



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

Business Planning and Financial Modeling for Microfinance Institutions

A Handbook

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Foreword

Over the past 20 years a microfinance industry has emerged in response to the lack of access to formal financial services for most of the world's poor. Microfinance institutions serve an ever-increasing number of poor clients, but the demand for such financial services still far outstrips their capacity.

To meet this demand, most microfinance institutions plan to increase their outreach. But rapid growth strains an institution's systems and changes its financial dynamics. Without effective planning and projection tools microfinance institutions can—and often do—undermine themselves.

Many microfinance institutions have business plans. But these plans are sometimes of poor technical quality. They are often overambitious, because the underlying projections are insufficiently detailed to reveal the hurdles that the institution must overcome in order to expand. And if they are prepared by outsiders, as they often are in response to requirements by potential funders, they usually remain on the shelf once funding is received rather than serving as an ongoing management tool.

The Consultative Group to Assist the Poorest (CGAP) commissioned this handbook to help microfinance institutions perform their own business planning, including preparing strategic and operational plans and, especially, financial projections. Such plans and financial projections are certainly not secure predictions of the future—under the best circumstances they involve assumptions that will always need adjustment in the face of changing realities. But even if good business plans are not crystal balls, the exercise of preparing one, with participation by staff at all levels, can help an institution in three ways:

- The institution's stakeholders will have to face, and arrive at a consensus on, key strategic and operational issues that the exercise will bring to the surface.
- If the financial and operational planning is carefully done, the process almost always shows participants important dynamics of their business that they did not understand before.
- The plan that results can serve as a roadmap to the institution's goals. There will always be deviations from the expected path. But with a good map in hand, one that is periodically updated, management will know when the institution is deviating from that path and which direction it needs to move to get back on track.

The first part of the handbook describes the strategic planning process, while the second part provides an overview of operational planning and financial modeling using the Microfin model. Microfin is a flexible model that allows institu-

tions to prepare sophisticated five-year financial projections. New institutions may initially prefer to use a less complex model, turning to Microfin once they have more experience and want a more powerful projection tool.

When piloting the handbook and projection model, we realized that new users often have questions and may need technical support. Please refer to the CGAP Website (<http://www.worldbank.org/html/cgap/cgap.html>) for more information on technical support options and frequently asked questions about the projection model.

Both the handbook and the projection model break new ground, so we are sure that experience will reveal areas for improvement in future revisions. We would be pleased to hear from managers of microfinance institutions who have put these tools to the test of practical use. Please send comments or suggestions by email to cproject@worldbank.org, or contact us through the CGAP Secretariat offices (telephone: +1-202-473-9594; fax: +1-202-522-3744; mailing address: Room Q4-023, World Bank, 1818 H Street NW, Washington, D.C. 20433, USA).

This handbook is the second in CGAP's technical tool series. The first was *Management Information Systems for Microfinance Institutions: A Handbook*. Future publications in the series will include a handbook on audits of microfinance institutions and a handbook on measuring and managing delinquency in microfinance institutions.

Ira Lieberman
November 1998
Chief Executive Officer
Consultative Group to Assist the Poorest

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Valuable contributions were made by ACCION (United States), ASA (Bangladesh), Compartamos (Mexico), MEDA (Canada), Opportunity International (United States), Rural Finance Facility (South Africa), SEEP (North America), and Women's World Banking (United States).

The handbook's structure

Business planning for microfinance institutions can be understood as two closely related processes: strategic planning and operational planning. Strategic planning articulates broad institutional goals, assesses the institution's performance, and develops an overall strategy for expanding outreach and achieving profitability. Operational planning creates a framework for implementing the strategy, expressed concretely in detailed financial projections.

In addition to its primary purpose as a management tool, a clear plan with well-thought-out financial projections strengthens a microfinance institution's negotiating position with donors, banks, and other funders.

This handbook takes readers through the process of developing a business plan for a microfinance institution. Part 1 provides a brief overview of the key elements of strategic planning:

- Articulating the mission and goals
- Defining markets and clients
- Analyzing the environment
- Performing an institutional assessment
- Developing a strategy.

Part 2 covers the main elements of operational planning from the perspective of developing detailed financial projections. Step-by-step projections are created from case study data using the Microfin model, an Excel-based financial modeling tool developed expressly for microfinance institutions. The steps in operational planning and financial modeling include:

- Defining financial products and services
- Specifying marketing channels
- Planning institutional resources and capacity
- Developing a financing strategy
- Analyzing financial projections and indicators.

The handbook's last chapter briefly discusses how to use the business plan and financial projections as ongoing management tools.

Once readers have practiced with the Microfin model using the data provided in the case study, they can use the model to develop detailed financial projections for their own institution.

The handbook also includes several annexes with further information on the Microfin model. These explain how to install the software, present printouts from the model, list data requirements, and provide an exercise on modeling lending activity.

Introduction

Business planning for microfinance institutions can be understood as two closely related processes: strategic planning and operational planning. Strategic planning means articulating broad institutional goals, assessing the institution's performance in achieving its goals, and then selecting a strategy that enhances the institution's ability to expand outreach and achieve (or maintain) profitability. Operational planning involves creating a framework for implementing the strategy, expressed concretely in detailed financial projections.

How a microfinance institution carries out the planning process greatly affects the quality of the plan. Incorporating the perspectives of key stakeholders—such as the institution's board, staff, and clients—helps ensure that the business plan that results identifies the key issues that must be addressed to achieve broad outreach and profitability. Involving those responsible for implementing the plan helps ensure broad endorsement, essential for successful implementation.

The process of developing a business plan, especially creating detailed financial projections, helps an institution to understand the factors that are key in determining its success. These include, for example, the elements that must be considered in designing financial products that both meet clients' needs and lead to profitability, such as the size and term of loans and the effective interest rate. The business plan, and the financial projections that are an integral part of it, become operating tools for the institution's managers. By comparing actual with projected results (performing variance analysis), managers can monitor the institution's progress toward the goals outlined in the plan.

In addition to serving its primary purpose as a management tool, a clear plan with well-thought-out financial projections strengthens a microfinance institution's negotiating position with donors, commercial banks, and other funders. The business plan can also be used to provide information to other external audiences, such as shareholders, clients, and regulatory authorities.

1.1 How the handbook is structured

This handbook takes readers through the process of developing a business plan for a microfinance institution. Part 1 briefly describes the steps of strategic planning:

- Articulating the mission and goals
- Defining markets and clients
- Analyzing the environment

- Performing an institutional assessment
- Developing a strategy for expansion that focuses on maximizing outreach and profitability.

Part 2 describes operational planning from the perspective of developing a set of detailed financial projections. It explains how to model the operational planning process using Microfin, the Microsoft Excel spreadsheet on the accompanying diskette. And it describes the steps of operational planning:

- Defining financial products and services
- Specifying marketing channels
- Mapping out institutional (program and administrative) resources and expenses, including areas needing development
- Developing a financing strategy
- Analyzing financial projections and indicators.

Part 2 concludes with a brief discussion on how the business plan and financial projections can be used as ongoing management tools.

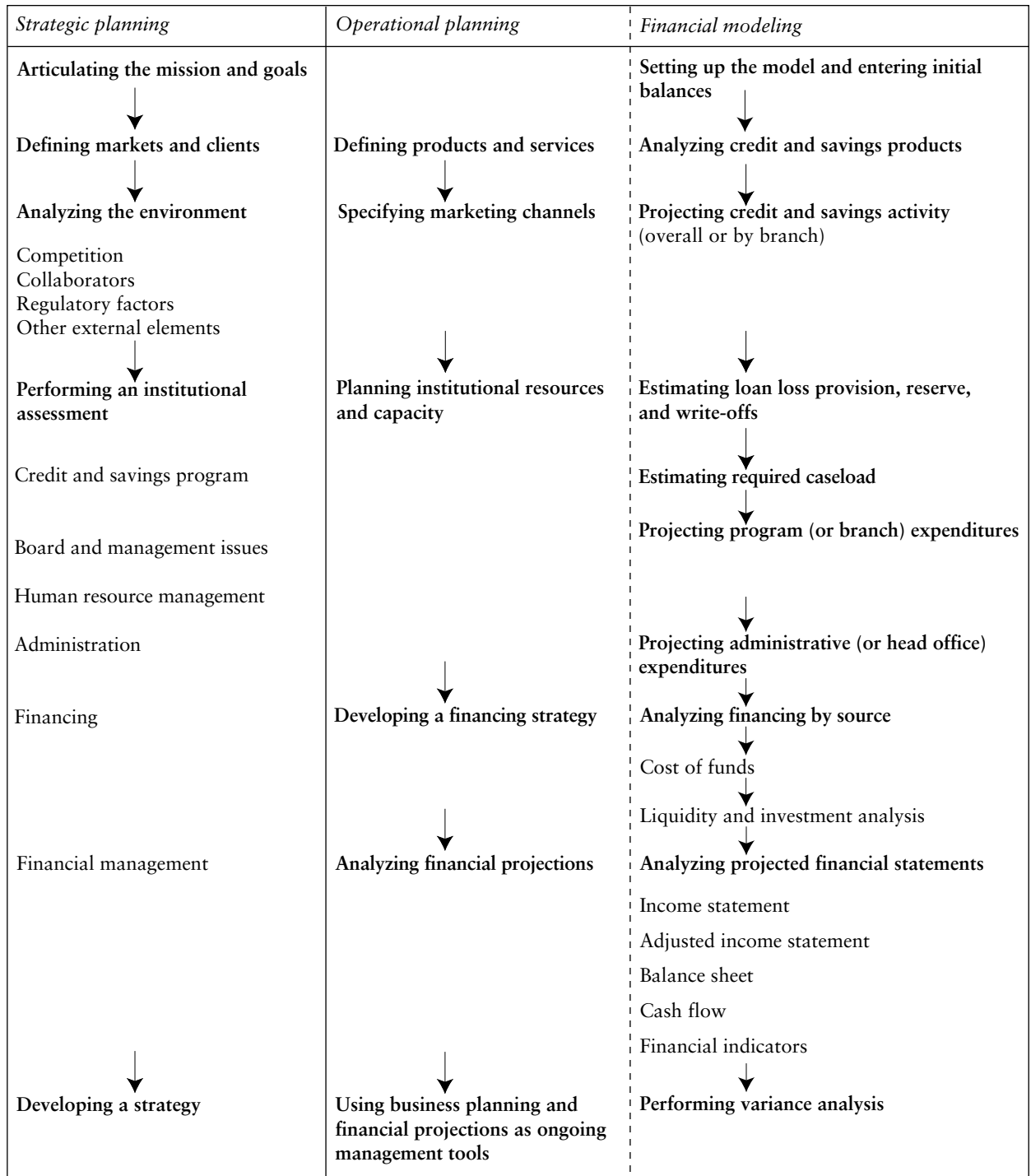
Through strategic planning, an institution assesses its current situation and develops a proposed strategy for going forward. This strategy links the two phases of business planning: it synthesizes the information developed in strategic planning and outlines objectives and activities for implementation (figure 1.1). Whether the strategy is achievable is determined in operational planning, where the institution maps out the proposed strategy in each area of implementation. The analysis of *markets and clients* indicates what *products and services* to offer and where (in which markets) to offer them. The analysis of the *environment* provides more information on where to provide services, identifying external factors that will affect the choice of appropriate *marketing channels*. The *institutional assessment* provides information on how best to provide the services, as reflected in *institutional resources and capacity*, *financing*, and *analysis of financial projections*.

