the necessary data is entered within a reasonable time-frame. Remember, programs are dynamic and don't stand still waiting for computerized information systems to catch up. They keep moving and create an information backlog.

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### **II.D FUND ACCOUNTING**

#### **II.D.1 Key features of fund accounting**

The following is a brief description of a series of special characteristics that distinguish fund accounting from standard accounting systems and with which managers should be familiar. By far the most complete Spanish-language reference on fund accounting is Mella's **Instituciones no Lucrativas: Administracion, Contabilidad por fondos y Control Interno**. For further detail, managers should certainly use this reference.

#### **II.D.2 Nomenclature**

In fund accounting each donation or loan is given a fund number. All of the transactions associated with that donation or loan are assigned to that fund by prefixing the fund number to the standard account number. For example, the

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account number for office equipment might normally be 11010300, composed of the following levels:

1	Class Assets
1	Sub-class Fixed assets
01	Account Office Equipment
03	Sub-account Office Equipment
00	Sub-sub account _____

If that equipment were purchased by a restricted grant which the institution had assigned to be fund number 03, then the complete number for this account would be 03-11010300.

Some of the more sophisticated fund accounting programs allow up to three levels of disaggregation; for example, fund, program, and cost center. Since most grant agreements have several major program activities, each of which has several major line items, this disaggregation can be very useful when managers prepare their financial reports. In this case, the complete number might be 03-01-1-11010300.

### *II.D.3 Treasury fund*

The fund-accounting system proposed by Mella uses a special treasury fund to facilitate cash management. All cash transactions are passed through the treasury fund, which acts as a repository for the cash from all of the other funds. This allows institutions to optimize cash management by consolidating cash transactions in one bank account that:

- increases negotiating power with banks by consolidating all cash transactions in one place;
- increases savings through the elimination of checks for each individual bank account;
- reduces workload associated with multiple bank account reconciliation and other internal controls; and
- facilitates cash transfers between funds in a way that is transparent and easy for auditors to follow.

The treasury fund only has accounts relating to cash, banks, and accounts receivable/payable to other funds. It registers no other movement. All cash received by the project is deposited in the treasury fund and accredited to the fund for which it is destined. However, since no other fund will have cash or

bank accounts, monies will actually be disbursed from the treasury fund, drawing down on the obligation created in the relevant program fund.

#### **II.D.4 Administration fund**

Once grants have expired, remaining resources pass into the general unrestricted resources available to the institution and no longer have to be specifically reported on to the donor institution. The administration fund is set up within the accounting system to consolidate all of these non-restricted resources. The administration fund also consolidates all other unrestricted resources such as patrimony and most local donations.

The administration fund normally houses certain non-programmatic expenses such as general audits, promotional activities, general assemblies, legal fees and administrative overhead. Interest income generated by the loan portfolio may either be reported in the administration fund or in the program funds, depending on the information requirements of the donor institutions or managers.

#### **II.D.5 Program funds**

Program funds are usually set up for each specific restricted donation in order to facilitate financial reporting. Most computerized systems allow for up to 99 funds, more than enough for any NGO. When grants expire and NGOs no longer have any responsibility to the donor for reporting on the use of the grant, the fund is eliminated and the remaining resources passed to the administration fund.

#### **II.D.6 Tips on fund accounting**

The following are some general tips for managers who use fund accounting, based on the experience of ACCION-affiliated programs that already have implemented this system.

##### ***II.D.6.a Keep accounts lists simple***

NGO accountants are used to creating terribly complex lists of accounts in order to handle the reporting requirements of multiple restricted grants. Typically, in the accounts list, NGO accountants would create a sub-sub-account for each account for each donor. For example, office equipment donated by three different donors would be separated at the level of sub-sub-account in the following fashion:

11010301	Equipment	Donor 1
11010302	Equipment	Donor 2
11010303	Equipment	Donor 3

This practice leads to interminable accounts lists and great confusion. Accountants seldom maintain the same sub-sub-account number for the same donor throughout the entire accounting system, because sub-sub-account numbers are frequently used for other purposes. However, even those accountants who do maintain the same number throughout the entire system cannot consolidate information easily on a sub-sub-account level.

In fund accounting, equipment would have only one account number: 11010300. Equipment donated by different sources would appear with the fund prefix before the account number. This allows accountants to remember the account numbers for all transactions more easily and reduces errors greatly. Analysis is done outside the accounting system itself through the consolidation process. Account numbers themselves are not affected.

Since fund accounting is so powerful, it allows for simplicity at the account level. Accountants should take advantage of this feature; it will save time and money.

*II.D.6.b Assign transactions to funds before check authorization*

Assigning transactions to different funds requires a management decision at a relatively high level. The person who designates the fund must be aware of all of the provisions in each of the grant agreements. Fundamental principles of internal control and effective administration require that the exact accounting entries be specified before the check is signed.

*II.D.6.c Double-check all entries before entering into general ledger*

It is far more effective to eliminate errors at their source than it is to repair sloppy work. Computerized fund accounting uses a great deal of computing time for each report. In order for errors to be corrected, the adjustments must be run through the entire process and all of the reports generated anew. The best way to eliminate these errors is to review each entry carefully before passing it to the general ledger. The best process is to have someone other than the keypuncher review all data entry against the original documents before processing the general ledger.

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Photograph: *Miguel Sayago*

## **III FINANCIAL ANALYSIS OF PROGRAM PERFORMANCE**

Unlike private, for-profit organizations, NGOs seek to maximize service impact rather than maximize the return on equity. Like all organizations, NGOs would like to be permanent. NGOs have traditionally sought that permanence through fundraising to cover operating expenses. This has been an appropriate strategy given the predominantly charitable activities in which they have characteristically been involved.

In recent years, NGOs have become involved in development activities and, more specifically, in income-generation projects for poor people. These activities, by definition and approach, are not charitable but rather attempt to integrate marginal actors into the formal economy as full-fledged members. In the early years, governments and international donor agencies were willing to subsidize these activities heavily. Now they insist that these activities eventually cover their costs.

This means that NGO micro-credit programs will reach long-run sustainability when they reach financial self-sufficiency. Programs that generate income for program participants should also generate sufficient revenue for their own activities.

We can classify two types of self-sufficiency. The first level is operational self-sufficiency: income is equal to or greater than expenses. It corresponds to 'nominal' self-sufficiency, where the money earned covers the money spent (Formula 1). This is the concept of self-sufficiency most commonly used by donor agencies and development programs to evaluate a program's viability.

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**Formula 1:**

$$\text{Operational Self-Sufficiency} = \frac{\text{Operational Income}}{\text{Operational expenses}}$$

This concept of self-sufficiency is inadequate, however, when we wish to examine long-term viability in an inflationary economy. Inflation affects credit programs in two important ways. First, it decreases the purchasing power of the credit portfolio, meaning that it is less and less able to cover the operating costs of the program, which continue to rise. Although in the early stages of an increasing inflation expenses also tend to fall somewhat in real terms, the portfolio always shrinks faster since it is a monetary asset, the very thing that inflation most devalues.

Second, borrowers also face increasing materials costs. That means that they will need larger loans (denominated in local currency) to purchase the same raw materials. If credit portfolios don't increase their size (in local currency), credit programs will be forced either to reduce their participant load in order to increase loan sizes to remaining participants, or serve the same participants with less effective loans.

Any inflation is bad for credit programs. Unfortunately, most credit managers ignore the effects of inflation on their portfolios and prefer to mobilize fresh resources from outside the program to maintain themselves and expand. This phenomenon is especially apparent now that so much funding is available for these types of programs. This strategy is self-defeating. Consequently, managers must run hard just to stay in place, hardly a recipe for success.

Financial self-sufficiency measures the ability of programs to both cover their direct operating and financial costs and maintain the real value of their credit portfolio. To calculate financial self-sufficiency, the program must include, as a cost, the amount necessary in local currency to replace the value lost due to the prior year's inflation (Formula 2).

Formula 2:

<p><b>Financial Self-Sufficiency</b></p> $\frac{\text{Operating Income}}{\text{Operational expenses} + (\text{Patrimony} \times \text{Annual Inflation rate})}$
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The following is a comparison of calculations for operational and financial self-sufficiency in an economy where inflation is running at 50 percent, interest rates are 30 percent and the current loan portfolio, consisting entirely of donated funds, is 300,000 pesos.

Table I

SELF-SUFFICIENCY CALCULATIONS		
	SELF-SUFFICIENCY	
	Operational Pesos	Financial Pesos
<b>Income</b>	7,500	7,500
1) Operating expenses		
2) Financial expenses	5,400	5,400
3) Inflation's cost		10,500
<b>Net Income</b>	2,100	(-8,400)

The program that is operationally self-sufficient charging 30 percent annual interest would have to charge 63.6 percent a year and capitalize more than half of the interest generated in order to be financially self-sufficient. That would be a positive real rate of interest of almost 24 percent on an annual basis.

Negative real rates of interest have a devastating impact on the value of loan portfolios in a relatively short period of time, as we can see from the table below. Although it may seem preposterous that someone could charge a negative rate of interest of 60 percent a year, throughout 1988 and 1989 the government of Alan Garcia in Peru maintained effective interest-rate restrictions in a highly inflationary economy that resulted in lenders being forced to charge a negative

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real rate of almost 80 percent. Bolivia went through a similar experience in 1983-1985. Currently, many countries have negative real rates of interest of between 15 and 30 percent.

**Table II**

<b>NEGATIVE INTEREST</b>			
<b>Negative real rate (annual)</b>	<b>Percentage loss value portfolio</b>		
	<b>2 years</b>	<b>3 years</b>	<b>5 years</b>
5%	9.75	14.26	22.62
10%	19.00	27.10	40.95
15%	27.75	38.59	55.63
20%	36.00	48.80	67.23
30%	51.00	65.70	83.19
40%	64.00	78.40	92.22
50%	75.00	87.50	96.88
60%	84.00	93.60	98.98

It is important for managers in countries that do not have significant rates of interest to maintain the value of their portfolios. For instance, in Costa Rica, where inflation is only somewhere between 12 and 15 percent a year, the program could still lose up to 55 percent of the value of its portfolio in only five years, without even noticing it.

Self-sufficiency is just another way of talking about profitability for non-profit institutions. Classic profitability ratios can and should be used when we analyze program financial performance. The Return on Equity (ROE) (Formula 3) indicates whether or not the program is capitalizing its patrimony (equity). Although, strictly speaking, non-profit institutions do not possess equity, they do have a patrimony of resources that constitutes one with which they carry out their activities. If the ROE is less than the inflation rate then the program is decapitalizing.

**Formula 3:**

<p><b>Return on Equity</b></p> <p><b><u>Operating income - Operating expenses</u></b></p> <p><b>Patrimony</b></p>
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The Return on Assets (ROA) is another classic profitability indicator for financial institutions (Formula 4). This indicator is more relevant for institutions with large liabilities structures including long-term concessionary loans from such institutions as the IDB.

**Formula 4:**

$$\begin{array}{c} \text{Return on Assets} \\ \hline \frac{\text{Operating Income} - \text{Operating expenses}}{\text{Total assets}} \end{array}$$

The Return on Earning (Productive) Assets (ROPA) reflects the productivity of the institutions asset structure, particularly when compared to its ROA. The ROPA (Formula 5) should be close in value to the effective rate of interest charged by lenders, unless that institution has a large quantity of unproductive assets such as immobilized bank accounts.

**Formula 5:**

$$\begin{array}{c} \text{Return on Earning (Productive) Assets} \\ \hline \frac{\text{Operating Income} - \text{Operating expenses}}{\text{Liquid assets}^1} \end{array}$$

**1. note: liquid assets = cash, banks, loans outstanding, accounts receivable, liquid investments.**

Financial management of financial institutions can be extremely complex. Fortunately for micro-credit program operators, NGOs are not true financial intermediaries, since they cannot directly mobilize savings deposits from the public. They are essentially one-way lenders. This simplifies the job of NGO managers enormously since they do not have to worry about the major financial issues of maturities matching, reserve requirement, investment analysis, tax management, or government regulations.