Through financial modeling, a microfinance institution can determine how realistic its proposed strategy is and what strategic and operational changes it needs to make to achieve its goals of outreach and profitability. If an element of the strategy seems unachievable, either the strategy needs to be reevaluated or the operational plan needs to be reworked. For example, if the targeted expansion cannot be achieved in the time and at the level of expenditures and funding projected, the strategy could be changed by pursuing expansion more slowly, or the operational plan could be changed by seeking increased funding to cover the expected costs of more rapid expansion. In either case the business plan serves as an important management tool.

1.2 Learning to use the model

The handbook demonstrates the Microfin model using data from the case study of a fictitious microfinance institution, the Freedonia Enterprise Development Association (FEDA). The institution's strategic plan is presented at the end of

FIGURE 1.1
The flow of strategic and operational planning



Note: The vertical flow of the figure reflects the sequence of the planning process, with strategic planning preceding the other processes, and operational planning and financial modeling pursued in tandem. The horizontal flow reflects links between key topics.

chapter 2; the main elements of its operational plan are covered in the following chapters. Case study boxes describe how FEDA prepared its operational plan based on its strategic analysis. And “screen clips” show sections of the model where users enter information. Except where otherwise indicated, these screen clips contain information from the FEDA case study.

Readers can practice working with the model by inputting the information in the case study boxes. (Before inputting the information from each case study box, readers are advised to finish reading the related section of the text in order to familiarize themselves with the issues addressed in that section.) Annex 2, which contains printouts of the main elements of the model with case study data filled in, can serve as a resource for readers as they complete the case study exercise. The model allows users to experiment, adjusting variables to arrive at an optimal scenario. The effects of such changes can be quickly viewed in the graphs that the model generates.

Chapters and sections in part 2 relate to distinct parts of the model. Features of the model are highlighted in the text. The main text provides essential information, and it is recommended that all of it be read. FAQ boxes address “frequently asked questions” about the model, explaining how to find information that an institution might lack or how to model an activity that Microfin does not directly address.

Once familiar with the model, readers are encouraged to use it to develop detailed five-year projections for their own institution. The process of preparing projections often gives managers important new insights into the dynamics of their institution’s operations. And the projections can serve as a benchmark against which to measure the institution’s performance. Both these functions are best served when the management team prepares the projections, rather than just the executive director or an outside consultant.

1.3 Intended audience

The handbook and spreadsheet are intended primarily for senior managers of microfinance institutions who lead the planning process. The handbook can also serve as a resource on planning for other stakeholders of the institution, including other staff, board members, advisers, and funders.

The handbook and model are designed to be broadly inclusive, relevant for all microfinance institutions regardless of their stage of development, institutional form, lending methodology, or range of services. While the content of each plan will vary depending on all these factors, the framework for the planning process will be much the same for all microfinance institutions.¹

Note

1. Readers of the handbook and users of the financial model are assumed to have a basic understanding of and experience in several key areas, including credit methodolo-

gies, financial management, and working with spreadsheet software. Throughout the text, notes refer to relevant introductory and advanced texts related to the topics covered, so that readers can pursue topics of interest to them in greater depth.

PART ONE

Strategic Planning

Developing a Strategic Plan

There are many ways to develop a strategic plan. The approach here consists of several steps, all of which keep the clients in the forefront during the planning process:

- Articulating the institution’s mission and goals, which express its aspirations and intentions
- Defining the institution’s markets and clients to clarify whom it seeks to serve
- Undertaking an environmental analysis to examine key factors in the broader context in which the institution operates
- Performing an institutional assessment to explore key strengths and weaknesses of the institution
- Based on the results of these analyses, developing a strategy that builds on the institution’s strengths and develops key areas needing improvement, enabling the institution to better serve its clients and achieve profitability.

Following this chapter is a sample strategic plan, developed by a fictitious microfinance institution, the Freedonia Enterprise Development Association (FEDA), that illustrates how to apply the ideas discussed in the chapter.

2.1 Articulating the mission and goals

An institution’s mission articulates its guiding principles and overall direction. It is an expression of the vision that led to the founding of the institution, a “declaration of organizational purpose.”¹ Goals reflect how the institution intends to pursue its mission. A statement of mission and goals generally addresses several key questions:

- What issues is the institution trying to address? (The issues might be the lack of access by the poor to financial services, or the need of a credit union’s members for financial services.)
- How does the institution respond to these issues? (The response might be to provide financial services to low-income entrepreneurs, or to mobilize deposits from members and then loan a certain percentage of the funds.)
- Who are the intended clients? (The clients might be urban producers and traders, or limited to members of a credit union.)
- What are the institution’s core values? (The institution’s core values might include enhancing its clients’ self-determination, serving as an ongoing financial

“The goal of ASA is ‘sustainable and cost-effective socioeconomic development of the poor through participation in income-generating activities and access to financial services.’

“Clients are fully aware of ASA’s goal of socioeconomic development. Staff as well feel a sense of pride knowing that they provide their clients a means to escape poverty and realize that this is in tune with the institution’s goal. Board members and upper management are of course aware of the goal and emphasis.”

—Md. Shafiqul Haque
Choudhury, chief executive,
the Association for Social
Advancement (ASA),
Bangladesh

resource for members, or achieving significant outreach and financial self-sufficiency.)

A microfinance institution's mission and goals underlie and inform all the activities that it undertakes and serve as a source of motivation for the institution's board and staff. The strategy chosen should reflect the institution's mission and further its goals.

“The last five years have been a process of increasingly refining the mission and the goals, and along with that we have refined our mission statement accordingly. When we started out, the mission of Rural Finance was to ‘facilitate investment in rural communities by the provision of professional financial services.’ We ended up doing everything from rural electrification to financing community water supply. Now our mission is ‘provision of low-income housing finance and rural micro-enterprise credit.’

“The mission statement is like an evolving theme within an organization. Although it is derived from the leadership, it needs to be revisited by all staff members and they need to ‘own’ it. A mission statement is important in that it tells you what you do not do and how you should limit your activities.”

—Chris R. Hock,
managing director,
Rural Finance Facility,
South Africa

2.2 Defining markets and clients

Understanding the needs of the clients it seeks to serve helps a microfinance institution develop the capabilities (in products, personnel, and facilities) to serve those clients in ways that expand outreach and enhance profitability. Clients can provide crucial input for the design of new products and feedback on how well existing products and marketing approaches meet their needs.

2.2.1 Markets

As a microfinance institution grows, its clients are likely to become more varied and the institution may find it valuable to divide its current and potential clients into distinct market segments for analysis. Markets are generally designated by location (for example, a particular urban neighborhood, a semirural market town, or the area within a 15-mile radius of a branch office) and then further segmented according to the economic activities within them (such as market vendors, producers, or farmers). The institution chooses which market segments to serve, so that it can ensure that its products and services meet their needs.

Before a microfinance institution enters a new market or decides to expand in an existing market, it is often important to analyze such features of the market as:

- Its size (the number of microentrepreneurs operating in it)
- The projected demand for financial services
- The market penetration that the institution can likely achieve—that is, what share of the microentrepreneurs seeking financial services the institution estimates it will be able to reach
- Key market trends (such as growth in the demand for the goods produced by the entrepreneurs).

Such market analyses can be more or less formal, ranging from informal discussions with current and potential clients to a more formal process of completing a brief market study of each area under consideration.²

Once a current or potential market has been evaluated, the institution can decide whether the market represents a good opportunity for expanding its

operations and whether more detailed research is warranted on clients' economic and personal traits and on the kinds of financial services that would be most appropriate.

2.2.2 Clients

If a market meets a microfinance institution's initial criteria, the institution may decide to conduct a more detailed analysis to learn more about the entrepreneurs operating there and the kinds of products and services that would best meet their needs. Such an analysis would look at both economic and personal characteristics of current or potential clients.

Key economic traits include:

- The nature of the enterprises
- The demand for specific financial services (credit or savings, working capital or equipment loans)
- Income and assets (of both the businesses and the households)
- Diversity of income sources
- Work experience.

Important personal traits include:

- Gender
- Age
- Language and literacy
- Citizenship
- Reputation in the community.

An understanding of the traits of clients can help the microfinance institution ensure that its products meet their needs.

2.3 Analyzing the environment

A microfinance institution assesses the context in which it operates through an environmental analysis to gauge how foreseeable external challenges will affect its capacity to achieve its goals. External factors can prove to be either opportunities or threats—opportunities if the institution can position itself to take advantage of changes in the environment, threats if the changes jeopardize its ability to pursue its goals in the way it had planned. By anticipating the effects of external factors, the institution can better position itself to take advantage of its environment.

An environmental analysis looks at four factors:

- Competition
- Collaborators

ASA has developed selection criteria that outline where to establish branches that “will both have a high probability of reaching viability and ... positively impact the lives of target client populations.”

“ASA’s criteria for establishing new branches include the following:

- *A densely populated area of about 15 kilometers in diameter with adequate infrastructure*
- *Access to a bank (for daily transactions) and a post office (for communication with the central office)*
- *Broad scope for potential clients’ income-earning activities through profitable investment of loan proceeds*
- *Markets for potential clients’ products and services, and for raw materials, that are a convenient distance away*
- *An assessment of the activities and coverage of other, similar organizations working in the proposed area.”*

—Md. Shafiqul Haque
Choudhury, chief executive,
the Association for Social
Advancement (ASA),
Bangladesh

- Regulatory factors
- Other external elements.

2.3.1 Competition

Competition may be increasing significantly in the markets where a microfinance institution operates. Conversely, an absence of strong competitors might give the institution an opportunity to solidify its market position. If competition is a significant factor, the institution might choose to carry out a careful review of its current and potential competitors, including:

- Other microfinance institutions
- Moneylenders
- Informal credit schemes
- Clients' suppliers
- Formal financial institutions.

2.3.2 Collaborators

The kinds of collaboration that a microfinance institution forms will depend on its needs. If it seeks broad-based institutional strengthening, an affiliation with an international network that provides technical assistance and training could be an important relationship. If legislation prevents an institution from offering savings products, it might choose to collaborate with a local bank that can provide such services. An institution might also collaborate with local government officials or with local institutions offering services that complement its own.

2.3.3 Regulatory factors

Regulatory policies can play an important part in shaping a microfinance institution's environment. For example, restrictive interest rate ceilings can impair an institution's ability to charge an effective interest rate sufficient to cover its full costs. By contrast, central bank policies that allow a range of licensed financial intermediaries, with capital reserve requirements matched to institutions' scale, can encourage the development of microfinance institutions. Other policies may affect a microfinance institution's clients, such as regulations on land ownership, registration requirements for microenterprises, and price controls on agricultural products.

2.3.4 Other external elements

A country's general economic and political conditions have a significant effect on the informal financial sector and therefore on microfinance institutions and their clients. A high inflation rate, civil unrest, and natural disasters can pose serious threats to a microfinance institution's operations, while a stable economic and political situation provides a positive environment for an institution's development. Other

To assess the competition the institution faced, ACODEP prepared a simple matrix for each branch office summarizing the key traits of its main competitors. On the vertical axis it listed each of the main competitors. On the horizontal axis it listed each institution's key characteristics, including lending methodology, loan amounts, loan terms, interest rates, fees, payment frequency, and guarantee requirements.

The information ACODEP compiled on its competitors reinforced its view that it needed to offer a product that would appeal to potential borrowers interested in smaller loans than it currently offered, like those offered by several of its competitors. The analysis also supported ACODEP's decision to maintain its market niche as a lender offering only individual loans. Several competitors offered only group loans, and clients seemed to appreciate the individual attention they received from ACODEP.

Based on an interview with Armando García Campos, executive director, ACODEP, Nicaragua

significant external elements include foreign exchange rates, currency convertibility, national poverty levels, and transportation and communication infrastructure.

2.4 Performing an institutional assessment

The institutional capacity of a microfinance institution is the most crucial factor in its ability to achieve its goals. So every institution should undertake a thorough assessment of where its strengths lie, where it has significant weaknesses, and where it should focus institutional development efforts. This institutional assessment is generally carried out after the market study and the environmental analysis, so that an institution can evaluate its strengths and weaknesses in the light of its ability to meet its clients' needs in the context in which it operates.

There are many ways to evaluate an institution's resources and capabilities.³ In the method proposed here the institution assesses its performance in key areas of operations through questions whose answers will help show whether it is following the kinds of practices shown to be most effective for microfinance institutions.

Six areas of operations are reviewed:

- Credit and savings program
- Board and management issues
- Human resource management
- Administration
- Financing
- Financial management.

2.4.1 Credit and savings program

- Are the products appropriate for the market segments that the institution seeks to reach?
- How good is portfolio quality, as measured by the default rate and portfolio at risk?
- Is there a clear pattern of significant growth and increasing profitability?
- Is there a high rate of client retention?
- Are clear and appropriate credit policies and procedures in place?
- Does the institution monitor loan officer productivity (such as the number of active clients per loan officer)?
- Do credit staff maximize their time with clients relative to the time they spend on administrative work?

2.4.2 Board and management issues

- Does the board provide vision and policy leadership?
- Does it ensure that the institution's financial resources are prudently managed by monitoring investment and operating performance?

“All policies and procedures are highly detailed in our guidebook. There is undoubtedly a culture of ‘zero tolerance’ for delinquency. Any default triggers reactions by management until the problem is corrected.

“High recovery rates are one of the keys to any microfinance institution's success. Regular and intensive monitoring and follow-up is key to realizing high rates of recovery. Problems are identified and dealt with immediately, [problems] which might otherwise hamper repayment and require extensive corrective measures. Regular monitoring of staff activity further encourages staff to take it upon themselves to take necessary steps to maintain a high recovery rate and control delinquency. Clients realize the importance of repaying borrowed money on time; they realize that ASA services are ultimately linked to repayment of loans disbursed.”

—Md. Shafiqul Haque
Choudhury, chief executive,
the Association for Social
Advancement (ASA),
Bangladesh

“Management, more than any other area, except perhaps profitability, is the limiting factor to expansion.... There are five areas of management where [ACCION’s] analysis concentrates: human resources, general management, information systems, internal control and audit, and planning and budgeting. Of these, the most important without doubt is human resources.”

From ACCION International,
“Preparing a Business Plan”
(Bogotá, Colombia, 1997;
authors’ translation)

- Does it provide ongoing guidance and advice to the executive director?
- Do board members provide expertise in such key areas as banking, law, and accounting?
- Are the roles and responsibilities of the board and management clearly defined so as to prevent inappropriate intrusion by the board into operational details?
- Does the board participate in setting performance targets and monitoring progress toward them?
- If the institution is considering formalization, has the board evaluated the opportunities and risks associated with the different options available (box 2.1)?
- Are the board and the executive director effective at mobilizing funds from domestic and international sources for concessional and commercial debt and for grants?
- Does the executive director provide leadership in implementing the institution’s mission and goals?
- Does the executive director solicit and use inputs from staff at all levels?

Box 2.1

Benefits and costs of formalization

A growing number of microfinance institutions are considering changing their legal status to that of a formally licensed financial intermediary, in the hopes of attracting significant flows of client savings and domestic and international debt and equity funds.¹ But microfinance institutions need to carefully evaluate the costs as well as the benefits likely to result from a change in legal status.

The costs occur both up front and over time, and they are likely to be substantial. Evaluating a shift in legal status often entails costly feasibility studies of the alternatives and extensive consultations with lawyers and accountants. And registering as a formal financial institution involves legal and filing fees.

Once a microfinance institution attains formal status, it will have to abide by the regulations governing licensed financial intermediaries in its country. Some of these regulations may lead to greater professionalization—through conformity to more rigorous standards of provisioning and asset valuation, for example. But regulations may also impose significant constraints, restricting the hours and days of operation, requiring advance approval for opening new branches, and setting requirements relating to the compensation, hiring, and termination of employees. A microfinance institution changing its status will generally face significant additional supervisory requirements, such as an internal audit department and expanded reporting. And significant capital reserve requirements are often imposed, so that substantial funds must be placed in relatively low-interest, liquid investments. Perhaps most significant, a microfinance institution that has been a tax-exempt nongovernmental organization will probably lose that status and have to begin paying taxes on its earnings.

Thus while microfinance institutions with a history of consistent profitability may benefit substantially from formalization, institutions should thoroughly assess, in the light of the country’s banking regulatory structure, whether the benefits are likely to offset the costs.

1. In some countries, such as the members of the West African Economic and Monetary Union, all credit institutions are required to become registered and licensed.

- Does the executive director have the necessary skills and knowledge (such as a strategic perspective, management skills, knowledge of credit and finance, and fundraising ability)?

2.4.3 Human resource management

- Is there an organization chart, and are there job descriptions for all positions?
- Are the positions of credit manager and finance manager filled by qualified staff?
- Are staff recruited and trained to ensure the appropriate skills? (For example, do credit staff have good communication skills, a basic knowledge of credit, and good business sense?)
- Is the level of administrative staffing sufficient but not financially burdensome? In particular, does the institution have a strong finance and accounting team and management information system (MIS) capability?
- Is staff turnover minimal?
- Are incentive systems designed to hold staff accountable and to reward them for good performance?⁴
- As greater operational scale is reached, is compensation becoming more competitive with market rates?
- Is staff training a serious priority for the institution? What percentage of the total budget does staff training represent?
- Is there a clear pattern of promotion from within?
- Are performance evaluations based on mutually developed and agreed upon objectives?⁵

“ASA is highly decentralized and therefore delegates significant responsibility and authority to the credit and finance [branch] managers. Trustworthiness is probably the most valued and sought-after characteristic in credit officers because institutional accountability is so critical. Clients and the institution both benefit from an honest and sincere worker.”

—Md. Shafiqul Haque
Choudhury, chief executive,
the Association for Social
Advancement (ASA),
Bangladesh

2.4.4 Administration

- Does the management information system produce accurate, timely, and comprehensive reports for accounting and loan tracking?⁶
- Are appropriate reports provided to the different levels of users (board, management, staff) within the organization?
- Do portfolio reports provide an immediate assessment of the status of every loan?
- Is the chart of accounts appropriate to the institution’s needs? (For example, does it track income and expenses by branch, and does it separate grant income from earned income?)
- Does the institution regularly assess whether its management information system is sufficient for its needs today and over the medium term?
- Does the institution periodically review its fixed asset base to ensure that it is not becoming obsolete?
- Is there a formal, comprehensive system of internal controls in place to prevent corruption and the misuse of funds?
- Is a formal audit performed by a reputable accounting firm each fiscal year?⁷

2.4.5 *Financing*

- Is the institution able to mobilize the amounts and types of funding it needs for its current and planned operations?
- Is the mix of funding sources appropriate? (For example, is there an increasing reliance on earned income relative to grants?)
- How much priority does management place on moving away from dependence on subsidized funding?

2.4.6 *Financial management*

- Is reliable information available for assessing the institution's current financial position, including trends in its performance indicators?
- Are budgets and cash flow projections prepared and reviewed regularly?
- Does the institution conduct periodic analysis comparing projected with actual performance (variance analysis)?
- Do financial statements present an accurate picture of the institution? (For example, are loan loss reserves sufficient to cover projected defaults, are assets valued conservatively, and are nonperforming loans regularly written off?)
- Do key staff have good financial management skills?
- Does the institution have a well-thought-out investment management approach?
- Is the institution moving steadily toward full, subsidy-adjusted profitability?

The purpose of the environmental analysis and institutional assessment is to provide a microfinance institution with a clear idea of where it needs to focus its attention in order to meet its clients' needs and enhance its profitability. By systematically developing the information needed to assess past trends and current performance, the analyses lay the groundwork for determining what kind of strategy will enable the institution to achieve its goals.

2.5 **Choosing a strategy**

A microfinance institution chooses its strategy for expansion on the basis of the information and perspectives developed in the first four steps of the strategic planning process. Having articulated its mission and goals, defined which markets and clients to target, forecast what favorable and unfavorable external conditions it is likely to face, and gauged its strengths and weaknesses, the institution is ready to decide on a strategy for providing the right products in the appropriate markets in a cost-efficient manner.⁸

The process of identifying a strategy has three parts:

- Choosing what products to offer in what markets

- Deciding which areas of the institution need to be strengthened to ensure that it can provide the chosen products in the selected markets
- Determining clear objectives and activities for implementing the product, market, and institutional development goals.

2.5.1 Product and market options

An institution can pursue expansion by offering existing or new products in current or new markets. The four possible combinations of these elements represent four options of increasing complexity (figure 2.1). A microfinance institution's strategy must reflect which option it will pursue first and in what sequence it might add others.

MARKET PENETRATION

If current products are commensurate with projected client needs and current markets offer the potential for significant expansion, the appropriate strategy would be to expand existing products in existing markets.

PRODUCT DEVELOPMENT

If current markets offer the potential for significant expansion but existing products cannot meet projected client needs, the strategy should be to enhance current products or develop new products for expansion in existing markets.

MARKET DIVERSIFICATION

If existing products can meet projected client demand but current markets do not offer sufficient growth potential, the appropriate strategy would be to enter new markets with the current products.

PRODUCT DEVELOPMENT AND MARKET DIVERSIFICATION

If existing products are insufficient to meet projected client needs and current

FIGURE 2.1
Product-market matrix

		Market	
		<i>Current</i>	<i>New</i>
Product	<i>Current</i>	Market penetration	Market diversification
	<i>New</i>	Product development	Product development and market diversification

Source: Based in part on David A. Aaker, *Developing Business Strategies* (New York: John Wiley & Sons, 1995).

markets are insufficient to achieve sustained profitability, a microfinance institution must determine which of the first three options to pursue initially and in what order product and market expansion should be pursued.

2.5.2 *Institutional development*

To implement an expansion strategy, a microfinance institution will probably need to strengthen certain areas of its operations, as identified by the institutional assessment. In building on its strengths and addressing the areas needing improvement, the institution should focus on the factors that are essential to effective and profitable performance in the current and projected environment. And the institution will have to choose which activities it will not undertake, because taking on too much could prevent it from implementing any of the desired improvements.

2.5.3 *Objectives and activities*

Once a microfinance institution has chosen its strategy for expansion and identified the areas requiring strengthening, it is often helpful to develop objectives and activities for implementing the strategy.

Objectives can be articulated for each area of operational planning:

- Products and services
- Marketing channels
- Institutional resources and capacity
- Financing
- Financial management.

For each objective, activities should be outlined on the basis of the findings of the strategic planning process—the activities the institution intends to undertake to implement its plan. Through financial modeling the institution can assess how realistic the strategy is by analyzing whether the mix of proposed activities is financially achievable in the projected time frame.

The strategic planning process culminates in the task of developing and articulating the strategy. The strategy provides the key reference point for operational planning, serving as the link between the two parts of the business planning process. A microfinance institution should review its operational decisions in the light of whether they reflect its strategy and move it further toward its objectives.

Notes

1. John M. Bryson, *Strategic Planning for Public and Nonprofit Organizations* (San Francisco: Jossey-Bass, 1995, p. 75).

2. Market studies are often carried out in conjunction with an analysis of the broader environment in which the microfinance institution operates, the subject of the following

section. See Robert Peck Christen, *Banking Services for the Poor: Managing for Financial Success* (Washington, D.C.: ACCION International, 1997, p. 227) and United Nations Development Programme, “Microstart: A Guide for Planning, Starting and Managing a Microfinance Programme” (New York, 1996, pp. 37–46 and TK18-1) for more discussion of market studies.