The remainder of this chapter examines four of the five risk areas financial institutions face (credit, investment, liquidity, and operating risks) and provides

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NGO managers with simple tools to track program performance and control exposure to potential losses. Fraud risk, the one area not explicitly dealt with in this chapter, would be an appropriate area for a chapter on internal controls, which may or may not be in the domain of financial managers, depending on the specific institutional structure. We should note that the comments in this chapter relate to the financial aspects of the risk analysis and not to methodological aspects, which may increase risk factors.

Normally, texts on financial management are filled with financial ratios and statistical techniques. Ratio analysis, although apparently impressive, is of very little use unless we are looking for specific problems and have good data from other similar institutions with which to compare our performance. We will attempt to provide some general parameters for the types of ratios that may be most useful to credit-program operators and the general values these ratios should have. However, programs will differ considerably and great caution and good sense should be used when we apply ratio analysis to specific institutions in specific contexts.

### **III.A CREDIT RISK**

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#### **III.A.1 Delinquency and defaults**

Credit risks refer to losses arising from the deterioration in the quality of the NGO's principal earning asset, its loan portfolio. The issue here is whether borrowers are both willing and able to repay their loans. Late payments (delinquency) increase collections costs and decrease operating spreads. Outright default (non-payment) is an expense that must be covered by the operating spread, a very heavy burden indeed if the default rate is more than four or five percent of the current portfolio. More importantly, high delinquency and default rates cause credit programs to lose credibility among borrowers and generally lead to ever-increasing repayment problems and threaten long-term institutional viability.

There is no absolute relationship between delinquency and default. This relationship depends on the credit methodology employed. For instance, in solidarity-group programs loan delinquency turns into loan default very quickly and very directly. Delinquency means that the group is having internal difficulties, and if the program does not intervene quickly to assist the group in working these out, delinquency turns into outright default. Group loans that have been defaulted are difficult to recover. Therefore solidarity group credit methodologies

should not have delinquency rates (overdue payments as percentage of current portfolio) exceeding five percent. Delinquency rates between five and ten percent indicate to managers that corrective measures must be undertaken immediately. Delinquency rates of over ten percent usually indicate that a major overhaul of the program is necessary.

In individual loan programs, given that loans are usually backed by collateral guarantees, delinquency does not lead as directly to default. Typically, delinquency levels will fluctuate between five and fifteen percent in individual loan programs while default may be only one to three percent of current portfolios. Delinquency levels in individual loan programs that exceed ten percent but are less than 20 percent should be monitored carefully by managers to detect negative trends and their causes. Delinquency levels exceeding 20 percent should be cause for major alarm and program restructuring.

Delinquency levels vary according to country context. In Costa Rica, for example, late repayment of all obligations is standard practice. In the formal banking system, arrears run as high as 50 percent of current portfolios. In this environment, a stable delinquency rate of 25 percent may not represent a significant problem (except for cash flow). In other countries, credit methodologies are supported by favorable legal and regulatory environments that allow for swift legal action designed to impose sanctions, and delinquency can be kept to a minimum.

Far more important than absolute levels of delinquency are tendencies. Increasing levels of delinquency should always be investigated, no matter what the absolute level. These tendencies always indicate changing conditions that should be managed by program staff.

### **III.A.2 Causes for default**

Lenders cause most borrower default in credit programs in developing countries. Borrowers respond to repayment incentive structures established by lenders. They respond as rational, optimizing economic actors, and not, as many people think, out of ignorance or irresponsibility. We can best see this when we examine the differing portfolio performances of similar types of lenders who operate in similar markets.

Most analysts who have looked at the causes of default in credit programs have limited their coverage to a single lender. As a result, they usually overstate

the importance of external forces (natural disasters, structural deficiencies in economies of developing countries) or cultural idiosyncracies (ignorance, immorality, irresponsibility) on repayment performance. Once lenders realize the importance that repayment incentives structures have on borrowers' decisions, default becomes a manageable problem and not an inevitable consequence of targeted development credit.

Lenders cause borrower default in many ways. Most commonly, lenders are not willing to collect loans from poor borrowers if they default. Politically, they feel that such sanctions would be counterproductive or impossible to impose. If borrowers know that they will not be 'punished' for defaulting, they have no real incentive, in most credit programs, to repay.

Often, lenders feel that they cannot impose sanctions because credit is linked to a broader development initiative involving technology transfer. Many times these transfer schemes fail, and the borrowers are left in debt, through no direct fault of their own. Unfortunately, most of these failed programs were poorly conceived and executed and therefore, the basic fault lies with the lenders and not the borrowers.

On other occasions, lenders attempt to use credit to provoke structural change where other means would be more appropriate. This is a common failure among micro-enterprise programs that target the most poor segments of society. Many of these 'micro-business persons' aren't entrepreneurs at all but rather are occasional economic actors. We cannot lend to people who are too marginal or unstable and expect them to repay. We should examine other types of programs for these 'too-poor' sectors, such as direct employment generation through work programs or charity.

When credit programs restrict credit they communicate borrowers that the likelihood of receiving a second loan is less than receiving the first loan. This situation provides a disincentive for repayment of the first loan, particularly in the absence of serious sanctions.

When NGOs subsidize credit they provide incentives to borrowers to misallocate credit into non-productive activities, since the cost of that credit is so low. This is particularly common when credit is tied to technology transfer and borrowers are skeptical about potential returns to new technologies.

Finally, incompetent credit administration by lenders contributes to borrower lethargy in repayment. If a lender does not pursue delinquent borrowers aggressively because the lender doesn't even know they are delinquent, the lender can not expect to be repaid promptly. This problem is common to understaffed NGOs.

Implementation of effective credit methodologies will reduce and even eliminate these lender-generated incentives for borrower default. Thus the only remaining default will be the truly difficult cases, relating to fortuitous events, or business failure. ACCION-affiliated programs have demonstrated that these causes of default amount to no more than three percent of the value of loan portfolios in any given year. This value is double that of a good commercial bank, but well within an acceptable range for a development activity aspiring to financial self-sufficiency.

There are three basic analyses credit and financial managers should do to control the loan portfolio quality. These should be done at least once a month, if not weekly, and include: 1) late payments, 2) exposed portfolio, and 3) recovery rate analysis.

A late-payments analysis measures overdue payments as percentage of current portfolio (Formula 6) and is the common delinquency rate most institutions cite in their financial statements. The reason for this is that of all the possible delinquency measures, this is the one with the lowest absolute rates. This index is dangerous for financial managers because it masks loan recovery problems until they reach levels difficult to control.

**Formula 6:**

<b>Delinquency rate</b>	
$\frac{\text{Amount overdue payment}}{\text{Current portfolio}}$	$\frac{\text{Number overdue payments}}{\text{Number outstanding loans}}$

If institutions increase either their current portfolio size or their loan terms simultaneously as more and more borrowers stop paying, delinquency rates may actually fall. In order to detect these phenomena we should use two other indicators of repayment rates.

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Exposed portfolio analysis, which measures the total outstanding balance of loans with overdue payments as a percentage of current portfolio, corrects for the distortions that arise from lengthening loan terms by considering the entire loan to be risky once a single payment is overdue (Formula 7).

**Formula 7:**

$$\frac{\text{Exposed Portfolio Rate}}{\text{Outstanding balance of all loans with one or more overdue payments}} \\ \text{Current portfolio}$$

Both delinquency and exposed portfolio rates should be analyzed by disaggregating the overdue payments by the length of the delay. Payments that are a day or two late are not as risky as payments that are two months overdue. This analysis is the basis of any program's response to tardiness in repayment.

The percentage of payments actually received during the last thirty days as a percentage of payments due during that same period (Formula 8) is the most sensitive measure of repayment performance and should be rigorously employed as a first warning signal that delinquency rates will increase. This Repayment Rate is undoubtedly the best measure financial managers have of future portfolio quality.

**Formula 8:**

$$\frac{\text{Repayment Rate}}{\text{Payments received last 30 days}} \\ \text{Payments expected last 30 days}$$

We measure overall portfolio quality by comparing the loan losses with the current portfolio on an annual basis (Formula 9). This measure is very difficult to employ when institutions increase their loan portfolios substantially, because of the delay in declaring loans as unrecoverable due to the length of the judicial process. Financial managers who wish to calculate their rate of loan loss accurately must apply the loan losses to the portfolio from which those losses arose. For

instance, if the process of declaring a loan as lost takes a year on average, then the loan loss amount should be applied to the prior year's portfolio.

**Formula 9:**

<p><b>Portfolio Quality Indicator (Loan Loss Rate)</b></p> $\frac{\text{Amount of loan losses}}{\text{Current (relevant) portfolio}}$
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**III.B INVESTMENT RISK**

Investment risk is also known as interest-rate or maturity risk. This is the potential loss which results from a maturity mismatched balance sheet: financing low-return long-term assets (subsidized loans) with expensive short-term liabilities (commercial bank financing of program portfolio). This type of risk is perhaps the primary risk most true financial intermediaries face. Most NGOs are not true financial intermediaries, and to the extent that they mobilize donated or highly subsidized resources to fund their portfolios, they minimize this risk. However, if NGOs are committed to maintaining the value of their portfolios they must assign a cost of funds equivalent to the inflation rate to this 'cheap' money and consequently face some investment risk. In highly inflationary economies, this risk can be very great indeed.

**III.B.1 Spreads**

The key financial indicator related to investment risk is the 'spread' between the institution's cost of funds and revenue generated by its primary earning assets, or its loan portfolio (Formula 10). All financial institutions can project an equilibrium point spread, given a certain projected loan portfolio and related

**Formula 10:**

<p><b>Simple 'Historical' Spread</b></p> $\frac{\text{Operating Income} - \text{Cost of funds}}{\text{Current portfolio}}$
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operating expenses. The larger the loan portfolio, the smaller the spread, since the fixed institutional costs, such as rent, are spread over a greater variable operating cost, lowering the average cost per dollar lent.

As a general rule, operating spreads for micro-business programs are higher than for formal sector lenders, given the tiny average loan size for most programs. Most programs with over 300,000 dollars in loans on the street should be able to work with a spread of between 18 and 30 percent a year. Programs with over a million dollars in loans should be able to work within a spread of 12 to 24 percent a year. Unless micro-credit programs form part of a larger institution that also does other programs, it will be difficult for them to reach self-sufficiency with less than 300,000 dollars in loans on the street.

The Simple 'Historic' Spread presented in Formula 10 measures the resultant spread from a prior period's activities, whether that period be one day or one year. It is too simplistic to be of much analytical use. A far more powerful measure, which is also conceptually more complete, is Formula 11, which compares the weighted interest rate for each of the loans in the portfolio with the weighted cost of funds used to finance that portfolio. This method is far superior when institutions have more than one source of funds or more than one interest rate for loans in the portfolio.

**Formula 11:**

<b>Spread</b>	
	<b><u>Outstanding Balance Each Loan x Its Interest Rate</u></b>
	<b>Current Portfolio</b>
Less	
	<b><u>Amount Each Source Funds x Its Cost</u></b>
	<b>Current Portfolio</b>

To calculate the weighted interest rate charged to the institution on its loans the financial manager must divide the outstanding balance of each loan by the current portfolio to find the weight that loan carries within the entire portfolio. Then the manager must multiply that result by the interest rate for that particular loan. Finally, the manager must add together all of these results to discover the weighted interest rate charged.

If delinquency is significant, this must be accounted for by reducing the weighted rate by the delinquency rate. For example, if the weighted interest rate is 3.5 percent a month and the delinquency rate is 15 percent, then the spread for that month should be readjusted downwards to 2.975 percent. Even though NGOs will probably recover some delinquent interest income from previous months, it is important to readjust downwards to account for the increased collections costs for delinquent loans, costs which are seldom factored into financial projections.

To calculate the average cost of funds, financial managers should proceed similarly. First, they should calculate the weight each source of funds carries within the general portfolio by dividing the outstanding balance of each sources of funds by the current portfolio. Then they should multiply this result by the cost of each of these sources of funds and finally, add all of these results together.