3. For two good examples see Charles Waterfield and Ann Duval, *CARE Savings and Credit Sourcebook* (New York: PACT Publications, 1996, pp. 202–19) and CGAP, “CGAP Appraisal Format” (CGAP Secretariat, World Bank, Washington, D.C.).

4. See Robert Peck Christen, *Banking Services for the Poor: Managing for Financial Success* (Washington, D.C.: ACCION International, 1997, pp. 182–89) for a fuller discussion of staff incentive systems.

5. See SEEP Network, *An Institutional Guide for Enterprise Development Organizations* (New York: PACT Publications, 1993, p. 46).

6. See CGAP, *Management Information Systems for Microfinance Institutions: A Handbook* (New York: PACT Publications, 1998).

7. See CGAP, *External Audits of Microfinance Institutions: A Handbook* (New York: PACT Publications, forthcoming).

8. Operational efficiency provides the foundation for both expanding outreach and increasing profitability. If a microfinance institution’s current operations are not efficient, its strategy must first address how to improve efficiency. Although expansion can lead to economies of scale (for example, overhead costs generally do not increase in proportion with direct costs), an institution should tackle inefficiency problems before undertaking significant expansion.

The Freedonia Enterprise Development Association and Its Strategic Plan

The Freedonia Enterprise Development Association (FEDA), a microfinance institution, was established in 1990 as a nongovernmental organization (NGO). It works with the low-income, self-employed, urban poor in Liberty, the capital city of Freedonia, located in the Western District of the country.

FEDA has operated exclusively in the Brownstown Market area of Liberty, providing group loans, its only loan product, to market vendors of fresh produce and dry goods and to small-scale producers, such as shoemakers, dressmakers, and weavers. Its clients form groups of five, and, after meeting initial savings goals, each group member receives a loan of the same size and term, with each member cosigning for the others. Because FEDA is not legally authorized to collect savings, client savings are deposited in the local branch of Freedonia National Bank (FNB).

FEDA intends to expand its operations, first to another market area in the city, East Side, where the entrepreneurs have characteristics similar to those of the entrepreneurs in Brownstown Market. It then intends to expand throughout Liberty and to other cities in the Western District. FEDA sees itself as unique among the microfinance institutions in the country, combining a deep commitment to poor entrepreneurs with a commitment to becoming fully self-sustaining.

In 1997 FEDA undertook an extensive strategic planning process involving its board, management, and staff and including several meetings with selected groups of clients. The process resulted in the following strategic plan.

The Freedonia Enterprise Development Association's Strategic Plan

Mission and goals statement

Our purpose is to strengthen the economic base of the low-income self-employed of Freedonia through increased access to lending and savings services in urban areas. We intend to offer diverse products, combine cost-efficient methodologies with exemplary customer service, and become a financially self-sufficient institution.

Market and client analysis

Findings

Brownstown Market

- FEDA has 3,600 current clients (60 percent in commerce, 40 percent in production).
- The estimated market for financial services is 12,500 micro-entrepreneurs.
- The likely market penetration is 60 percent (or an additional 3,900 clients).
- The client retention rate for second, third, and fourth loans is 70 percent; for subsequent cycles, 50 percent.
- The major findings of client surveys: clients want larger loans and more flexible terms, and they are interested in expanded savings services.

East Side

- About 70 percent of the entrepreneurs interviewed expressed an interest in market-priced sources of financial services.
- Estimated number of businesses and demand for loans:
 - Commerce: 15,000 and 10,000
 - Production: 5,000 and 4,000

Brownstown Market and East Side

- Most adults have participated in rotating credit and savings associations.

Implications

- FEDA will need to enter new markets to reach more than 7,500 clients.
- FEDA should redesign its current product to better respond to clients' needs and to increase the retention rate.
- FEDA should explore the possibility of offering savings services.
- East Side is a promising market for expansion.

Environmental analysis

Findings

Competition

- There are six other microfinance institutions in the country with more than 3,000 clients, two of which operate in Liberty.
- The microfinance institutions operating in Liberty offer products and services similar to FEDAs, though in different areas of the city, with effective interest rates about 6 percentage points higher. Each has about 5,000 clients.

Collaborators

- Freedomia National Bank provides savings services (clients are not satisfied with the level of service).
- Freedom International, a North American NGO, provides periodic technical assistance and training.

Regulatory factors

- Legislation now being developed would authorize nonbank financial institutions to collect savings from their clients.

Other external factors

- The inflation rate was 10 percent in 1997 and is projected to be 8 to 10 percent for the next three to five years.
- Freedomia's stable political and economic climate is expected to continue.

Implications

- Competition is not now a significant factor, although the microfinance institutions operating in Liberty should be monitored, especially their choice of markets. If they enter FEDAs' markets, competition could become a serious factor.
- A review of the pricing structure may be appropriate.
- Current needs are being met.
- Adopting the structure of a nonbank financial institution could offer an opportunity to respond to clients' interest in savings and provide a source of lending funds.

- Although the inflation rate is stable, its effect should be factored into loan amounts.

Institutional assessment

Findings

Credit and savings program

- In 1997 the portfolio at risk was 6 percent, the default rate 3.5 percent, and portfolio growth 20 percent.
- The low retention rate and client feedback indicate that FEDA's current loan product is not responding to clients' needs.
- Clients show a strong interest in expanded savings services.

Board and management issues

- A strong, involved board brings useful skills and perspectives.
- The executive director has strong skills in management and funds mobilization, but could improve financial skills (see below).

Human resource management

- The staff have the necessary skills, though a significant proportion are new to FEDA (about 40 percent of loan officers).
- Salaries are relatively low; loan officers are especially vocal about the increasing workload and limited pay.

Administration

- Loans are tracked on spreadsheet software and the system is becoming increasingly strained.

Implications

- With continued rapid growth, FEDA will need to control delinquency.
- FEDA needs to redesign its loan product.
- See the statement below about the possibility of providing savings services.
- The board should explore the feasibility of FEDA's providing savings services directly as a nonbank financial institution.
- FEDA needs to emphasize ongoing staff training.
- A review of the compensation structure may be needed.
- FEDA needs to explore a new MIS.

Institutional assessment (continued)*Findings**Implications**Financing*

- FEDA has good relationships with commercial and concessional sources of financing.
- Commitments for substantial funding for the next two years are in place.

- FEDA should continue to build its relationships with funders.

Financial management

- FEDA is approaching operational profitability.
- Financial reports generally become available one month later than they should.
- The executive director and finance manager are interested in strengthening their analytic skills

- FEDA should continue to monitor profitability.
- FEDA needs to provide financial management training for key staff.

Strategy

Over the next three to five years FEDA will pursue both product development and market diversification while strengthening staff capacity and other key institutional resources.

Our credit product will be redesigned to meet the needs of repeat clients, with the aim of increasing client retention. After the redesigned product has been piloted in the Brownstown Market area, we will open a new branch in East Side. As early as is feasible we will become a nonbank financial institution and begin mobilizing savings from our clients. We will also pursue ongoing staff training, a review of staff compensation levels, and development of a new MIS.

By the end of 2002 we aim to have 12,000 active clients and to be consistently profitable after adjustments for subsidies.

Objectives and activities

PRODUCTS AND SERVICES

Objective: Offer lending products that attract a growing number of clients who remain in the program.

Activities:

- Redesign current group lending product.
- Review pricing structure.
- Train staff in revised loan terms and conditions (see the section below on institutional resources and capacity).

Objective: Develop voluntary savings products that respond to clients' needs and that can serve as a source of portfolio financing.

Activities:

- Follow development of the legislation on nonbank financial institutions and apply for status as such an institution, to be effective for fiscal 2001.
- Develop savings product parameters.
- Train staff to implement the savings program (see the section below on institutional resources).
- Educate clients about pending savings services.

MARKETING CHANNELS

Objective: Increase market penetration in Brownstown Market area and open new branch in East Side.

Activities:

- Market redesigned lending product in Brownstown Market area.
- Open a new branch in East Side late in fiscal 1998.

INSTITUTIONAL RESOURCES AND CAPACITY

Objective: Integrate redesigned lending products into operations and prepare for the introduction of savings products in fiscal 2001.

Activities:

Board and management issues

- Create a committee to follow the legislation on nonbank financial institutions and to explore filing for a nonbank financial institution license effective in fiscal 2001.

Human resource management

- Review salary structure.
- Train staff in new loan terms and conditions and in savings mobilization.
- Strengthen the financial management skills of the executive director and finance manager.

Administration

- Continue research on a new MIS: develop detailed user specifications, select a loan tracking system, and install the new system in the first quarter of 1999.

FINANCING

Objective: Obtain appropriate, diversified financing for expansion.

Activities:

- Obtain capital grants and debt (concessional and commercial) to fund portfolio growth (based on financial projections).

FINANCIAL MANAGEMENT

Objective: Strengthen financial management capacity.

Activities:

- Strengthen the financial management skills of the executive director and finance manager through training and technical assistance from Freedom International.
- Develop detailed financial projections.

PART TWO

Operational Planning and Financial Modeling

In operational planning an institution takes the information and insights from the strategic planning process and develops projections showing how the strategy can be pursued, taking into account the environmental and institutional factors identified. These projections must be grounded in what the institution has achieved, reflecting a realistic outgrowth of past accomplishments.

As shown in figure 1.1 in chapter 1, key elements of the strategic plan find concrete expression in the operational plan. In this part the handbook proceeds through the four key areas of operations: products and services, marketing channels, institutional resources and capacity, and financing.¹ For each area a microfinance institution needs to identify the crucial issues to be addressed, based on the information obtained during the strategic planning process. In analyzing these four areas the institution will construct, step by step, a detailed budget and financial plan. The budget will express the institution's operational plan in financial terms. Financial projections will be developed using the spreadsheet model, Microfin, that accompanies the handbook.

There are many ways to develop a budget. The approach here follows a logic relevant to most microfinance institutions. Because lending and savings activity is the main "engine" driving a microfinance institution's operations, the budgeting process begins with credit and savings projections. The forecast of what products and services will be offered (chapter 4) and through which marketing channels (chapter 5) leads to projections of the level of activity that the institution will engage in and of the interest and fee income that it will generate.

On the basis of the lending activity at each branch, the institutional resources and capacity needed to support that activity can be projected (chapter 6). These projections involve first estimating the levels of loan loss provision, reserve, and write-offs. The projections continue with a detailed analysis of the caseload that credit staff will need to carry to provide the services outlined in the portfolio projections. A detailed estimate of program (or branch) expenditures follows, broken down into useful categories (such as personnel, other operational expenses, and fixed assets). These estimates should reflect the costs that will have to be incurred to achieve the projected credit and savings activity. Once program expenses have been projected, administrative (or head office) costs can be estimated, based on the overhead that will be needed to support the projected program activity. Institutional development costs are also projected.

Once the institution has prepared initial estimates for income, expenses, and additional cash requirements (such as for lending and fixed assets), it can develop a financing strategy (chapter 7). The institution needs to ensure that sufficient

funding is available in the time frame and for the purposes needed. Financing requirements can be broken down into three areas: operations, portfolio, and other assets. Financing comes from two types of sources: equity (earned income, grants, and equity investments) and debt (loans and savings deposits). Once the institution has estimated its financing requirements and identified the likely sources of financing, it can project its cost of funds. It can also determine whether it is likely to have any excess funds on hand (such as loan funds repaid and not yet disbursed) and thus project how much income it might earn from investments.

At this point the microfinance institution has completed the process of developing an initial budget. By analyzing this budget, it can decide whether any changes should be made, such as in the volume of lending or savings activity, the level of staffing, or the purchase of assets. The institution can also analyze its projected financial statements—the income statement (including subsidy adjustments), balance sheet, and cash flow—and performance indicators to evaluate whether its operational plan and financing strategy are realistic (chapter 8).

Note

1. A detailed analysis of the operations of microfinance institutions is beyond the scope of this handbook. For a more thorough discussion see Charles Waterfield and Ann Duval, *CARE Savings and Credit Sourcebook* (New York: PACT Publications, 1996), SEEP Network, *An Institutional Guide for Enterprise Development Organizations* (New York: PACT Publications, 1993), and Robert Peck Christen, *Banking Services for the Poor: Managing for Financial Success* (Washington, D.C.: ACCION International, 1997).

Using Microfin in Operational Planning

Microfin is a sophisticated, Excel-based spreadsheet projection model that can be used to plan and project all financial services activity for a microfinance institution. The model uses a systematic, step-by-step approach closely following that of the business planning framework outlined in the handbook. Designed as a comprehensive tool for planning an institution's financial services activity, Microfin should be used as part of the annual planning process and referred to regularly throughout the year for monitoring purposes. It is not an appropriate tool for preparing quick and rough financial projections.

For a microfinance institution the goal in using any financial model is twofold:

- To develop realistic yet ambitious financial projections that facilitate the kind of financial planning, analysis, and decisionmaking that will enhance its ability to achieve its goals
- To strengthen the financial planning and management skills of those developing the projections.

Although the first purpose is often seen as more useful, it is the second one that is more important to a microfinance institution's success. The financial management skills of senior managers are instrumental in the successful implementation of an institution's mission and strategy. Microfin is intended to serve both these purposes.

As with the overall planning process, the financial projections should involve broad participation from key staff and board members. Multiple perspectives will both make the projections more accurate and increase the likelihood that activities will be carried out as planned.

For several reasons any financial model's ability to project probable results has limitations:

- There is no way to know in advance exactly how external and internal factors will affect an institution.
- No model can take into account all the relevant factors.
- There is a tradeoff between comprehensiveness and ease of use: the more variables a model considers, the more accurate its results will be, but inputting data and updating the model will be more complicated.

Projections always involve a margin of error and an element of uncertainty. Financial projections, particularly beyond a horizon of one to two years, should be viewed as useful tools to guide planning, based on informed estimates, rather than as scenarios likely to unfold as presented. To guide management on which

information it should monitor most closely, it is helpful to perform a sensitivity analysis to determine which variables are most important to the success of the institution (see section 8.6).

3.1 Main features of Microfin

The model allows the definition of four independent loan products and four savings products. It then builds projections (either for the overall institution or for each branch office), based on estimates of the number of clients for each loan and savings product over time. The model generates and graphs branch portfolios, income, expenses, and financial ratios. The model aggregates all program activity to determine the resources needed for the institution as a whole. It allows the allocation of administrative (or head office) staffing and costs among branches. The financing strategy completes the process, and an income statement, adjusted income statement, balance sheet, cash flow statement, and financial ratios are automatically generated.

The model prepares projections for five years. It calculates very precise monthly projections for the first two years and estimates quarterly projections for years 3, 4, and 5. Generally, information is entered on separate worksheets for such major inputs as product design, market projections, and financing sources, but all worksheets are in a single Excel workbook file.

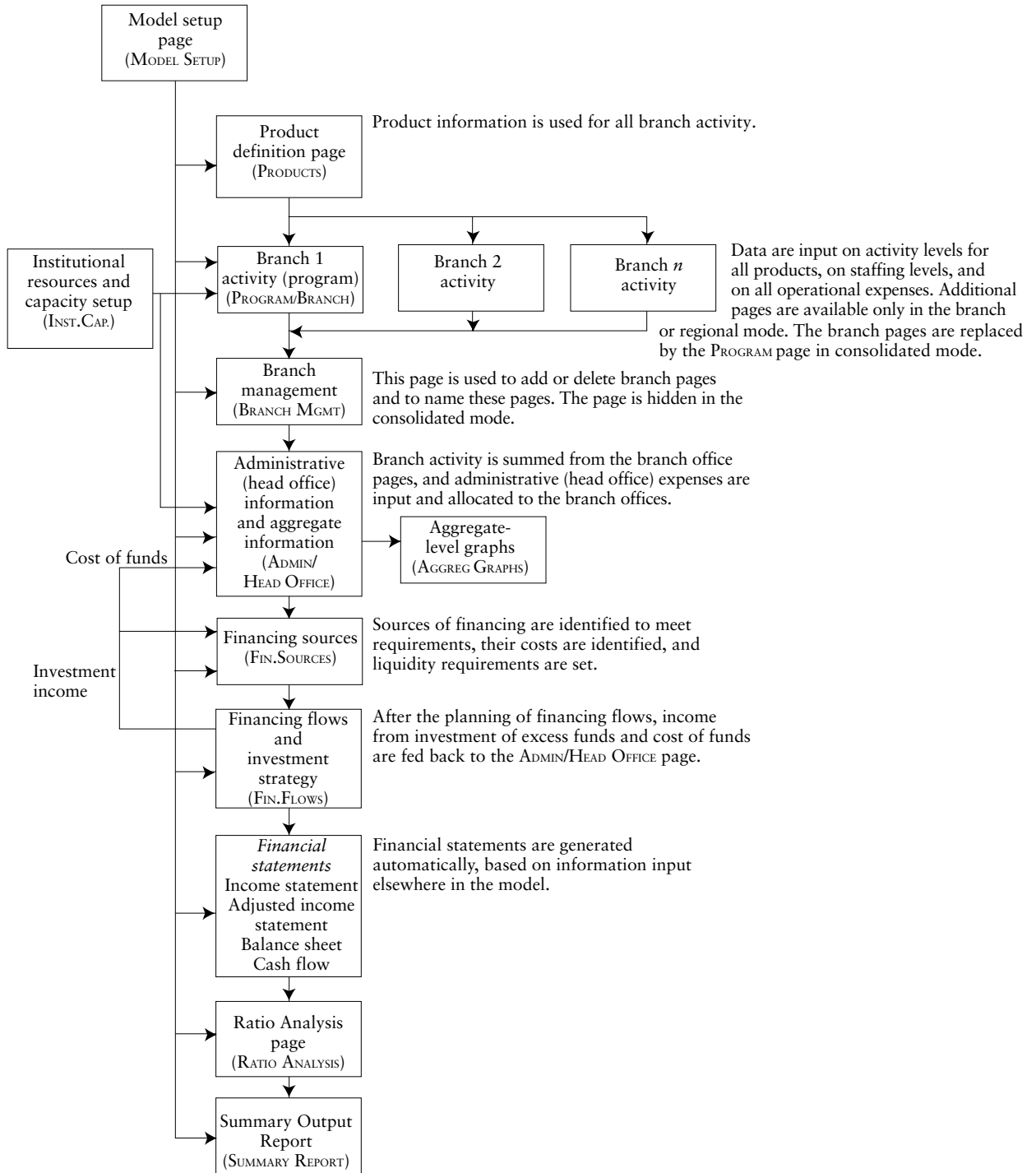
Every effort has been made to produce a highly accurate and flexible projection model while retaining relative ease of use. But the model is sophisticated, and it assumes a reasonable level of competence in financial management and in the use of spreadsheets.

The model allows users to work at one of two levels. They can input only the data essential for generating the projections, or they can invest more time and introduce more precision. The model uses color schemes to orient users. The fields for essential data are bright blue. The model functions well when only these blue fields are used. But if users wish to enter more precise information (for example, modifying the client retention rate in future months), they should also use the optional input cells, which are gray.¹

3.2 Structure of Microfin

Microfin consists of many worksheet pages, each containing a distinct category of information (figure 3.1). At the bottom of the screen are worksheet tabs to help users find the input section they need; these tabs are labeled with abbreviated forms of the names of the worksheet pages. For easy reference, these abbreviated forms are generally used in the handbook. The names of the pages, as well as other elements of the model, are set in small capital letters to help guide readers through the model. To the extent possible, the pages in Microfin have been

FIGURE 3.1
Structure of the model



placed in the order in which the information will be entered. An annotated print-out of the main pages can be found in annex 2.

First in the workbook is the `INTRO` page, followed by two pages (`MODEL STRUCTURE` and `INC.STAT.FLOW`) with descriptive information about the model. The `INTRO` page is displayed each time the file is opened. It provides the version number and release date for the model, contact information for obtaining more information about the model, and a list of changes made by version number. It also allows users to select one of the three languages in which the text is available (English, Spanish, or French, although the help system is currently available only in English) or a user-defined language. Choosing `USER-DEFINED LANGUAGE` makes the `TRANSLATIONS` page, normally hidden at the end of the workbook, available. This page contains all the text in the model and a column where users can fill in the translation in the desired language. With more than 1,500 lines of information requiring translation, it is advisable to print out the page and proceed very carefully with the translation. Imprecise translations can lead to confusion and misinterpretation when working with the model.

The next page, `MODEL SETUP`, is where the model begins and the first page where users input information. This page requires some general information that is used throughout the model and so must be completed at the beginning of the process. On this page users also choose the mode of projection, whether consolidated, regional, or branch-level. The following page is `PRODUCTS`, the product definition page, where users define their institution's current and projected credit and savings products. In the consolidated mode this information flows into the `PROGRAM` page, where credit and savings activity and staffing and operational expenses are projected. The `INST.CAP.` page immediately before the `PROGRAM` page requests setup information for the planning step relating to institutional resources and capacity. This information feeds into the `PROGRAM` page and the `ADMIN` page. On the `ADMIN` page administrative-level staffing and expense data are entered to complete the budget projections. The `AGGREGATE` and `BRANCH GRAPHS` pages present the projections in graphical form to ease interpretation.

If the model is set up in the branch-level or regional mode, the `PROGRAM` page will be titled `BRANCH` or `REGION`, and the `ADMIN` page will be titled `HEAD OFFICE`. In addition, a page called `BRANCH MANAGEMENT` will appear immediately following the `BRANCH` or `REGION` page. The `BRANCH MGMT` page can be used to add or delete additional branch or regional pages. The information from the branch or regional pages is summed up on the `HEAD OFFICE` page. See section 3.4.1 for an explanation of the model setup options.

With portfolio projections and budgeting complete, financing sources must be identified to fund the projected activity levels. This exercise is done on two pages. On the first, `FIN.SOURCES`, users identify funding alternatives, provide initial cash balance data, define liquidity thresholds, set interest rates for debt sources, and calculate the cost of borrowed funds, which is then fed back into the `ADMIN/HEAD OFFICE` page as a budgeted expense. The second page, `FIN.FLOWS`, monitors the cash balances for three restricted pools—operations,

portfolio, and other assets—and for an unrestricted pool of resources. Here users input repayments of borrowed funds and receipts of new funds to ensure sufficient cash balances. An investment strategy section identifies uses for excess liquidity and shows any investment income, which is then fed back into the ADMIN/HEAD OFFICE page as a source of income.

At this point initial input for the financial projections is complete, and the results can be viewed in the financial statements—on the INC.STATEMENT, BAL.SHEET, and CASH FLOW pages—and on the RATIO ANALYSIS page. The SUMMARY REPORT page provides a succinct overview of the projections.

Microfinance institutions that provide nonfinancial services—business development services or such services as health education—will need to separate these activities from their financial activities. Because of the wide variety of nonfinancial services, Microfin currently does not provide support for generating projections relating to such services.

At the end of the workbook is the CLIENT COST worksheet, an independent tool that is not integral to the model. This worksheet is described in annex 5.