Remember that the cost of funds is the effective rate of interest institutions pay for commercial loans or the inflation rate for donated or concessionary loans. If institutions operate in economies where interest rates for time deposits are positive in real terms, then they should use the opportunity cost of money instead of the inflation rate as the cost of funds for donated or concessionary funds. The opportunity cost of money is the interest rate that those funds would earn if they were invested in low-risk time deposits.

In some countries and programs this data will change only very slowly since interest rates charged will be the same for all loans, and seldom change, and the inflation rates will be relatively stable. In other cases, such as that of Chile, the spread changes daily, since interest rates on loans the program receives from private banks change daily and the interest rate PROPESA charges on its loans to program participants is readjusted monthly. The table below tracks PROPESA's operating spread over a typical period.

Table III

PROPESA OPERATING SPREAD			
MONTH	Weighted Interest Rate	Weighted Cost of Funds	Spread
March	3.580	1.650	1.930
April	3.719	2.800	0.919
May	3.706	2.390	1.316
June	3.869	3.137	0.732
July	3.972	3.222	0.750
Average	3.769	2.870	0.899

### **III.B.2 Spreads and self-sufficiency**

As managers track the spread they are receiving they will be able to monitor their progress toward the all-important institutional goal of financial self-sufficiency. All financial projections for credit institutions are extremely sensitive to small variations in the spread. In the case of Chile, the break-even financial projections require a spread of 1.25 percent a month, considerably above the 0.9 percent for the five months presented above. In this case the financial manager knows that unless he adjusts either the interest rates he charges or his cost of funds, the program will not reach self-sufficiency as planned. In this particular case, rising inflation rates pushed up interest rates, squeezing the spread. If inflation rates were to fall, then the spread would open up and exceed the 1.25 average needed to reach self-sufficiency.

Monitoring spreads allow managers to manage the funding mix of their loan portfolio, and readjust the interest rates they charge to program participants more appropriately during times of economic instability or fluctuating inflation or interest rates. If a program's cost of funds varies significantly from week to week, then that program should also vary the interest it charges on loans on a weekly basis. Otherwise it will fall into the fatal liquidity mismatch trap, which is what ruins most financial intermediaries.

### **III.C LIQUIDITY RISK**

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Liquidity risk is the potential loss that results from the acquisition of expensive short-term funds to cover unexpected credit demand where the cost of funds exceeds the normal average cost of funds and squeezes the 'spread.' Although this type of risk is ultimately reflected in the 'spread' institutions receive, it is very different from investment risk. Liquidity risk measures the potential losses from miscalculating expected credit demand and not having sufficient resources on hand to cover that demand.

True financial intermediaries cover this unexpected credit demand by borrowing short-term funds, which are very expensive compared to their normal cost of funds. NGOs seldom do this, but instead restrict credit. They restrict credit either because they don't have access to short-term bank loans, or because they consider these loans to be too costly.

This reasoning is flawed. When NGOs restrict credit through disbursement delays, turning down loan applications, or increasing requirements to obtain

a loan, they decrease the quality of their service. Program participants have less incentive to repay their loans if they feel that they will not get a new loan in the future, in spite of having fulfilled their part of the bargain. Delinquency levels in micro-credit programs, and development lending institutions in general, is very closely linked to credit restriction. Ultimately, this response to excess credit demand is far more 'costly' than the financial cost of short-term borrowing.

One way to reduce excess credit demand (which is not seasonally related) is to not underprice credit. When institutions charge subsidized interest rates they create excess demand for loans. Commercial interest rates regulate credit demand and offer increased income to institutions that are seeking financial self-sufficiency.

Should funds be insufficient, programs should resort to short-term bank financing to prevent credit restriction. Should institutions perceive that no additional funds will be available to expand the portfolio in the long term and the net change is not strictly due to seasonal fluctuations in product demand, it should consider rationing credit through the interest rates it charges and not through forced credit restriction and service quality deterioration.

Managers must monitor credit demand closely, particularly when average loan terms are as short as they are in micro-credit programs (2-6 months). Seasonality and methodological commitment to increasing loan amounts to successful borrowers gradually create potential liquidity crises if not well managed. The Liquidity Management Worksheet on the following page details the calculations necessary for financial managers to monitor future liquidity positions.

### **III.C.1 Projecting credit demand**

The key to projecting credit demand is to monitor carefully both loan due dates and seasonal product demand for the types of businesses programs finance. The computerized report on loan due dates allows managers to know which loans will probably be renewed during a specific period. In most cases, credit methodologies will dictate the maximum permitted loan increases to individual clients (30 percent increase in installment payment amount). This can be used as a maximum estimated demand on the part of current clients and should be adjusted either up or down depending on the intervening seasonal factors.

<b>LIQUIDITY MANAGEMENT WORKSHEET</b>	
<b>Amount of loans due in month</b> <i>(initial amount lent)</i>	\$ _____
<b>Less: drop-out rate (10%)</b>	_____
Amount loans of current participants to be renewed	_____
<b>Multiply by: average loan increase (130%)</b> <i>(adjusted for seasonal factors)</i>	_____
Probable amount of loan renewals	_____
<b>Add: total disbursements to new participants</b>	_____
Expected total credit demand for month	_____
<b>Less: Expected loan recovery in month</b> <i>(total installment payments due in month corrected for delinquency rates)</i>	_____
Net expected change in loan portfolio	_____
<b>Less: liquid assets currently on hand or readily available</b> <i>(bank accounts, time deposits, donations, unused credit lines)</i>	_____
Expected liquidity surplus <i>(shortfall)</i>	_____

In cases where credit methodologies are not specific about average loan amount increases, the financial manager can use a simple regression analysis to find the relationship between the number of a consecutive loan and its average size, or its average increase. For example, one determines the following on the basis of a statistical analysis:

Table IV

AVERAGE LOAN SIZE	
Number of Loan	Average Loan Size
First loans	\$ 30,000
Second loans	50,000
Third loans	75,000
Fourth loans	100,000
Fifth loans	130,000
Sixth loans	160,000
Seventh loans	175,000
Eighth loans	200,000

By performing a simple linear regression one determines a B value of XXXXXX. Therefore, for any given X value one can determine the related y value with a high degree of certainty, if one's correlation coefficient is high. Finally, to calculate the average loan size for the coming month one must first estimate the average number of consecutive loans in the coming month's disbursements on the basis of the historical average. This is the estimated X value from which one can estimate the projected average loan size (y value).

To the total disbursements for renewed loans the manager should add the total expected disbursements to new program participants, usually relatively simple because credit methodologies usually require a two-to-four week induction period for new participants before they receive their credit. This, plus the expected credit demand on the part of current participants, is the total expected credit demand.

### III.C.2 Projecting need for new funds

In order to determine the need for new funds, one should subtract from the expected credit demand the expected loan recovery for the same period. This result is the expected net increase (decrease) in the loan portfolio. This expected net change in the current portfolio should be compared to the funds available either from additional funding sources or other liquid assets (bank balances, time deposits) to determine liquidity availability. Formulas 12 and 13 are two quick liquidity measures that may be useful in given circumstances. The Liquid Reserves Ratio (Formula 12) indicates the proportion of the institution's earning assets that are available on short notice to meet credit demand. The Liquidity Adequacy Ratio (Formula 13) measures liquid assets as a proportion of the prior month's

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total credit demand. Both ratios are most useful when used in a historical context when there has been a continuity of portfolio behavior.

**Formula 12:**

$$\text{Liqud Reserves Ratio} \\ \frac{\text{Cash on hand}}{\text{Liqud assets}}$$

**Formula 13**

$$\text{Liqudity Adequacy Ratio} \\ \frac{\text{Cash on hand}}{\text{Total disbursements next 30 days}}$$

### **III.D OPERATING RISK**

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Operating risk refers to the potential losses associated with NGO micro-credit program operations. Errors, inefficiencies, and other unexpected and unaccounted-for occurrences can increase program costs and reduce self-sufficiency. Essentially, operating risk can be measured by efficiency indicators that focus on specific services NGOs offer as part of their micro-credit program.

For example, the traditional efficiency indicator for lending operations is the Cost per Dollar Lent (Formula 14). Accion programs typically spend five pesos for each 100 pesos they spend. This indicator is most useful for tracking the evolution of a specific program, comparing its performance with prior months. It is relatively less useful for comparing different types of programs, due to its extreme sensitivity to average loan term differences. Programs whose credit methodology calls for high turnover of individual loans with average terms of two months will naturally have a much lower cost of lending than a program whose average loan term is a year.

## Formula 14:

$$\text{Cost per Dollar Lent} = \frac{\text{Operating expenses}}{\text{Total loans disbursed}}$$

## III.D.1 Tools for measuring administration efficiency

A less sensitive measure of administrative efficiency is the ratio between operating expenses and the current portfolio (Formula 15). In order to reach self-sufficiency, the institution must reach a ratio that is below the effective interest rate it charges on loans. For that reason this ratio is much more useful than the Cost per Dollar Lent. The Cost per Dollar Lent may increase due to methodological changes while at the same time the institution may actually improve its self-sufficiency ratio.

## Formula 15:

$$\text{Operating Efficiency} = \frac{\text{Operating expenses}}{\text{Current portfolio}}$$

Tracking of both fixed and variable costs can be a useful tool for making necessary adjustments to reach self-sufficiency. These costs should be compared to total loan disbursements (Formula 16), current portfolio (Formula 17), and total operating costs (Formula 18).

## Formula 16:

$$\text{Ratio of Variable Costs to Total Loan Disbursements} = \frac{\text{Fixed or variable costs}}{\text{Total loans disbursed}}$$

**Formula 17:**

$$\begin{array}{c} \text{Ratio of Variable Costs to} \\ \text{Current Portfolio} \\ \\ \frac{\text{Fixed or variable costs}}{\text{Current portfolio}} \end{array}$$

**Formula 18:**

$$\begin{array}{c} \text{Ratio of Variable Costs to} \\ \text{Total Operating Costs} \\ \\ \frac{\text{Variable costs}}{\text{Total operating expenses}} \end{array}$$

Although general financial ratios may be useful for financial monitoring, one will find that this type of analysis is not particularly useful for attacking problems in cost structures. Much more relevant, particularly for deciding the course of future action, is break-even point analysis for individual services. When one calculates service break-even points one can monitor the contribution of each to overall self-sufficiency goals.

**III.D.2 Loan size**

The key service in any micro-credit program is credit. Consequently, the financial manager should calculate estimated average and minimum loan sizes necessary in order to reach break-even point for the credit activity.

The absolute minimum loan size institutions should offer is that which covers the direct costs paid to third parties involved in making the loan. Programs should not make loans where the interest and fees income does not cover the cost of funds, fees paid for notaries, taxes, and other legal services, and any other fees paid to third parties as part of the loan process (information on debtors, bank collections fees, etc.). Even if programs expect loan amounts to increase over time, they should not incur expenses to third parties in order to give out a loan.

One can calculate the absolute minimum loan size in the following manner:

**MINIMUM LOAN SIZE WORKSHEET**

1) Determine minimum loan term and payment schedule  
(3 months, monthly payments)

2) Determine fixed costs to third parties for minimum loan term and payment schedule:

Bank collection fees (\$1 per payment received)	\$ 3.00
Legal fees	5.00
Notary fees	2.50
Tax	0.50
Debtor information fees	1.70
<b>Total third-party fees</b>	<b>\$12.20</b>

3) If these third-party fixed costs can all be covered up front, as fees, and institutions are charging rates of interest that cover their cost of funds, then there is no absolute minimum loan size applicable to the program according to these criteria. If both of these conditions are not met then programs will have to calculate total income and total expense generated by this minimum loan size.

4) In cases where institutions charge interest rates that exceed their cost of funds but do not cover third-party costs through up-front fees they must calculate the minimum loan size required to cover the deficit, based on the expected spread between interest earned and the cost of funds.

For example:

Expected spread (% monthly)	2.5%
Total third-party costs	\$12.20
Calculation: Need \$175 loan for three months to generate \$12.20 of interest revenue.	

5) In the case where institutions charge interest rates that do not cover their cost of funds but charge up-front fees and commissions, they must calculate the deficit generated by the negative spread and add this to the third-party costs to determine the amount of the fees they should charge. If the up-front fees are calculated as a percentage of the loan amount, then the calculation is similar to the prior example, except that instead of using the interest rate, managers should substitute an effective rate of interest, which excludes fixed fees, as the basis for their calculations.