3.3 Using Microfin

Some users may be tempted to begin generating numbers and experimenting with assumptions before first laying the groundwork for sound operational projections. Without solid research and reflection on an institution's mission, goals, clients, markets, environment, and institutional capacity, financial projections can be unrealistic and misleading. So before beginning operational planning, it is important to develop a strategic plan as outlined in chapter 2. In addition, the following section on data required to complete the model should be reviewed to ensure that the information needed will be available when the operational planning process begins.

Good plans and realistic financial projections cannot be generated by one or two senior staff working over a couple of days. Planning must be participatory, bringing in the experience and ideas of staff at all levels of the institution. Plans should be developed in stages, allowing time for reflection and consideration of decisions made at each stage before moving on to the next one. And planning should become an integrated practice that is not only performed annually, but forms the basis for daily operations and decisionmaking.

3.3.1 Data required to complete the model

The amount of data required to complete the model will vary with the complexity of the institution and the degree of accuracy sought. Institutions with a single financial product will have lower data requirements than those with multiple products. Institutions modeling their branch offices separately will need to spend more time completing the additional worksheet pages. And institutions with a broad

FAQ 1

An error message is displayed each time I recalculate the workbook. What's happening?

Microfin has several error checking routines to ensure that the structure of the model has not been altered and that no erroneous data have been input that prevent Excel from completing all the calculations. These routines execute each time F9 is pressed and the workbook is recalculated.

If you get one of these error messages, read the message carefully and try to solve the problem immediately. In most cases the error will be due to data input in the model since the last calculation. Review these data, checking for errors such as a space entered to clear out a previous data entry. If you cannot find the source of the error, it is often best to save the current file under a different name and then retrieve the most recently saved version to continue working.

If you find that the source of an error message is a bug, please contact CGAP for assistance and to ensure that the problem is corrected in future versions of Microfin.

FAQ 2

How can the User-Defined Sheet be used to customize Microfin?

The worksheets and overall structure of Microfin are protected to ensure that errors are not introduced in the model through accidental modification of the formulas. Although necessary because of Microfin's complexity, the protection of the model may limit its usefulness to experienced spreadsheet developers. To allow users to design additional features for the model, a USER-DEFINED SHEET is therefore included near the end of the workbook. This sheet is fully unprotected and can be used, for example, to develop a summarized report format that extracts information from elsewhere in the model.

The sheet can also be used to generate supplemental calculations that can then be fed back into the model, such as a complex calculation of taxes that does not easily fit into the single input line on the HEAD OFFICE page. A sophisticated tax calculation section could be developed on the sheet that draws on key outputs from elsewhere in the model, such as total assets and specific income and expense lines, then applies the tax formula to generate the amount of taxes owed. A simple formula could then be entered in the tax input line that references this derived calculation on the USER-DEFINED SHEET.

(Text continues on next page)

range of financing sources will have greater data requirements than those with few sources.

It is best to have one person responsible for ensuring that the necessary information is available when work with the model begins, particularly when scheduling group time to develop projections. See annex 3 for a list of all the data required to complete the model, grouped by the page on which the information is input.

3.3.2 *Installing and starting Microfin*

See annex 1 for information on the hardware and software requirements for Microfin and instructions for installing the model from the installation disk and starting it up.

3.3.3 *Inputting information in the model*

All the pages in the model have been protected. This prevents accidental overwriting of formulas in the model. But it also prevents users from making modifications to the pages, such as inserting a row to add an indicator. For this reason blank rows have been included in some sections, such as on the RATIO ANALYSIS page, for user-defined indicators.

The structure of the workbook also has been protected, to avoid accidental deletion of worksheets or a change in the order of worksheets, which can destroy some of the formulas. Because the protection means that new sheets may not be added to the workbook, a blank sheet has been included at the end of the workbook for optional use. This sheet can be copied by clicking on the button labeled ADD ANOTHER USER-DEFINED SHEET.

The protection is required because of the complexity of the model and the many links between pages; without the protection, it would be easy to introduce serious errors in the model. Users who would like to see features added to the model, or who find bugs in the model, are encouraged to send comments to CGAP (preferably by email, to cproject@worldbank.org). These suggestions will be considered for future releases of the model.

Data can be entered only in the blue "essential input" cells and the gray "optional input" cells. A number should be entered in every blue cell, even if the number is zero. Entering data in all the blue cells will generally result in adequate and complete calculations. The optional gray cells can be used to refine projections, such as by introducing changes in the initial assumptions. Many users may choose not to use the gray cells, but their presence allows tremendous flexibility in financial modeling. The # column on the left side of most pages shows the number of entries made in gray cells. Since most of the optional input cells are off-screen, this # column can be useful in spotting the lines where these fields are being used.

Never use the space key to empty a cell. Excel enters a space in the cell, which is interpreted in a different way than a zero or an empty cell. Entering a space

can result in Excel displaying a #VALUE! error message in some of the mathematical formulas because the calculation cannot be made. If any #VALUE! errors are found in the model, the problem will need to be traced back and solved. The # columns can help identify entries of spaces, which do not show up on the screen.

Never use the Move or Cut and Paste functions in Excel. Although the workbook is protected, these commands can overwrite essential formulas in the spreadsheet, leading to inaccurate results. *And never use the Copy function when copying data between blue and gray cells,* as the background color of the cells that are copied will overwrite the original formatting of the cells to which the data are copied.

After year 2, Microfin switches from monthly to quarterly projections. To maintain consistent input across the five years of projections, *always input monthly data even when in quarterly columns, except for interest rates and inflation rates, for which input data are always annualized.* Microfin will automatically convert the monthly data into quarterly amounts. Input errors can easily be made in this transition from monthly to quarterly projections. To spot such errors, graphs should be checked for significant shifts in month 25.

3.3.4 Using the Microfin help system

The Microfin installation disk has a copy of the Microfin help system, which contains most of the information in the handbook. The system can be accessed by clicking on any of the HELP buttons found throughout the model. To function, the help file (Microfin.hlp) must be in the same subdirectory as the open workbook. When initially installed from the original mfininst.exe file, the help file is copied to the same subdirectory as the original Microfin.xls file. If this file has been moved, or if the active workbook is a copy of the Microfin.xls file and is stored in a different subdirectory, the help file will not be accessible until it is moved to the same subdirectory as the active file.

Most of the HELP buttons provide context-sensitive help, retrieving the information most relevant to the section of Microfin displayed on the screen. Once the help file is open, the CONTENTS, SEARCH, and INDEX buttons can all be used to explore it.

3.4 Setting up the model

Users must set up the model before beginning the planning and projections, by completing the MODEL SETUP page. This page allows the input of “global” variables used throughout the model. Users first choose the level of projections (branch, regional, or consolidated) and then enter institutional information, inflation data, and initial financial statements (balance sheet, income statement, portfolio activity, and key financial ratios).

FAQ 2 (CONTINUED)

Clicking on the button at the top left of the sheet titled CREATE AN ADDITIONAL USER-DEFINED SHEET will add a second sheet immediately after the original one. Users can add as many sheets as desired.

Users could achieve similar results by creating an independent Excel workbook and using formulas to link cells between the two workbooks. But that approach is far more complicated because it requires maintaining links between independent files.

FAQ 3

Why does Microfin show ##### where a number should be displayed?

Excel displays data in columns. For large numbers a column may sometimes be too narrow to present the entire number. When this occurs, Excel displays a row of number signs to spotlight the problem.

The solution is to resize the column. But because the worksheets in Microfin are protected, this cannot be done using menu commands. Instead, users need to click on the AUTO-WIDTH button that appears at the top of each page, which will resize all columns on the page to ensure that numbers are properly displayed.

If for some reason the auto-width macro fails to resize every column properly, individual columns can be resized by placing the cursor on the cell with the asterisks and typing Ctrl-W, which will start a macro to resize that column.

3.4.1 Choosing branch, regional, or consolidated projections

The choice among branch-level, regional, and consolidated projections is an important decision and should be based on careful consideration of the advantages and disadvantages of the three options. The branch option allows the most precise planning, with Microfin capable of modeling up to 10 branches on separate worksheets. Specific product-level activity, staffing, and expenses can be entered for each branch, and each branch is analyzed as a cost center, generating its own income statement. But this option also significantly expands the model and requires more time to input the detailed data required to complete the projections (table 3.1).

Microfinance institutions with more than 10 branches might choose the regional option, which allows users to develop projections for up to 10 regional areas, with each set of projections covering a number of branch offices. Product activity levels, staffing, and expenses are aggregated for all the branch offices in a region. That may lead to some loss in precision, but the results will still have a high degree of reliability, and regional managers can be made responsible for developing projections for their region.

In most cases, because of time or computer hardware constraints, users will choose to develop consolidated projections. In this option all program-level activity, for all branches in all regions, is projected on a single page (table 3.2).

Choosing the consolidated modeling option changes references to *branch* (or *region*) in the model to *program*, and changes references to *head office* to *admin* or *administrative*. The BRANCH MGMT page is hidden, and the user is not allowed to make additional copies of the PROGRAM page.

The branch and regional modeling options work the same, with two exceptions: when the regional option is chosen, *branch* changes to *region*, and for each of the loan product projections regional estimation sections are enabled that are not available under the branch-level option.

Useful Excel commands for moving around the model

Home

Moves the cursor to the far left column

Ctrl-Home

Moves the cursor to the top left corner of the page

Ctrl-PgUp

Moves to the previous page in the workbook

Ctrl-PgDn

Moves to the next page in the workbook

TABLE 3.1

Advantages and disadvantages of the branch or regional projections option

Advantages	Disadvantages
<ul style="list-style-type: none"> • Generates more precise projections of credit and savings activity for each branch or region, complete with branch-level or regional graphs • Generates staffing levels by branch or region • Allows allocation of administrative (or head office) expenses to each branch or region • Generates branch-level or regional income statements • Can be used as a tool by each branch or regional manager to generate own plan and projections 	<ul style="list-style-type: none"> • Requires substantially more time to complete data entry • Requires more RAM (up to 6 megabytes per additional branch or region) and results in larger files and slower recalculation time • Makes it more difficult to perform sensitivity analysis (for example, when a variable such as caseload changes, it must be changed for each branch or region) • Increases risk of data inconsistency (for example, if different salary levels are input for each branch or region) • Allows no more than 10 branch modeling pages

TABLE 3.2

Advantages and disadvantages of the consolidated projections option

Advantages	Disadvantages
<ul style="list-style-type: none"> • Requires less data input for portfolio projections and for staffing and expenses • Requires less RAM and results in smaller files and faster recalculation time • Useful for a “first-cut” analysis 	<ul style="list-style-type: none"> • Makes it more difficult to project product growth when activity of multiple branches must be aggregated • Makes it more difficult to estimate growth in expenses as new branches are opened • Provides no breakdown of loan officer staffing by branch • Provides no branch-level income statements

Adequate RAM (random access memory) is critical for preparing branch or regional projections. RAM requirements will vary depending on the operating system, on the version of Excel used, and on the other programs loaded into the memory of the computer, such as antivirus software (table 3.3).

The following recommendations may help an institution choose among the three options:

- If the institution needs to complete a set of draft projections relatively quickly (such as during a workshop or retreat), it is generally best to develop consolidated projections.
- If the institution has never generated detailed financial projections before, it is generally best to develop consolidated projections.
- If the institution is developing the model on a computer with limited RAM, it must choose the consolidated option.
- If the institution has only one loan product and four or fewer branches, an effective alternative is to choose the consolidated option and define loan products as “branch 1 product,” “branch 2 product,” and so on. This approach provides portfolio and income data by branch. But it does not disaggregate expenses by branch, so it does not produce branch-level income statements.
- If the institution has more than 10 branches or regions or if it is not feasible to develop projections for each branch (because of worksheet size, RAM requirements, and time required to input data), a good alternative is to model several

TABLE 3.3

Minimum RAM requirements for different situations
(megabytes)

Configuration of the model	Excel 5	Excel 95 or 97
Consolidated model	16	24
2 branch or regional sheets	20	30
3 branch or regional sheets	24	36
Each additional sheet	4	6
10 branch or regional sheets (maximum capacity)	52	78

FAQ 4

What if I need to prepare projections for a period other than the fiscal year?

At times it may be necessary to initiate the projections in a month other than the first month of the fiscal year. For example, an institution whose fiscal year begins in July might need to develop projections for a calendar year, beginning in January.

This can be done by inputting the desired starting month in the box `STARTING MONTH OF FISCAL YEAR`. Be aware, however, that the annual totals will be for the 12-month period beginning in that month and will not coincide with the fiscal year reports that the institution uses.

of the largest branches on individual pages and cluster the smaller branches on a single page.

- If the institution has adequate hardware, sufficient time to complete the projections, and experience in using spreadsheets and would like detailed branch-level or regional projections, it should select the branch or regional option.

Change from a consolidated approach to a branch or regional approach is possible at any time, though it will require revising the product activity, staffing, and expense projections entered on the `PROGRAM` page. Thus the most practical approach would be to develop initial projections using the consolidated option and then, once this initial planning is done, changing the model to branch or regional projections. The projections can then be refined by modifying the information on each of the branch or regional pages.²

3.4.2 *Entering institutional information*

The first input section on the `MODEL SETUP` page requests basic institutional information, beginning with the `NAME OF INSTITUTION`, which will appear in report headings to customize the look of the projections, and the `NAME OF LOCAL CURRENCY`, used as an annotation in reports. Projections must be completed in the local currency. The model provides options for linking credit and savings activity to a foreign currency, but all income and expenses must be stated in local currency terms. The `SUMMARY REPORT` page at the end of the model will convert results into a foreign currency if needed for reporting purposes.

Next, the `STARTING YEAR FOR PROJECTIONS` and the `STARTING MONTH OF FISCAL YEAR` must be input. The month must be a number from 1 to 12. The model prepares projections for the institution's fiscal year; thus if the fiscal year starts in July, the `MONTH 1` column will be for July. This is necessary so that annual total columns coincide both with financial reports for previous years and with annual budgets and plans for future years.

In the following line `INDICATE THE STARTING FISCAL YEAR` for the projections (for example, `FY98`) by entering the last two digits of the year (multiyear descriptions such as `FY97/98` cannot be used). Fiscal years will appear as headings for annual totals.

3.4.3 *Entering inflation data*

`INFLATION DATA` are entered on the `MODEL SETUP` page because they influence many elements of the model, including future loan sizes, salaries, real value analyses, and financial sustainability calculations (figure 3.2). Rates can be modified monthly for years 1 and 2 and quarterly for years 3, 4, and 5. They must be entered in annual equivalents; the model converts them into monthly values, compensating for monthly compounding effects.³

If any financial products are indexed to a value other than the local currency, the `PRODUCT INDEXING RATE` must be input on the `MODEL SETUP` page. Products

FIGURE 3.2
Sample inflation data

	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98
Inflation Data	<input type="button" value="Help"/>				
Inflation rate	NOTE: Input the annualized inflation rate				
Input changes on this line		10.0%			
Inflation rate used in calculations		10.0%	10.0%	10.0%	10.0%
Monthly equivalent		0.8%	0.8%	0.8%	0.8%
Inflation index	100.00	100.80	101.60	102.41	103.23
Avg monthly inflation since Month 1		0.8%	0.8%	0.8%	0.8%
Product indexing rate	NOTE: This section is only used for loan or savings products				
Input changes on this line					
Indexing rate used in calculations		0.0%	0.0%	0.0%	0.0%
Monthly equivalent		0.0%	0.0%	0.0%	0.0%
Index value	100.00	100.00	100.00	100.00	100.00
Projected exchange rate (used as reference only)		0.000	0.000	0.000	0.000

are considered indexed if their repayment is linked to an external index, such as an official inflation index, or if they are handled in a foreign currency, such as the U.S. dollar. (For information on how the model treats indexed loans see section 4.3.4; for indexed savings, see section 4.4.) As with all data input, indexing rates can be modified monthly for years 1 and 2, and quarterly for years 3, 4, and 5. Rates are set in annual equivalents, and the model converts them into monthly values, compensating for monthly compounding effects.

An initial PROJECTED EXCHANGE RATE can be input as an optional reference number, since in many cases loans are indexed to another currency. The projected indexing rate is used to project future exchange rates, but this information serves only as a reference and is not used elsewhere in the model.

3.4.4 Entering data from historical financial statements

In the HISTORICAL FINANCIAL STATEMENTS section of the MODEL SETUP page, users input financial statement information for the two fiscal years before the commencement of the projections. This section provides initial balance information for sections throughout the model.

The section has five parts: income statement, balance sheet, portfolio information, additional information needed to calculate the financial ratios, and financial ratio analysis. (For a sample section of the balance sheet see figure 3.3; for a complete printout of the historical financial statements see annex 2.)

When analyzing the financial services of an institution that provides services other than savings and credit, it is important to separate the financial services activity from the rest of the institution in all financial reporting. The institution should develop separate financial statements for the different activities in which it is involved. For example, one income statement should show only income and

FIGURE 3.3

Sample section of the balance sheet

Balance Sheet	FY97		
	Fin.Services	NFS	TOTAL
ASSETS			
Current Assets			
Cash in Bank and Near Cash	51,400		51,400
Gross Portfolio Outstanding	504,000		504,000
(Less: Loan Loss Reserve)	(34,000)		(34,000)
Net Portfolio Outstanding	470,000		470,000
Short-term Investments	25,000		25,000
Savings reserves			0
Other Current Assets	400		400
Sub-total, Current Assets	546,800	0	546,800

expenses related to financial services operations, and a separate income statement should be produced for every other area of operations. Similarly, there should be separate balance sheets for each operation. Overhead should be carefully allocated to each area of operations. Coordinated operational plans and financial projections can then be developed for each area.

The balance sheet and income statement in Microfin are divided into three columns. Data related to credit and savings services must be entered in the financial services column. If the institution is involved in other activities, information on those activities can be entered in the second column, for non-financial services (NFS). The third column then shows the aggregate totals for the entire institution. The financial services column of the balance sheet is the source of initial balance information used throughout the model, so it is important that the information entered in it relate only to financial services activities.

Data from the current fiscal year are normally input into the model as initial balances. But in a normal planning process complete data will not be available because the fiscal year will not be complete. Estimated data for the current fiscal year must therefore be used; this information can be updated when the fiscal year is completed.

INCOME STATEMENT

The historical information from the income statement provides a base year from which to analyze the projected financial statements and generate financial ratios for the current year.

No detailed description of the income and expense categories in the income statement is provided here because the categorization is less detailed than in the balance sheet and the categories reflect common standards. If possible, operating expenses should be divided between those related to program

TABLE 3.4

Balance sheet information needed for the model

Category	Description
<i>Assets</i>	
Cash in bank and near cash	The amount held in all bank accounts in highly liquid form (checking, passbook savings, and the like). These deposits are assumed to be readily available for use.
Gross portfolio outstanding	The gross portfolio for the institution as a whole, for all loan products. This amount will need to be broken down by product and by branch on the branch projections pages.
Loan loss reserve	The loan loss reserve for the institution as a whole. This information will need to be broken down by branch (but not by product) on the branch projections pages. The value must be input here as a negative number.
Short-term investments	The total value of all interest-bearing short-term investments (with a term of less than 12 months).
Savings reserves	The amount of savings deposits not available for lending. These reserves are monitored independent of other bank accounts or investments to ensure that they are not used for other purposes.
Other current assets	The value of all miscellaneous current assets, such as accounts receivable and accrued interest, not captured in other categories.
Land	The value of all land as it appears on the institution's balance sheet.
Buildings (gross)	The gross value of all buildings as it appears on the balance sheet. Depreciation will be considered below, on the accumulated depreciation line.
Furniture and equipment (gross)	The gross value of all fixed assets other than land and buildings as it appears on the balance sheet. Depreciation will be considered below, on the accumulated depreciation line.
Accumulated depreciation	The total amount of accumulated depreciation as it appears on the balance sheet. This amount must be entered as a negative number. The total will be broken down, for each of the above categories of fixed assets, by branch office and head office on their worksheets.
Long-term investments	The total amount of investments that are intended to be held for more than one year.
Other long-term assets (net)	The net value of all major assets that are amortized, such as MIS software.
<i>Liabilities</i>	
Accrued expenses	Expenses incurred as of the date of the balance sheet, but not yet paid, such as personnel benefits.

(Table continues on next page)

TABLE 3.4

Balance sheet information needed for the model (continued)

Category	Description
<i>Liabilities (continued)</i>	
Savings deposits	Total value of all savings deposits (compulsory and voluntary) held and controlled by the institution. This value will be broken down by product and branch on the branch projections pages.
Short-term loans payable	The value of any loan principal due to be repaid within 12 months.
Other current liabilities	The value of all short-term liabilities not captured in other categories, such as accounts payable and interest payable on loans, and the current portion of loans used to finance “other assets.”
Long-term loans payable	The value of any loans for the loan portfolio that are due to be repaid in more than 12 months.
Other long-term liabilities	The value of principal on loans to finance other assets falling due in more than one year’s time, such as a mortgage on a building.
<i>Equity</i>	
Accumulated donated equity, previous periods	The cumulative value of all grants received from donors before the current fiscal year (see FAQ 5).
Donated equity, current period	The value of all grants received from donors during the current fiscal year.
Shareholder equity	Value of all investments made by shareholders.
Dividend payments	Cumulative value of all dividend payments made to shareholders (entered as a negative number).
Accumulated net surplus (deficit), previous periods	The accumulated value of all surpluses and deficits (excluding donor grant income) from previous fiscal years.
Net surplus (deficit), current period	The value of the surpluses or deficits (excluding grant income) for the current fiscal year.

FAQ 5

What if our balance sheet doesn’t distinguish between accumulated net surplus and donated equity?

If the institution does not track cumulative donated equity, the total amount of donations received in the past should be recalculated from income statements for previous fiscal years. This amount can be entered on the donated equity line, and subtracted from the accumulated net surplus as it appears on the institution’s balance sheet.

This will result in a large negative accumulated surplus (deficit) if the institution has relied on grants to fund operations in previous years.

delivery (or branch-level expenses) and those that are administrative (or head office) expenses.

BALANCE SHEET

Information from the balance sheet for the current fiscal year (the far left column) is used as initial balance information throughout the model. The data for the previous fiscal year allow financial ratios to be calculated for the current fiscal year, providing a basis for analyzing financial trends in the projections.

Table 3.4 describes the information needed from the balance sheet. It includes only the categories requiring user input. The balance sheet in annex 2 presents the complete structure, and the notes on the right-hand side give the related

CASE STUDY BOX 1

Completing the MODEL SETUP page for FEDA

FEDA's staff, having completed the strategic planning work, turned their attention to preparing financial projections using Microfin, beginning with the MODEL SETUP page. Although they expected that FEDA would open a second branch later in fiscal 1998, they decided that at least initially they would MODEL ALL PRODUCT ACTIVITY ON SINGLE WORKSHEET ("CONSOLIDATED"). They then entered the information requested, inputting the NAME OF INSTITUTION and the NAME OF LOCAL CURRENCY, freeons. They chose as the STARTING YEAR FOR PROJECTIONS the upcoming fiscal year and entered 98. They entered the number 1 to indicate January 1998 as the STARTING MONTH OF FISCAL YEAR. Then they hit F9, the recalculation key, so that these changes would take effect and they could review any error messages that might appear on the screen.