Although institutions should never give a loan that is below the absolute minimum amount established above, this amount is too low to be a general guide. A more useful minimum would be the minimum loan size required to cover the direct costs incurred in making and following through on that loan without considering administrative overhead, as in the following example:

**DIRECT COSTS OF LOAN**

**1) Third-party costs for minimum loan term and payment schedule:**

Bank collection fees (\$1 per payment received)	\$ 3.00
Legal fees	5.00
Notary fees	2.50
Tax	0.50
Debtor information fees	1.70
<b>Total third party fees</b>	<b>\$12.20</b>

**2) Material costs:**

Paper, printed forms	\$ 2.50
Transportation (4 trips)	3.00
<b>Total material costs</b>	<b>\$ 5.50</b>

**3) Personnel costs:**

Credit agent (4 hours)	\$15.00
Credit assistant (1 hour)	2.00
<b>Total personnel costs</b>	<b>\$17.00</b>

<b>Total direct costs</b>	<b>\$34.70</b>
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For a 2.5 percent monthly spread over the course of a three-month minimum loan, the minimum loan size would have to be \$680 to cover the direct costs of \$34.70.

The other very useful parameter is the break-even loan size. On average, programs must place loans of a break-even size in order to meet their self-sufficiency goals. All loans larger than the break-even loan size actually report a 'profit' to the institution and compensate for loans that are smaller than the break-even loan size.

In order to calculate the break-even loan size, managers must add the general administrative overhead to the direct loan costs. The result is the total cost of making the loan. Normally the overhead is calculated based on the fixed costs associated with a certain volume of operations, given the scale of the program.

For example, a program that plans on reaching 3,000 participants with a current portfolio of 500,000 dollars will need a certain infrastructure:

Rent (150 m <sup>2</sup> )	Vehicle
Director	Publicity
Accounting staff	Legal and audit fees
Insurance	Equipment maintenance

This infrastructure is relatively stable through long periods of program growth, unlike the direct (variable) costs of granting a loan. These fixed costs can be spread over the break-even number of loans, calculated as a percentage of the estimated break-even portfolio and added to the costs of funds for the minimum loan size calculations presented above.

In the example mentioned above, the fixed costs amount to \$8.26 per loan, at the self-sufficiency point, making a break-even cost per loan of \$43 and a break-even average loan size of \$850.

As loan terms increase, break-even loan sizes decrease, unless there is a fixed monthly supervision cost imposed by the credit methodology. Institutions should calculate minimum loan sizes for different loan terms and have them

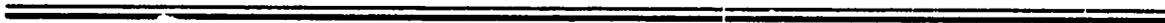
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presented in a table format as shown below as a guide for the credit approval process.

**Table V**

<b>MINIMUM LOAN SIZES</b>			
<b>Guidelines</b>	<b>Minimum Loan Sizes Necessary (in pesos)</b>		
	<b>6 mos.</b>	<b>12 mos.</b>	<b>24 mos.</b>
<b>Absolute minimum</b>	<b>47,508</b>	<b>50,542</b>	<b>51,320</b>
<b>Recommended minimum</b>	<b>171,935</b>	<b>116,727</b>	<b>84,922</b>
<b>Break-even minimum</b>	<b>343,870</b>	<b>233,454</b>	<b>169,844</b>

In essence, by dissecting service costs, financial managers can pinpoint strategies to meet program impact goals while maintaining the overall institutional goal of self-sufficiency and long-term sustainability. Only by being conscious of individual service break-even points can managers prioritize among services in order to cover institutional costs.





Photograph: *Sonoviso del Perú*

**IV SETTING INTEREST  
RATES AND OTHER FEES  
STRUCTURES**

To anyone but the most experienced financial analysts or bankers, interest rates can become very confusing very quickly. Most daily newspapers throughout Latin America publish five to ten different interest rates that determine the day's financial market tendencies. Articles about macroeconomics refer constantly to 'real' rates of interest, as though the interest we all pay on our bank loans weren't real at all. In countries with indexed financial markets we see interest rates applied not to monetary units but rather to alternative measures of value like the 'unidades de fomento' in Chile.

Establishing interest rates for micro-enterprise lending is a relatively simple affair. It does not require sophisticated liquidity matching, reserve requirements balancing acts, overnight or over-weekend investments around the globe to preserve 24-hour productivity on investments, or even high-level risk analysis. It requires knowledge of a few simple financial concepts and dedication to their effective and efficient implementation.

The first section of this chapter discusses basic types of interest rates and their methods of calculation. All micro-enterprise credit program operators should be familiar with these concepts. The second section of this chapter discusses interest-rate policy: what micro-credit programs should charge for their services. The final section details the constraints most NGOs face when they determine their interest-rate policies.

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## IV.A TYPES AND METHODS OF INTEREST-RATE CALCULATIONS

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### IV.A.1 Nominal rates of interest

Simply put, nominal rates of interest are the rates the lender says one will pay. They are the absolute numbers used in the interest rate calculations. When a bank offers an overdraft privilege and charges 1.8% a month, that is a nominal rate of interest. The nominal rate is the stated rate one pays.

Nominal rates of interest are calculated in two principal manners. The first is a flat rate of interest, or the nominal interest rate multiplied by the number of months one has the loan. The second, and the only truly legal method in most countries, is to calculate the rate of interest on the average outstanding balance of the loan over the period the borrower uses the loan.

#### IV.A.1.a Flat interest rate

To calculate the amount of interest a borrower would pay on a loan using the flat interest rate formula one multiplies the loan amount by the interest rate applicable to the loan term established. For example, the borrower would pay \$60 interest on a \$1,000 loan for 3 months.

Loan amount	\$1,000.00
Monthly interest rate	2%
Loan term	3 mos.
Total interest paid	\$ 60.00

In order to calculate the amount of the payment to be paid one must use the following formula:

$$\text{Payment} = \frac{\text{Principal} + \text{Total Interest}}{\text{Number of payments}}$$

In the case of flat interest rates, it makes no difference what the amortization schedule of the loan is. The total interest paid does not vary. Therefore, in this case the borrower would pay the same \$60 whether he/she had use of the whole \$1,000 during the entire three months or whether he/she repaid the loan in three

equal monthly installments. In the latter case he/she had, on average during the three months, only \$667 available.

*IV.A.1.b Interest on average outstanding balances*

It is precisely to remedy this inequity that standard banking practice is to calculate interest on the average outstanding balance. This means that the borrower pays interest on the principal loan amount over the period he/she actually utilizes it. As the borrower repays the loan, the interest is calculated on the diminished principal amount of the loan as shown below:

**Table I**

INTEREST ON OUTSTANDING LOAN BALANCE				
Loan amount		\$1,000.00		
Monthly interest rate		2%		
Loan term		3 mos.		
<b>Payment</b>	<b>Total</b>	<b>Principal</b>	<b>Interest</b>	<b>Balance</b>
1	\$346.75	\$326.75	\$20.00	\$673.25
2	346.75	333.30	13.45	339.95
3	346.75	339.95	6.80	0.00
<b>Total</b>	<b>1,040.25</b>	<b>1,000.00</b>	<b>40.25</b>	

From the table presented above, we see that the borrower pays only \$40.25 in total interest when one calculates the interest rate on outstanding average balances, rather than the \$60 he/she would have paid according to a flat rate calculation.

In summary, depending on the method of calculation, the same nominal rate of interest paid on two identical loans may result in very different total interest payments. Ostensibly, both borrowers pay two percent a month for their loans, yet one borrower pays 50 percent more for the loan than the other borrower. Most financial managers prefer to buy financial calculators to determine the actual payment amounts clients owe. Nevertheless, the formula for calculating the amount of each installment is the following, where:

*i* = interest rate per installment period  
*n* = number of installments  
*p* = principal amount of the loan

$$\text{Installment payment} = Px \frac{1 \times (1 + i)}{(1 + i) - 1}$$

**IV.A.2 Effective rates of interest**

Effective rates of interest allow one to put all loans on a common ground and compare their relative costs. This allows one to shop around for different loans with very different conditions and methods for calculating interest rates and to compare them in terms of the interest rate actually paid.

Effective interest rates vary according to the nominal interest rate calculation method. Borrowers who pay two percent monthly on outstanding balances effectively pay two percent a month. However, the borrowers who are charged two percent monthly flat, effectively pay almost three percent for the money they really use. This is because they are being charged as if they had the use of the entire \$1,000 during the entire three months when in reality they paid three installments and on average had only \$667 available.

Effective interest rates also vary according to when during the course of the loan borrowers pay their interest. For example, loan sharks typically charge flat interest rates and make clients pay interest up front by discounting the principal amount of the loan. In the case of a three-month installment loan where the borrower pays two percent a month flat, but pays up front, he/she effectively pays 3.11 percent a month whereas if the interest were distributed in equal portions over each installment, he/she would effectively pay 2.97 percent a month.

Effective interest rates express, in the form of an interest rate, the effects on borrowers' credit costs due to commissions or other closing costs. For example, most institutions charge loan-closing costs or commissions up front, or before the borrower even takes the money home. These charges are usually deducted from the principal loan amount. This means that although the interest is calculated on the entire loan principal, the borrower does not receive that entire principal amount and therefore effectively pays more than the nominal rate.

In this case, the same borrower who pays two percent monthly on outstanding balances for a three month installment loan but who in addition has to pay a three percent up front commission, effectively pays 3.58% monthly on the \$970 he/she actually received. In this case the borrower pays identical installments whether or not he/she pays the commission.

**Only the effective interest rate changes if commissions are imposed; the nominal rate and method of calculation remain untouched.**

Finally, one may use effective interest rates to calculate the effect of compensating balance requirements on the cost of credit to borrowers. Many credit unions and some banks require that borrowers leave on deposit a certain percentage of the principal lent.

Credit unions frequently require 25 percent of the value of the loan to be left on deposit in share capital, which pays little or no interest, as a means to capitalize the institution. This means, in essence, that the credit union borrower is only receiving 75% of the value of his loan in 'fresh' money. If the 25% left on deposit paid no interest, a borrower who has a three-month loan, whose interest is two percent monthly of outstanding balances, effectively pays 18 percent a month.

Banks frequently require guarantees in the form of CDs or other deposits to cover short-term operations. These cases are similar to that of credit unions in that borrowers must include in their cost calculations the net difference between the revenues generated by those deposits on guarantee and the interest they are charged by the bank for the loan. In some cases the effective interest rate becomes practically infinite (100% guarantee on deposit - no 'fresh' money).

Effective interest rate calculations can be very complex and we highly recommend that financial managers invest in a financial calculator in order to do these types of analysis. The manner of proceeding varies according to the type of interest rate and commissions structure we analyze. The following table provides two examples of effective interest rate calculations using financial calculators. The mathematical formulas for solving for interest rates are too complex to present here. Note: do not confuse effective interest rates on loans with the effective (compounded) interest rate functions on many calculators. There is no set procedure for calculating effective interest rates for all cases.

Table II

<b>EFFECTIVE INTEREST RATES</b>	
<b>Example 1: Principal</b>	<b>\$100</b>
Loan term, three months	
Amortization, one payment	
Interest, flat	2%
Up-front commission	5%
<b>Total interest paid</b>	<b>\$ 6</b>
<b>Net principal received</b>	<b>\$95</b>
<b>Effective interest rate</b>	<b>2.11%</b>
<b>Method: Divide total interest by net principal received</b>	
<b>Example 2: Principal</b>	<b>\$100</b>
Loan term, three months	
Amortization, monthly	
Interest, flat	2%
Up-front commission	5%
<b>Total interest paid</b>	<b>\$ 6</b>
<b>Net principal received</b>	<b>\$95</b>
<b>Effective interest rate</b>	<b>5.68%</b>
<b>Method: Calculate total to be paid (\$106) and divide by number of payments (3) for monthly payment. Feed into calculator the net principal received (\$95) along with number of payments and solve for interest rate.</b>	
<b>Example 3: Principal</b>	<b>\$100</b>
Loan term, three months	
Amortization, monthly	
Interest, outstanding balance	2%
Up-front commission	5%
<b>Total interest paid</b>	<b>\$ 4</b>
<b>Net principal received</b>	<b>\$95</b>
<b>Effective interest rate</b>	<b>4.68%</b>
<b>Method: Feed original principal (\$100), number of payments (3) and interest rate (2%) into calculator and solve for payment. Then recall principal, apply commission, re-enter adjusted principal (\$95) and solve for interest rate.</b>	

#### IV.A.3 Real rates of interest

Real rates of interest are rates that take into consideration the effects of inflation. Real interest rates are either nominal or effective rates of interest less the inflation rate. For instance, if one charges effective rates of interest of 45 percent annually in an economy where inflation is 27 percent a year, one is actually charging an 18 percent real effective rate of interest. If, however, one

charges only 12 percent interest in that same economy, one is charging a negative real rate of 15 percent annually.

One uses real rates of interest to account for the effects of inflation. If one charges negative real rates of interest, one cannot maintain the purchasing power of our loan portfolio. It will be worth less in time, compared to loan portfolios denominated in dollars or other major currencies. In fact, if one uses all of the interest earned to cover one's operating expenses, the portfolio will lose value at the same rate as inflation, in this case 27% annually.

Real rates of interest, as effective rates of interest, are analytical tools for managers. They are not normally explicit contractual interest rates. Some countries, however, have institutionalized real interest rates in contractual agreements by indexing loans. In this case, loans are not denominated in a specific currency but rather in a non-monetary unit which is pegged to inflation. This non-monetary unit, such as the 'unidad de fomento' in Chile is a 'value unit' pegged to the same market basket of goods and services that is used to measure inflation. The 'unidad de fomento' is, in essence, a monetary unit reflection of inflation. Interest rates for long-term loans are always expressed as UF plus the nominal interest rate. This preserves the value of the national financial system vis à vis the developed world's financial systems.

#### **IV.B RECOMMENDED TECHNICAL CRITERIA FOR SETTING INTEREST RATES ON LOANS**

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From a purely technical perspective, setting interest rates is fairly straightforward. However, political and legal considerations usually constrain strictly technical criteria and have a negative impact on financial self-sufficiency goals and long-term institutional viability. In this section we present the technical criteria that should be employed whenever possible. Later in this chapter we discuss common political and legal constraints and how they should be handled.

There are three basic components to the interest rate institutions charge for loans: 1) cost of funds, 2) expected loan loss reserve, and 3) operating spread. Each of these components is independent of the others and only the sum of the three will ensure NGOs that their micro-credit program will achieve financial self-sufficiency and long-term sustainability. NGOs that charge less than the technically optimal interest rate will suffer consequences that are prejudicial to long-term longevity of credit operations.

The proportional revenue generated by each of these three components has its own specific and essential end-use. Should institutions not apply the revenue generated appropriately, it makes little difference what the basis for interest rate calculation ultimately is. The components and their end-use are presented in the table below:

**Table III**

<b>INTEREST RATE COMPONENTS</b>	
<b>Component</b>	<b>End-use</b>
<b>Cost of funds</b>	Cover explicit direct costs of resources used in loan portfolio, cover the indirect cost of inflation by producing an annual operating surplus, which when expressed as a percentage of that portion of the current portfolio which corresponds to donated or low-cost funds, is equal to the annualized inflation rate.
<b>Expected loan</b>	Covers the amount needed to replace the loan loss reserve which must be written off the books annually through the profit-and-loss statement. This amount is expensed monthly through the creation of the loan loss reserve.
<b>Spread</b>	The revenue necessary to cover operating expenses

**IV.B.1 Cost of funds**

The amount that financial institutions pay for the resources they lend should be the primary basis for determining the interest they charge on loans. First and foremost, institutions must cover their nominal cost of funds. Micro- enterprise credit programs that borrow funds to on-lend must start by covering the direct expenses associated with these resources. These resources may be local currency loans or they may be loans denominated in a foreign currency. Institutions must not only consider the nominal cost of funds, i.e., interest rates paid to depositors or paid on certificates of deposit, but also their effective cost of funds, i.e., compensation for reserve requirements. Institutions that operate across national boundaries must also consider their real cost of funds, i.e., interest rates denominated in \$U.S..

If institutions work with a significant portion of donated or heavily subsidized resources within the composition of their credit portfolio, they should establish a cost of funds that can maintain the approximate real value of these low- cost resources. Otherwise, as inflation unfolds, self-sufficiency can only be reached

by new infusions of external resources. These resources replace the resources that have already been inflated away.

This approach would not be necessary if the institution's costs did not rise at the same rate as the general inflation within the economy. In most periods of increasing inflation, salaries, which account for about 80 percent of the operating costs of most micro-credit programs, fall in real terms. A portfolio, diminished by inflation, could still be capable of generating income to pay these diminished real salaries. However, once the inflationary process has been controlled, salaried employees usually seek and obtain real salary increases and the diminished portfolio would be unable to respond.

Unfortunately, non-profit institutions generally pay low-end salaries, even in periods of relative economic stability. Under these circumstances, if an institution allows real salaries to fall as fast as salaries in other sectors it will face extremely high rates of turnover or employee discontent, both of which hurt productivity.

Another problem with inflation is that as inflation proceeds, borrowers face rising inputs costs. They must have access to larger nominal loans in order to purchase the same amount of raw materials. A shrinking portfolio forces lenders to choose between eliminating clients to maintain average real loan size or maintaining all their old clients and allowing real loan size to fall.

Except in the more volatile inflationary situations, institutions that work with subsidized resources should charge a rate of interest greater than the inflation rate and should reinvest that portion of the interest received which is equivalent to the inflation rate back into the loan portfolio. This is known as maintaining the real value of the portfolio. Institutions that charge substantially positive real rates of interest but which don't maintain the value of their portfolios will ultimately suffer a sustainability crisis.

#### **IV.B.2 Expected loan loss reserve**

Institutions must charge an interest rate sufficient to cover their expected loan loss in addition to their cost of funds. Ultimately, defaulted loans that are not recovered from debtors must be replaced by income generated from the loan portfolio. Otherwise, the loan portfolio shrinks in size over time, in nominal terms. As the portfolio shrinks, it is less able to generate the income necessary to cover operating expenses.

NGOs should establish a bad-debt reserve to cover expected loan losses. To create this reserve, first estimate expected losses on a monthly basis, and then expense these expected losses through the income statement. When a loan is finally judged to be irrecoverable, it is actually written off. This means that the accountant adjusts the balance sheet items by subtracting the real loss both from the loan loss reserve and from the current assets.

All loans that have remained past due for longer than one year should be written off. This does not mean that the institution forgets about the loan. The fact that it is written off the accounting books does not affect in the slightest the institution's ability to collect from the debtor. This policy ensures that lending institutions will maintain a relatively clean portfolio and not accumulate a significant non-performing portfolio within its larger portfolio. If a written-off loan is collected, it is accounted for as unexpected income.

Normally, financial institutions estimate the amount of expected bad debt they expense to the loan loss reserve on the basis of prior experience. This amount is usually expressed as a percentage of the current portfolio. Mature financial institutions can usually predict with a high degree of accuracy the percentage of the loans that will be defaulted and not recovered.

However, a new financial institution finds this estimate more difficult for two reasons. When it lends to a 'new' client group, in this case micro-enterprises, with no prior credit experience, the NGO cannot estimate with precision. Secondly, when a current portfolio grows rapidly, a significant portion of its loans are new loans, which have not yet had the opportunity to become delinquent. Therefore, it is easy to underestimate the real ratio of bad debt to current portfolio. During this growth phase, programs must track bad debt as a percentage of total disbursements rather than current portfolios.

As a rule, well managed micro-enterprise credit programs should not have loan losses exceeding three percent of the average current portfolio in any given year. To establish the loan loss reserve, institutions should expense 0.25 percent of the current portfolio at the end of each month and credit this to the loan loss reserve. Institutions which do not have any provision for loan losses should open the reserve with a one-time deduction of five percent of the current portfolio to establish the reserve, with the consequent reduction of total net worth.

This should be considered a minimum standard. Only if a program demonstrates over the course of three to five years that it can operate with a smaller loan loss

reserve should it do so. If institutions find that this reserve is insufficient to cover the bad debt losses, this reserve should be increased; ultimately such a decision would be result in a higher interest rate for clients.

In an economy where inflation is running at 18 percent, a well managed micro-enterprise credit program that works with donations will have to charge 21 percent interest just to maintain the real value of its current portfolio, taking into account both inflation and the loan loss reserve. Up to this point, the institution has not yet charged anything to cover its operating costs.

#### **IV.B.3 Operating margin, 'spread'**

All financial institutions operate on a spread. Micro-enterprise credit programs should be no different. A spread is the difference between the mature institution's cost of funds (and loan loss reserve) and the amount it must charge to cover its operating expenses. When programs are in the early phases of their growth curves, these spreads must be estimated on the basis of the expected spread for the program when it reaches early maturity (three to five years) and the operating deficit subsidized.

Credit programs, through their budgeting and financial projections processes, should be able to determine what their final operating costs will be as a percentage of their expected portfolio. This is their expected operating spread at their expected break-even point and should be the final ingredient in interest rate calculations.

Normally, retail lenders in Latin America operate on a nine- to 15- point operating spread. Large commercial lenders operate on a three- to nine- point spread. Micro-business lending is expensive on a per-loan basis and requires a higher than normal spread. In our experience, that spread is between 18 and 30 percent for a mature program. The larger the program, the smaller the necessary spread. For instance, a \$300,000 to \$500,000 program may need to charge a margin close to 30 percent whereas a \$1.5 million program ought to operate closer to a 18 percent spread.

Therefore, a well run, medium-sized, micro-enterprise credit program operating in an economy with an inflation rate of 18 percent should charge somewhere around 45 percent annual rate of interest. This would be a positive real rate of interest of 27 percent. The institution would use 24 percent as a spread to cover its operating expenses and three percent to maintain its bad debt reserve. Its year-end income statement would reflect a surplus equivalent to 18 percent of

the current portfolio, which would be subsequently reinvested in loans to micro-enterprises.

### **IV.C EXTERNAL CONSTRAINTS ON INTEREST RATES**

Although charging positive real rates of interest on the order of 27% annually may be acceptable for borrowers and financially necessary for credit programs, it may not be easy to actually charge that rate. External constraints, in the form of legal or policy restrictions on interest rates programs can charge, are both powerful and pervasive.

Interest rate and fees structures are key financial variables that credit program financial managers must handle effectively. Reduced revenues resulting from inappropriate interest rate and fees policies may 'cost' programs more than inefficiency and waste cost on the expense side of the 'profit and loss' statement.

Subsidized interest rates have long been a mainstay of development lending. The supposition has been that poor producers are unable to pay commercial rates of interest and if we are to encourage their activities, these rates must be subsidized. Further, it is easier to provide cheap capital than it is to provide cheap raw materials.

Subsidized credit, however, has several negative effects. For the lender it results in diminished revenue. In the case of micro-enterprise credit programs, where the average loan size is tiny (under \$300), unit costs for each loan given out are relatively high compared to the revenue generated. The chief drawback for borrowers is that cheap credit creates a tremendous excess demand for credit and this rationed credit is usually only available to a few who have better connections in the banking system.

#### **IV.C.1 Legal constraints**

Most governments control the maximum interest rates charged by banks and other financial institutions. If there is effective control, financial institutions are almost never allowed to charge 27 percent real rates of interest. Unfortunately, in most countries, misguided financial sector policies restrict interest rates so much that they may actually be negative in real terms.

In most countries micro-business credit programs that are managed by non-profit, private associations do not fall under the supervision or regulation of

government organizations in this matter. The only legal constraint they may have to adhere to is a general usury law, which fixes the level of usury interest (nominal), although local legislation varies somewhat in this area.

As the government's interest rate policy becomes more and more restrictive, it can create severe problems within the financial sector. If it is successful in restricting interest rates far below inflation levels, as the recent history in Peru shows, it will destroy the national economy, since any available resources will be taken out of the country. Most attempts at interest rate restriction are not successful, in part because innumerable ways to circumvent legislation and obtain positive real rates of return on credit portfolios spring up among lending institutions.

A micro-enterprise program's response to this restrictive interest rate environment must be to find ways to raise the effective rate on interest paid by its beneficiaries. Since micro-credit programs also offer a series of other related services such as technical assistance, training, and insurance, fees may be charged for those services, which may actually be used to supplement income from interest charged. In some countries, while the nominal rate of interest is controlled, the effective rate is not and the interest may be charged up front.

#### **IV.C.2 Political constraints**

The positive real rates of interest necessary to maintain successful micro-credit projects are universally accepted by program beneficiaries since they represent low-cost alternatives to informal lenders (loan sharks). However, the broader public usually considers these rates to be too high. This public usually views development credit as subsidized credit at low rates of interest. Charging 'high' rates of interest to 'poor' borrowers seems to them to be usurious. Usually, donor agencies are the most adamant group in insisting on subsidized interest rates for poor borrowers.

Given this, micro-credit programs must be careful about the interest rate issue. As programs grow in size and impact they also grow in visibility and threaten special interest groups. This situation makes the very political issue of interest rates a prime target for external criticism, and, in extreme cases, legal action. Educating the general public about interest rates is a task that micro-credit projects must undertake as part of their mission to provide productive development credit to small-scale entrepreneurs.

This 'subsidy mentality' arises from basic misconceptions about the costs to borrowers of obtaining and repaying credit. Explicit financial charges imposed by institutions are only a very small part of the total borrowing costs faced by small borrowers who must take precious time out to do the necessary paperwork. If the general public were to examine the interest rate issue from the borrower's perspective, the supposed virtue of the subsidized interest rate structures would disappear and commercial rates of interest charged for effective, efficient and appropriate credit services seem much more attractive. The following section discusses in detail the costs borrowers face when they obtain credit, which in turn provides the justification for charging technically sound rates of interest for micro-credit loans.

#### **IV.C.3 Total borrowing costs**

Lenders ration the supply of credit they offer through any one of the three components of total borrowing cost: a) direct financial costs; b) transaction costs; and c) accessibility costs. The following sections discuss the different approaches to credit rationing taken by formal and informal sector lenders and relevant lessons for micro-business credit program operators.

##### ***IV.C.3.a Direct financial costs***

Any time a borrower obtains a loan, he or she incurs several different types of costs. The most obvious of these are direct financial costs such as interest payments, commissions, fees, or other direct charges. In order to standardize the effects of up-front charges or required compensating balances left on deposit with lenders, this cost must be calculated as part of the effective rate of interest charged on the loan.

There is normally a great disparity between what banks and moneylenders charge micro-entrepreneurs for loans. Very few formal sector financial institutions lend to micro-businesses. When banks lend to micro-businesses with the same methodology that they apply to normal borrowers, they find it impossible to make a profit. The few large lenders, such as development banks, that do operate a specific line of credit for up-scale micro-businesses conduct this activity to improve their public image or to satisfy international donor agencies or local governments. Hence, they usually charge subsidized interest rates on loans to this sector and consider this type of lending as different from their normal lending activities.

Informal credit is comparatively expensive. Moneylenders are the micro-entrepreneurs of financial markets. Most of them operate on a very small

scale, the same general scale as their borrowers. Consequently, they face similar investment opportunities as their borrowers in markets characterized by relatively free entry and exit.

There is another vital difference between formal and informal lenders. Formal sector lenders are financial intermediaries that leverage small amounts of personal capital into large credit portfolios by putting together savers and borrowers. Informal lenders invest their personal capital directly into their loan portfolios since they cannot easily mobilize resources other than their own.

Consequently, the supply of informal credit is limited by the existence of many alternative, lucrative, small-scale productive activities. Since most moneylenders are not principally involved in moneylending, but rather offer loans as a complementary service to regular clients, the financial return to a moneylender must therefore be at least as high as the returns on productive capital for their other activities. These returns are almost always much greater than market interest rates. (Remember that the return on capital to financial institutions is far greater than the interest rate they charge because they are allowed to leverage a limited capital into a large credit portfolio through the savings mechanism. They work with other people's money).

#### *IV.C.3.b Transaction costs*

A second type of cost that borrowers incur when they obtain credit is transaction costs. These are indirect costs imposed by lenders through their delivery systems but which are not received by those lenders in the form of income.

When a business person works with formal financial institutions, he/she must take time off from productive activities in order to apply for and follow through on loans. He/she must frequently hire outside professional services to prepare feasibility studies or to produce financial statements. Additionally, the potential borrower must secure the necessary documentation to support his or her collateral or mortgage guarantees. After assigning a fair shadow price to represent the opportunity cost of the time a borrower spends in this process, and adding this cost to the outlays of cash for professional services, transportation, and documentation, we find that formal credit for small borrowers may entail transaction costs that far exceed the direct financial cost of a loan.

Informal lenders impose virtually no transaction costs. These lenders take the credit to the client with a delivery system that is custom-tailored to the client's

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particular business needs. This is the informal lender's specialty and there are many delivery systems.

Many wholesalers advance money to micro-businesses when they place a particular contract. Usually no explicit interest is charged, but the wholesaler pays less for the finished product than the micro-business could get elsewhere. Street commerce frequently makes use of supplier credit, at daily interest rates of ten percent. The street vendor goes early in the morning to the warehouse to prepare produce for the day's sales. The supplier gives him/her the produce on credit, taking repayment at the close of the working day. In established produce markets, suppliers may make daily rounds of borrowers to collect payments.

In most cases the lender is someone the borrower deals with constantly in the course of his/her normal business routine. Therefore, he/she can lend virtually without imposing any transactions costs. This is very different from formal lenders who, due to their very nature, impose significant transaction costs.

#### *IV.C.3.c Accessibility costs*

The third type of cost that small borrowers must confront when financing their economic activities is the cost of investment opportunities lost due to inefficiencies in lender delivery systems. Borrowers often ask lenders to finance some special business opportunity which they must take advantage of in the short run, or lose. When lenders cannot deliver credit in a timely manner, borrowers lose opportunities to purchase inputs or equipment under favorable conditions or lose important contracts. Of the three components of the total cost of obtaining financing, this accessibility cost is frequently the greatest.

Informal lenders structure their credit delivery systems very differently from traditional formal sector credit programs. In relatively 'free' informal financial markets, it is counterproductive for lenders to impose any cost on borrowers that they cannot collect directly (direct financial charges). Therefore, credit delivery systems are designed for maximum efficiency and lowest borrower cost. Informal lenders can make substantial profits by offering excellent service.

Formal lenders, on the other hand, lend to micro-businesses to fulfill a given mandate or in response to external incentives. Since this motivation is 'political' or 'ideological' they maintain lower than market interest rates on micro-business loans. Since demand is practically infinite for these apparently cheap resources, they ration credit by imposing very high transactions and opportunity costs. This

resolves the problem of excess demand, but not of institutional viability. Micro-business lending is a losing proposition with subsidized interest rates, which are insufficient to cover high unit costs, portfolio decapitalization, and bad debt losses arising from an unwillingness to be tough on delinquent borrowers.

Ironically, through this rationing process, cheap credit becomes very expensive, and what seemed like usuriously expensive credit is really relatively inexpensive. The following example illustrates this situation:

*Assume that Joe Shoemaker needs \$200 for 60 days to finance the leather he needs to fulfill a contract. He needs to repay in one payment at the end of the period.*

*His brother-in-law will lend him \$200 for 60 days at 10 percent a month, since he knows him and has worked with him before. His brother-in-law will send him the money and will send someone over to pick up the payment. His brother-in-law has cash on hand which he would send immediately. Therefore, Joe Shoemaker's total borrowing cost is \$40 since there are no transaction or accessibility costs involved.*

*Joe Shoemaker is also a member of a credit union since he knows that a bank would never lend to someone as poor as he. His credit union would charge him two percent monthly for the loan and require a 20 percent compensating balance to be left on deposit. This means he will have to borrow \$250 in order to take home the \$200 cash he needs.*

*Since Joe lives in a big city, it takes him a half day to travel to the credit union office to do his business once he calculates the time he spends on the bus each way.*

*He normally would need to travel four times to the credit union office to obtain and repay his loan. He needs one trip to get the loan application, a second trip to bring in the necessary paperwork, a third trip to receive the loan and a fourth to repay.*

*Joe Shoemaker earns approximately \$350 monthly and works approximately 240 hours monthly, for an hourly 'wage' of \$1.46.*

*Suppose also that the credit union did not have the loan ready quickly and Joe had to take two extra trips and wait an extra week. As a result,*

*Joe Shoemaker lost an opportunity to obtain a 20 percent discount on his leather purchase and had to buy at the normal price in order to complete his contract on time. The distribution of Joe's total borrowing costs would look like this:*

<b>Direct financial cost</b>		<b>\$ 10</b>
<b>Transaction costs</b>		<b>32</b>
4 half days / 16 hours	23	
Transportation to offices	4	
Paperwork	3	
Misc. expenses	2	
<b>Accessibility costs</b>		<b>54</b>
2 half days / 8 hours	12	
Transportation to office	2	
Lost discount	40	
<b>Total borrowing costs</b>		<b>\$ 96</b>

*Remember that Joe's brother-in-law would have charged Joe only \$40 and would have imposed no additional transaction or accessibility costs. The telling comparison is that although the credit union would have imposed \$96 in total borrowing costs, it would have received only \$10, while Joe's brother-in-law imposed less than half of those total costs and generated \$40 of direct income.*

*Further, the brother-in-law's very high interest rate of ten percent per month appears usurious in comparison to the credit union's. In fact, it only tells part of the story, since once we add transaction and accessibility costs the credit union's loan adds up to more than 20 percent per month.*

#### **IV.C.4 Balancing external constraints with micro-credit program needs**

The key to long-term program stability and permanence is to offer a high-quality service, which means drastically curtailing transaction and accessibility costs, while charging commercial rates of interest. Programs must charge commercial interest rates that are high enough to maintain the real value of loan portfolios in addition to covering operating and loan loss margins. However both legal and political constraints on maximum interest rates make that difficult in most countries.

**This interest rate dilemma can best be solved by adjusting a little on all fronts. Except in countries with rampant inflation (more than 50% a year) programs ought to be able to recover most of the costs of inflation through creative interest rate and commissions structures. For instance, in an inflationary economy of 18 percent, the program should capitalize at least 12 to 15 percent. Effective credit methodologies can keep loan losses to a bare minimum. Most ACCION- affiliated programs have loan loss rates of less than two percent annually of their current portfolios.**

**If programs are to charge commercial rates of interest, then they must develop a very efficient credit methodology in order to reduce operations costs for the institution and transaction and accessibility costs for borrowers. Credit operators must look for creative ways to reduce their own costs by passing on to borrowers many important elements in the credit process while at the same time reducing to the bare minimum the borrower's transaction costs. ACCION International and other successful micro-credit operators have done this well.**

**These programs are able to reach large numbers of micro-enterprises with credit because they are formal sector lenders who have adopted informal lenders' total borrowing cost structures, and in most cases have lower total costs than those same informal lenders. They beat them at their own game.**

**Successful credit programs such as the BKK, the Grameen Bank, and Fedecredito all take the loans to the borrower's workplace or home village. ACCION's programs all do a significant portion of the loan application and renewal process in the borrower's workplace, and office time is kept to a bare minimum. They all charge rates of interest equal to or greater than the preferred bank rates reigning in their respective countries.**

**In a typical ACCION program, borrowers are granted a line of credit for working capital. After the initial loan, which may take up to four visits to obtain, subsequent loans require only two office visits. In one visit, borrowers fill out simplified loan applications, and in the other they pick up their checks. All repayments are made in local branches of banks, which cuts down enormously on repayment transaction costs. In some programs, when the borrower is in good standing, the application is filled out in the workplace, and the borrower makes just one trip per loan: to pick up the check.**

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Loans are almost never delayed. The day a participant in good standing makes his/her last payment, the subsequent loan is waiting. This feature, perhaps more than any other, represents these programs' strength. Should there be a liquidity problem, ACCION affiliates restrict credit to new participants before they allow already participating micro-businesses to suffer delays in credit service.

The total cost structure for Joe Shoemaker in a typical ACCION-affiliated program might look like this:

<b>Direct financial cost</b>	<b>\$ 15</b>
<b>Transaction costs</b>	
2 half days / 6 hours	9
Transportation to offices	2
Paperwork	2
Misc. expenses	2
<b>Total Borrowing costs</b>	<b>\$ 30</b>

In addition, most programs offer a variety of other services and benefits that create a strong identification between them and their participants. This allows them to 'compete' with informal lenders on other than strictly economic grounds.

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Photograph: *Miguel Sayago*

**V SIMPLIFIED BUDGETING  
AND FINANCIAL  
PROJECTIONS**

Realistic budgeting and accurate financial projections are primary tools for any financial manager. The budgeting process requires managers to balance program goals and objectives and bring these within the real restraints of limited resources. It provides an ongoing control of the program's performance based on these goals and assumptions. Comparisons between budgets and real expenditures provide constant feedback about changing environments and how these affect basic programmatic assumptions. This in turn keys managers in to necessary adaptations.

Besides being tools for constant feedback, budgets and financial projections are the basis for agreements with donor agencies. Better budgets and more accurate projections allow one to negotiate realistic agreements. One thereby keeps expectations within reason and does not plant the seeds of one's own failure.

During the first three to five years of a credit project's existence, one of its major challenges is to reach its break-even point. Program designers must decide about potential target group location, average loan size and terms, funding source mix, and general administrative structure. These issues can be successfully managed with the rudimentary financial projection techniques presented in this chapter.

Once institutions are established, have reached their break-even point, and have reached a certain maturity in their administrative structures, they can more appropriately embark on sophisticated long-range budgeting and planning. They can use time series analysis, cyclical analysis, and other high-powered tools to predict expense and portfolio behavior over time with a relatively high degree of accuracy. However, nascent institutions in new, unexplored markets, operating on tenuous funding bases, would not find these tools helpful. Rather, they would be a waste of time and effort.

Although simple, budgeting is a difficult process, especially in a new and dynamic organization. Budgets and financial results are very sensitive to errors in basic assumptions about critical areas such as inflation and interest rates,

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exchange rates, or demand for services. Rapid institutional growth further complicates budgeting because the evolutionary process may be difficult to predict in poor countries with unstable economies.

The following is a step-by-step guide to simple financial projections for newly-launched micro-enterprise projects. While there is no one best way to project, the rest of this chapter highlights the major issues involved in credit project budgeting. Sample projections for a micro-business credit project are provided which illustrate the key variables which should be included. These sample projections were those used initially to set up ACCION's affiliate in Chile, PROPESA, which initiated its activities in October 1988.

### **V.A SPECIFICATION OF TARGET GROUP SIZE AND DISTRIBUTION**

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The first thing a manager must do when he/she actually sits down to do specific financial projections for a new program is determine the size and location of the potential 'market'. Whether or not that 'market' is tightly concentrated, or widely dispersed, will fundamentally affect the administrative structure and the credit delivery system he/she employs.

In most major urban markets this task is simple. Since potential markets for the credit program's services far outstrip its growth potential during its first years, the manager need only make basic decisions that pinpoint the 'barrios' where the program will focus its attention.

In smaller urban centers, or relatively more advanced economies, the task may be more complicated. Program goals may require reaching out into secondary cities, and even rural areas, with credit services. Such is the case in Chile or Costa Rica, which are relatively developed countries where the informal sector occupies only 15 percent of the total work force. Within 18 months to two years, project goals will probably require the programs to look outside the principal urban centers for participants.

This type of expansion requires relatively careful attention to estimations of potential market size in smaller cities in order to determine the appropriate administrative structure for the credit program. Almost without exception, good data about micro-enterprise distribution does not exist and market size must be inferred from secondary data.

The best secondary databases are census and employment data. Census data usually disaggregates employment on a regional and communal level, which allows one to infer the possible informal sector composition, even in rural areas. The key variable for this purpose is the size and composition of the sector that works as 'self-employed' in firms of fewer than five employees. This provides one with a total employment picture for a given area.

Subsequently we must determine how many of these 'self-employed' are actually micro-businesses and how many are employees of micro-businesses. A good rule of thumb is probably that somewhere around 40 percent of the self-employed are actually micro-businesses, in given industrial, commercial and service sectors. One must be careful to exclude service occupations such as domestic employment. The basis for adjusting specific occupations is the International Labor Organization's classification of employment by type, which most national census bureaus use when they analyze their data.

These results provide one with a universe of existing micro-businesses. However, a successful micro-credit program must select only the best of these businesses, since many are so precarious that they would be poor credit risks. In all probability, only ten to 50 percent of the existing micro-businesses in any given area are probable program participants. One must be careful not to assume that all informal economic activities are creditworthy micro-businesses.

## **V.B PRE-FEASIBILITY ANALYSIS**

Budgeting necessarily requires trade-offs and a distribution of scarce resources among many clamoring needs. Only by maintaining clarity in institutional goals and objectives can managers make effective budgets. Reality, reflected in budgets, will demand that some institutional goals and objectives be subordinated to others. The budgeting process itself is usually an excellent opportunity for managers, board members, and staff to define these relative priorities more explicitly.

Once the manager has clearly defined the institutional goals and objectives, one must do a pre-feasibility study before laying out a detailed budget. To do such a study, one must 1) carefully outline the results they expect to obtain with the resources they have at their disposal, 2) make basic assumptions about program methodology and growth curves, and 3) define general program performance parameters. This study will show whether or not the numbers are likely to work.

Projections of program performance over a period of three to five years of rapid expansion are very susceptible to errors due to minor miscalculations when making underlying assumptions about interest, inflation, and late-payment rates and cost structures. Since one will never be able to project with certainty, one must reduce to a minimum the 'slop factor' — one's tendency to round everything off to general values.

Basic assumptions can be divided into two categories: assumptions about external economic variables and assumptions about the program itself. One should answer the following checklist of basic assumptions before one even sits down to do detailed projections.

**PROJECTIONS: MAJOR ASSUMPTIONS**

- External Factors**
  - Projected annual inflation rate
  - Prevailing interest rate for preferred clients of banks
  - Prevailing interest rate for finance companies
  - Prevailing interest rate for loan sharks who might do business with micro-entrepreneurs
  - Number and distribution of potential participants
- Program Factors**
  - Resources available to finance project
    - Sources of funds
    - Cost of funds
    - Amounts available
    - Amortization schedules
    - Conditionality
- Methodology**
  - Credit delivery system (solidarity groups, individual loans)
  - Average loan size
  - General salary level for staff (*comparable to public sector, private sector, banks, NGOs*)
  - Portfolio rotation
  - Number participants
  - Other services to be offered

Managers can do a quick pre-feasibility study for the micro-credit project using the worksheet on the following page in order to identify the scale of operations necessary to reach the break-even point. These variables can also be presented in the form of the following mathematical formula, for those who prefer. In this formula, the financial spread is on one side of the equation, and the operating costs on the other:

$$(I - CF) \times P = INC + FC + (VC \times n)$$

where:

- I** = interest rate charged on loans
- CF** = weighted cost of funds for loan portfolio
- P** = loan portfolio
- INC** = loan loss estimates
- FE** = fixed costs
- VC** = variable costs per current operation
- n** = number of loans

**PRE-FEASIBILITY WORKSHEET**

	VALUE
<b>Revenue generation:</b>	
Amount resources available for loan portfolio	_____
Prevailing monthly interest rate for finance company loans	(X) _____
<b>A: Total monthly revenue at break-even point</b>	_____
<b>Cost of funds:</b>	
Amount resources available for loan portfolio	_____
Monthly inflation rate or effective interest rate (in case of borrowed funds), whichever is higher	(X) _____
<b>B: Cost of fund</b>	_____
<b>Loan losses due to Irrecoverable loans:</b>	
Amount resources available for loan portfolio	_____
Estimated loan losses as percent loan portfolio (annual rate/12)	(X) _____
<b>C: Loan loss expense</b>	_____
<b>Fixed operating expenses:</b>	
Rent (200 m <sup>2</sup> )	_____
Fees (audits, legal, computer support)	_____
Insurance (fire, theft, car)	_____
Publicity	_____
Materials	_____
Utilities	(+ ) _____
<b>D: Fixed operating expenses</b>	_____
<b>Variable operating expenses:</b>	
Number active participants	( — ) <u>100</u>
Number of staff	_____
Monthly salary of credit agent	(X) _____
Total estimated salaries	_____
Transportation and materials costs (number current loans x \$1)	(+ ) _____
<b>E: Variable operating expenses</b>	_____
<b>F: Total monthly expenses (B+ C+ D+ E)</b>	_____
<b>G: Net monthly surplus or deficit (A—F)</b>	_____

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Whether financial managers use the break-even formula or the pre-feasibility worksheet, the process they go through is similar. By substituting different values for the key variables they approximate the final values they will need to aim for when they do their more detailed budgets later. Managers should start with those variables which are relatively fixed, such as amount available for the loan fund or interest rates, and then adjust the final results on the basis of the more flexible factors.

It shouldn't take much more than an hour to narrow down the general assumptions for the micro-credit project using this technique. Now managers can proceed to the detailed budgets which will guide their monthly financial decisions. The detailed budgets provide important insights into the growth curves programs expect, whereas the pre-feasibility analysis or break-even formulas only provide clues as to the values of the key variables at the break-even point.

## **V.C PORTFOLIO GROWTH PROJECTIONS**

In order to predict portfolio growth curves accurately, managers must determine, according to the credit delivery system employed, the average loan amounts, terms, repayment schedules and the estimated number of credit recipients. These variables will determine the size of the current portfolio and the cash flow associated with the lending operations.

If credit managers plan to have different types of loans within their portfolios, where average loan amounts and terms vary greatly, they should estimate each of these sub-portfolios separately. Separating these portfolios allows managers to examine each type of loan for its contribution to overall program goals and objectives. Thus, in the PROPESA projections, one sees a portfolio for working capital loans, a portfolio for equipment purchases, and a combined portfolio.

**The key variables one uses in portfolio projections are the following:**

- Average loan size
- Repayment schedule and term
- Number new participants
- Drop-out rate for participants
- Delinquency and default rates

**From these variables one calculates:**

Total amount disbursed  
Total amount repaid  
Current portfolio  
Number subsequent disbursements to existing participants  
Number active participants  
Total number participants served  
Average outstanding loan balance  
Number outstanding loans in current portfolio

Credit delivery systems and methodology determines average loan terms, drop-out rates, expected delinquency and default rates, and repayment scheduling. Once they choose a methodology, the only two key variables managers can really manipulate to alter the financial results of a credit project are the average loan size and the number of participants. Of these two, average loan size is the more powerful for adjusting projected financial results. If managers increase the number of participants, the level of expenditures also increases, whereas they can increase loan sizes without increasing costs.

Average loan sizes can be adjusted substantially either way from targeted loan sizes specified in general methodologies without making any significant impact on the effectiveness of loan disbursement and recovery. The greater the average loan size, the fewer the number of possible participants, given limited available resources for the current portfolio. Ultimately this reflects the trade-off managers face between project impact goals and institutional survival goals.

In the case of Chile, presented in the sample projections, the average loan size was increased almost 100 percent from the typical ACCION program's average loan size. This change emerged because the program in Chile depends on funds borrowed from the commercial banking sector at bank interest rates to fund its portfolio and because the maximum interest rate it could charge allowed for only a very narrow financial spread. This narrow spread forced PROPESA to raise its average loan size and to lower its unit operating costs to a bare minimum. PROPESA's break-even loan portfolio is over a million dollars, even though in most of Latin America it could be considerably less. PROPESA pays a positive real rate of interest for its funds from the commercial banking sector. Fortunately micro-businesses in Chile are also relatively larger, and able to absorb those larger loans.

In other countries, where spreads are greater, average loan sizes can be kept to a minimum and thereby maximize program impact given limited loan fund resources.

One of the most useful variables managers should manipulate when they do portfolio projections is the average outstanding balance which indicates the average amount of a loan on the street per participant during the term of the loan. To calculate this balance for a specific loan, one divides the loan principal by two and adds to that result 50 percent of the average principal amount of each monthly installment. To calculate this for the portfolio as a whole, one divides the current portfolio by the number of active participants.

One can use this variable to calculate the profitability of a particular loan. By multiplying the average outstanding balance by the effective interest rate on that loan the manager has a 'quick and dirty' estimate of the revenue generated by that loan on a monthly basis. If one compares this to the unit operating cost calculated previously, one can find the minimum average loan sizes necessary to reach the break-even point.

Another key variable for managers is portfolio rotation, or the number of times in a year the entire portfolio is turned over or re-lent. If managers find that their financial results are too precarious, they can reduce their administrative burden by increasing average loan terms. By increasing from average loan terms of four months to average loan terms of six months, programs can reduce variable operations costs by 30% without necessarily reducing methodological effectiveness.

## **V.D DEFINITION OF TOTAL COST STRUCTURE**

Once managers have laid out their basic assumptions and determined the general characteristics of their credit program they are ready to do a detailed budget of operating and financial expenses. This is the most complex part of financial projections and requires clear thinking and sharp analysis.

In order to protect themselves against unforeseen events, managers should be conservative in their budget process. They should be thorough and meticulous when they estimate expenses. One is usually very good at calculating expected revenues and major line items on the expense side. However, ignoring small items can be very dangerous and can eliminate even comfortable margins built into major line items. When one takes the time to include a series of apparently insignificant minor expenses

(such as cleaning, commissions, legal expenses, remodeling, publicity) in budgets, overall expenses frequently increase by as much as 30 percent. Such a change can dramatically alter overall project performance.

Managers should also be realistic. Excessive padding will only lead to a loss of budgetary control and administrative order. Managers who pad their budgets excessively usually do so on big line items and ignore little ones in order to present a reasonably acceptable budget to boards or donors. The ensuing game of underpaying employees, re-allocating expenses among line items, and expense sharing among major contributors can be a very dangerous one with dire consequences. Further, it is simply bad management. If budgets are not realistic, they cannot be a useful management tool.

Once the institution opens its doors it will incur a series of expenses, no matter how big or small the ensuing program. The fixed costs are the baseline of the budget, below which it will not fall. Next, the manager must project the variable costs associated with the service rendered, in this case credit. One may divide these various costs into three categories: operational costs, loan loss provisions, and financial costs.

**V.D.1 Fixed costs**

Fixed costs are those costs which are relatively insensitive to changes in service level. For instance, office rental, executive level salaries, insurance, and auditing costs are relatively constant over the short term, regardless of whether the institution disburses 100 or 300 loans a month. Clearly in the medium or long run all costs are variable, since as an institution grows it inevitably needs more office space, hires more executives, and has more transactions to audit. Nevertheless, for budgeting purposes, costs that remain relatively constant in the short run should be considered as fixed costs.

**Fixed costs would normally include the following items:**

- Administrative salaries, and benefits
- Department head salaries and benefits
- Auditing, legal, computer, miscellaneous fees
- Rent
- Insurance
- Equipment maintenance and repair
- Publicity
- Basic office materials
- Utilities (water, electricity, telephone, gas, etc.)

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One-time or occasional fixed expenses (audits, etc.) may be pro-rated over the course of the year or budgeted in the period in which the expense will actually be incurred. Pro-rating has the advantage of smoothing out the self-sufficiency curve, allowing managers to see more clearly the progress they are making towards this important financial goal.

**V.D.2 Variable operating costs**

Variable operating costs are those administrative costs associated with the credit service itself. In essence, it is the direct cost of making and recovering a loan. Typical operational costs include:

<b>Operational costs:</b>
Field staff salaries and benefits
Some support staff salaries and benefits directly related to credit and accounting functions
Transportation of field staff
Materials costs for loan documentation
Per diem, if paid
Bank charges for repayment handling
Information services on clients

The basis for determining variable operating costs is the projected caseload per field staff and support staff. This in turn depends on program methodology. For instance, in Chile, the variable costs were calculated in the following manner:

**VARIABLE COSTS:ASSUMPTIONS**

1 credit official x each 150 loans disbursed quarterly		
1 support staff x each 450 loans disbursed quarterly		
4 bus trips x each loan disbursed		
\$0.58 in bank fees for each outstanding loan per month		
\$0.60 information service fees for each loan		
<b>Calculations:</b>		
Credit official (\$900/150 loans)	=	\$6.00
Support staff (\$600/450 loans)	=	\$1.34
Transportation	=	\$1.06
Bank fees	=	\$3.50
Information service	=	\$0.60
<b>Total</b>	=	<b>\$12.50</b>

These expenses may be distributed as they occur, rather than placing them all up front at the moment the loan is disbursed. This would reflect cash flows more accurately. Since variable operational costs increase geometrically with program growth, small miscalculations can make major differences in final program results. It is especially important to be careful when determining basic assumptions and to be precise about all costs, by attempting to define as narrowly as possible their exact amounts.

In the sample projections, variable costs are presented in a disaggregated way and salaries are projected only in whole person increments. This ensures that the true costs will be more accurately estimated. This system is preferable to the consolidated variable cost presented earlier.

**V.D.3 Financial costs**

As we discussed in an earlier chapter, each loan has a cost of funds associated with it whether the credit program pays interest for loans from other lenders, or whether it seeks to maintain the value of its portfolio against inflation. This cost must be added on to the variable operating costs. The calculation of variable financial costs is quite simple and can be seen in the following example, again from Chile:

**VARIABLE FINANCIAL COSTS: BASIC ASSUMPTIONS**

<b>Basic assumptions:</b>	
Cost of donations	= average annual inflation rate of 9%
Cost of private bank loans	= 12% annually
Donations available	: US\$ 620,000
Loans available	: 400,000
<b>Total funds available</b>	<b>: US\$ 1,020,000</b>
<b>Calculations:</b>	
(Amount donations/total funds) x 9%	= 5%
(Amount loans/total funds) x 12%	= 5%
<b>Average cost of funds</b>	<b>= 10%</b>

The variable financial cost would be ten percent annually of outstanding loan balances. The easiest way to handle this within the projections is to divide the annual interest rate by 12 and apply the monthly interest rate to the outstanding loan portfolio.

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This interest rate must be increased to take into consideration any other fees or commissions that may be associated with private bank loans to the program. These fees are included by calculating the annual effective rate of interest paid by the program for its bank loans rather than the annual nominal rate of interest it pays. Remember this effective rate of interest is not to be confused with the effective rate of interest paid on investments (compounded interest for savings) since interest income is not reinvested, but rather spent.

#### **V.D.4 Loan losses**

This cost should be explicitly included in financial projections of program performance rather than being implicitly worked into other line items. It is of such fundamental importance that it deserves a line item to itself. Besides, explicit inclusion of this provision in the total cost structure forces more careful thinking about the final net effect of delinquent loans. Not only must revenue be readjusted downwards, but current portfolio amounts must be readjusted likewise to reflect the loss.

Loan loss rates are calculated in the same manner discussed in the chapter on setting interest rates. The best indication of the amount to be expensed is the historic write-off record of the credit program, as long as it religiously writes off all uncollected debt after a certain collection period. If the institution has recently initiated activities, it should create a loan loss provision equal to five percent of all net monthly increase in the current portfolio in order to maintain a reserve equal to five percent of the total current portfolio annually.

Loan loss rates should be calculated on a monthly basis and added to the average cost of funds for the program. Loan loss expenses are costs per monetary unit lent, similar to variable financial costs. Variable operating costs are usually more accurately calculated as costs per loan rather than cost per monetary unit. Therefore total variable costs are not necessarily applied to the same basic unit of analysis, although they can be put on common ground at a later point using given assumptions about average loan size and terms.

#### **V.E INCOME GENERATION**

The method for establishing interest rates for loans was discussed in the previous chapter. Nevertheless, there are two important points to remember when one projects income generation. The first is to remember the difference between standard accounting practices and real cash flows. Normal accrual accounting

practices require interest income generated by a loan portfolio to be accounted for as an accounts receivable the moment it is earned, especially if expenses are also accounted for as they are incurred. When the interest is actually paid, it is deducted from the accounts receivable and transferred to interest received on the income statement.

For cash flow purposes, income from loans is not available to cover expenses until it is actually paid. Thus, an income lag must be built into all portfolio projections where the income earned in month one is actually paid in month two.

Second, managers must account for loan delinquency. Late repayments, although they may not directly result in loan loss expenses, will lower portfolio rotation, and delay the actual receipt of interest income. This fact should be accounted for explicitly in the financial projections if delinquency is greater than five percent of the current portfolio. This means that a certain percentage of the interest projected from the portfolio should either be further lagged or deducted. Ease of projections dictates that it be deducted since the collections costs of that interest frequently exceed the potential income received and is very hard to estimate. Remember that bad loans must be deducted BOTH from the expenses and from the current portfolio.

## **V.F SOURCES AND USES OF FUNDS**

The final part of any thorough budgeting process is a sources and uses of funds projection. Once the entire budget has been worked out, managers should identify, by major line items, the source and amounts of funding available. This helps the manager identify areas in which additional resources need to be mobilized or areas where there may actually be an excess of available funds.

This exercise also helps the manager determine relative priorities in the application of locally generated revenue. Finally, this sources and uses projection provides the basis for grant applications and eventual reporting on monies received.

## **V.G FINAL COMMENTS**

Unforeseen events usually seem to impact negatively on project performance. Perhaps this is due to overly-optimistic forecasting, or perhaps it is just that positive impacts are too often overlooked or one assumes that they are the result

of sound management and planning. Eventually, most projects will suffer a crisis that arises from the difference between the reality of project implementation and the fundamental assumptions upon which budgets and projects were built. In these cases, institutional survival may depend on the margins for error which were built into these budgets and the flexibility with which resources can be reallocated among major line items and activities.

One way to build in sufficient margin for error in budgets is to be conservative, yet realistic, when one specifies one's basic assumptions and general program performance parameters. These parameters include indicators such as number of loans disbursed, level of financial self-sufficiency reached, size of current portfolio, and total number of project participants.

Assumptions about the evolution through time of the program's portfolio and operating structure — its growth curve — are a fundamental variable which determines final program results. There is a great difference between similarly sized programs, one of which reaches self-sufficiency in 30 months but needs a \$200,000 subsidy, and another which only needs \$100,000 over the course of those same 30 months because of its different growth curve.

Remember, overly optimistic budgets and projections plant the seeds of our own failure. It is preferable for project supporters to be pleased because the project surpassed its goals than for them to be displeased because it fell short, even though its performance within a given context might well be excellent.

Budgeting expenses and projecting portfolio growth represents a very complex process, requiring a great number of interrelated assumptions underlying the final results. A manager will greatly facilitate the process of budget revision and readjustment if one disaggregates to the greatest possible extent the different line items and cash flows. This process allows one to test each underlying assumption, and track its implications. At a later date one can more easily change that assumption and understand its effect on final results.

Managers should not budget primarily to satisfy donor agencies or boards of directors. The type of budget that satisfies the demands of either of these two groups is often different from one that carefully tracks the administrative performance of the institution. The latter normally requires much more detail. Hence, the preferred alternative is for managers to develop detailed internal budgets, which they then synthesize for general dissemination.

In countries where annual inflation rates regularly exceed ten percent, budgets must be adjusted accordingly. Inflation affects different parts of the budgets differently. Salaries tend to be readjusted upwards at a considerably slower pace than inflation, whereas most non-salary costs increase at or above inflation rates. Inflation shrinks the real value of local currency loan portfolios, which in turn reduces that portfolio's capacity to generate income sufficient to meet growing expenses.

Managers frequently budget in U.S. dollars. This is because most grants they sign with international donor agencies are denominated in dollars. When institutions budget and sign grant agreements in dollars they must also pay attention to the exchange rate controls imposed by the local government. Artificially low official exchange rates will turn relatively healthy looking dollar budgets into tiny local currency budgets, with the primary beneficiary being the local government in the case of actual foreign currency transactions.