FEDA's environmental analysis had found that the INFLATION RATE was 10 percent in 1997 and projected to be 8–10 percent for the next three to five years. FEDA's staff decided to use the more conservative estimate of 10 percent in their projections for the entire five years. FEDA does not index its financial products, so they left the PRODUCT INDEXING RATE blank.

The staff then filled in the HISTORICAL FINANCIAL STATEMENTS section for fiscal 1997 and fiscal 1996, using their financial statements and making some adjustments to fit the model's format. They left the nonfinancial services (NFS) column empty, since FEDA offers no services other than credit and savings. As they filled in the data, they noted that the model automatically calculated the values in some cells—such as DONATED EQUITY, CURRENT PERIOD in the FY97 column—on the basis of information input elsewhere. Since these cells were not shaded blue or gray, they realized that the cells were formulas and would show the correct value once all the information in the financial statements had been input.

Income statement	FY97	FY96
Income on financial services	166,320	136,200
Income on investments	3,000	9,000
Interest and fees on borrowed funds	22,200	21,000
Provision for loan losses	20,000	18,000
Direct (program-level) operating costs	80,100	72,600
Indirect (administrative) operating costs	48,600	43,500
Income from grants	42,600	5,700
Balance sheet		
<i>Assets</i>		
Cash in bank and near cash	51,400	56,380
Gross portfolio outstanding	504,000	420,000
Loan loss reserve	(20,000)	(16,000)
Short-term investments	11,000	52,000
Other current assets	400	9,400
Furniture and equipment (gross)	24,000	24,000
Accumulated depreciation	(8,000)	(4,000)
<i>Liabilities</i>		
Short-term loans	108,000	20,000
Long-term loans	182,000	290,000

(Box continues on next page)

CASE STUDY BOX 1

Completing the MODEL SETUP page for FEDA (continued)*Equity*

Accum. donated equity, previous periods	297,400	291,700
Donated equity, current period	42,600	5,700
Accum. net surplus (deficit), previous periods	(65,620)	(55,720)
Net surplus (deficit), current period	(1,580)	(9,900)

Portfolio information

Number of active borrowers (end of period)	3,600
Number of days for at-risk calculations	30
Payments in arrears > 30 days (end of period)	14,000
Outstanding balance, loans in arrears > 30 days (end of period)	30,240
Value of loans written off during period	16,000
Average initial loan size	300

In the FINANCIAL RATIO ANALYSIS section the staff indicated that management's usual practice is to CALCULATE RATIOS BASED ON TOTAL ASSETS. Then they entered the following information for fiscal 1997:

Inflation rate (percent)	10
Market rate for borrowing (percent)	14
In-kind subsidies	3,000
Avg. number of loan officers during period	12
Avg. number of total staff during period	18

financing section for each line item of the balance sheet (see chapter 7 for explanation).

In many cases the information from a balance sheet will need to be recast to match the structure used in the model. In doing so, care should be taken to include all the accounts from the balance sheet. The verification checks in the DATA VALIDATION section of the MODEL SETUP page will provide guidance and ensure that the amounts add up correctly.

PORTFOLIO INFORMATION

The portfolio information requested is used for generating the financial ratios.

INFORMATION USED IN RATIO CALCULATION

The remaining data needed to calculate the historical ratios are input here.

FINANCIAL RATIO ANALYSIS

The final section of the MODEL SETUP page presents a variety of financial ratios based on the information entered above (for an explanation of the ratios see

chapter 8). Ratios are calculated for the current fiscal year, but many ratios can be calculated only if information has also been entered for the previous fiscal year. The ratios are helpful in performing the institutional assessment during strategic planning (see section 2.4). When compared with the information generated by the projections, they also provide a basis for trend analysis.

Notes

1. With the variety of computer hardware and versions of Excel, these colors may vary on some systems. But the essential input cells should always appear darker than the optional input cells.
2. When branch pages are added to the model, the BRANCH 1 page is copied in its entirety, including any information already input on that page.
3. Because of monthly compounding, an annual inflation rate of, say, 12 percent is equivalent not to 1 percent per month but to 0.94 percent. The formula for converting annual to monthly inflation rates is $(1 + \text{annual inflation})^{(1/12)} - 1$.

Defining Products and Services

The number and design of the products and services a microfinance institution offers should be influenced by its analysis of clients and markets during strategic planning. An institution's offerings of products and services should strike a balance between what the targeted clients value in financial services and what the institution can sustainably deliver. Only by meeting customers' needs can a microfinance institution hope to attract and retain sufficient clients. And only by offering products that are efficient and that minimize financial risk can a microfinance institution hope to reach and maintain financial sustainability.

4.1 Identifying the institution's financial products in Microfin

Virtually all microfinance institutions provide credit services, but some may be legally restricted from directly offering savings services. This handbook and the Microfin model provide tools for designing both credit and savings products. Treatment of business development or social services that microfinance institutions may offer in addition to their financial services is beyond the scope of the handbook and model, however. In developing a business plan and financial projections, a microfinance institution should evaluate its financial services independent of any other services it offers (see section 3.4.4).

Different financial products are designed for different purposes and different clients. For example, working capital loans and loans for the purchase of fixed assets are often two distinct products. A financial product is defined by its characteristics. Defining characteristics for loan products include minimum and maximum loan size, minimum and maximum loan term, compulsory savings requirements, interest rate and method of calculation, and lending methodology. Savings products are defined by such criteria as minimum balance requirements, length of deposit, mandated liquidity requirements, and interest rate and calculation method.

The model allows the definition of four independent loan products, each with its own compulsory savings product, and four independent voluntary savings products. All defining characteristics can be set independently for each product. For example, a declining balance interest rate could be used for one loan product and a flat interest rate for another.

Microfin can model independent branch offices, but the definition of a financial product applies to all branches. Thus if savings product 1 pays an interest rate of 12 percent, the model will show that all branches pay 12 percent on product 1. If certain features of a product vary significantly by branch, the product may

FAQ 6

What if the institution provides financial services other than credit and savings, such as insurance?

Microfin provides detailed modeling only of credit and savings products. Other financial services will need to be considered as independent operational areas (see section 3.4.4 for an explanation of how to separate services).

If the microfinance institution has a small insurance pool to protect loans, this may be modeled by approximation without a significant loss in accuracy. For more details see section 4.3.4.

FAQ 7

The institution intends to redesign a loan product. Should I reflect this in the model by introducing a new product?

In most cases it is preferable to reflect the redesign of a product by entering the new product parameters in the gray input cells of that product's definition section rather than by phasing out an old product and introducing a new one (see figure 4.4 for an example). There are two main reasons for this. First, introducing a redesigned product as a new product ties up two of the four loan products in the model. And second, for new loan products the model reflects all clients entering as new clients and receiving first-cycle loans. That means that all clients moving from the old loan product to the new one would be treated equally, even though older clients would generally receive larger loans associated with later loan cycles.

For more information on this topic see section 4.3.1.

Plan out the use of loan and savings products before beginning

- What products does the institution currently offer?
- What products does it plan to introduce in the next five years?
- Do the products have similar characteristics (such as interest rates and loan sizes)?
- If there are more than four loan products or more than four savings products, which can be combined with the least loss of accuracy?

FIGURE 4.1

Identifying financial products

Number of loan products in use	One loan product <input type="button" value="Help"/>	
	Enter Name here	Names used
Loan Product 1:	Solidarity Group Loans	Solidarity Group Loans
Loan Product 2:		[Lnprod 2 not in use]
Loan Product 3:		[Lnprod 3 not in use]
Loan Product 4:		[Lnprod 4 not in use]
Number of savings products in use	Two voluntary savings products <input type="button" value="Help"/>	
Savings Product 1:	Passbook Savings	Passbook Savings
Savings Product 2:	Term Deposits	Term Deposits
Savings Product 3:		[savprod 3 not in use]
Savings Product 4:		[savprod 4 not in use]

need to be defined as multiple products. The model does not require that all products be used in all branches. For example, loan product 1 might be offered only in urban branches, and loan product 2 only in rural branches.

Microfin instructs users to identify the institution's financial products at the top of the PRODUCTS page (figure 4.1). The first step is to use the drop-down list to identify the NUMBER OF LOAN PRODUCTS IN USE. (Doing this initiates a macro that hides most of the areas on the PROGRAM/BRANCH and ADMIN/HEAD OFFICE pages related to unused products. For institutions with few products this simplifies and shortens the model and printouts.) The number of products may be increased at any time by simply selecting a higher number from the drop-down list. If the number of products is decreased, however, any data entered for the higher-numbered products will be erased from the model. For example, if the number of products is reduced from three to two, any information entered for product 3 will be erased. Any loan product with active loans at the beginning month of the projections must be introduced as a product in the model, even if it is to be eliminated at the begin-

CASE STUDY BOX 2

Identifying FEDA's financial products

At the end of 1997 FEDA offered a single loan product, solidarity group loans, and no voluntary savings products. It required all borrowers to have compulsory savings, which Microfin treats as part of the loan product.

FEDA's strategy calls for redesigning its loan product to better meet its clients' needs. Staff determined from studying Microfin that this redesign could be reflected in the model by treating FEDA's lending activity as a single loan product whose parameters would change as of January 1998. Because FEDA has no plans to introduce new loan products in the next five years, on the PRODUCTS page they selected ONE LOAN PRODUCT and named it solidarity group loans.

FEDA intends to convert to a nonbank financial institution in year 4, which would make it eligible to collect savings deposits. Its management expects to offer two savings products: a voluntary savings account, called passbook savings, to replace the current compulsory savings, and a range of term deposits to be modeled as a single product called term deposits.

ning of the year. This is necessary in order to project the repayments of all outstanding loans.

The next step is to enter descriptive NAMES for the loan products in the blue input cells. These names will be used throughout the model to identify information related to each loan product. Because of space limitations elsewhere in the model, the names will be shortened to 25 characters.

The same steps should be followed to identify the NUMBER OF SAVINGS PRODUCTS IN USE and assign NAMES to those products. Compulsory savings (savings borrowers are required to have to qualify for a loan) are considered part of the loan product. The savings products referred to here are voluntary savings products.

4.2 Designing successful loan products

Designing successful loan products requires much more than making decisions about basic financial parameters such as loan amounts and interest rates. Successful loan products serve two key aims:

- They provide a valuable and desired service to a significant and growing number of clients.
- They achieve and maintain institutional profitability.

These dual goals can be achieved through careful product design embodying four key characteristics.

First, loan products need to maximize value and minimize costs for clients by meeting these standards:

- The amount and term are appropriate to the scale and economic activity of the clients' enterprises.
- The repayment amounts are affordable.
- The disbursements are made promptly.
- The clients' transaction costs are minimized.¹

Second, products need to achieve a high rate of on-time repayment, which translates into a low rate of loan default, preserving the portfolio and minimizing loan loss provisioning expenses. A high rate of on-time repayment also allows a microfinance institution to make new loans and ensures an income stream for the institution. High repayments depend largely on the design of financial products and the procedures for disbursement and follow-up.

Third, loan products must encourage high rates of client retention, crucial if the microfinance institution is to reach the scale of operations necessary to achieve significant outreach and financial sustainability. Repeat loans mean lower costs and higher income for the institution: they represent a lower credit risk, are less expensive to review and process, and have a larger average size. High client retention also helps keep demand high, as satisfied clients are the best form of promotion for the microfinance institution.

FAQ 8

What if the institution has more than four loan products or more than four savings products?

Having too broad a selection of financial products is generally inadvisable, because the administrative complexity often outweighs the perceived benefits to the clients. If the institution does have more than four loan products or more than four savings products, however, you should look for ways to group similar products in the model.

Studying the way that Microfin defines and handles financial products, as described in this chapter, may help you identify ways to combine products with little loss in accuracy. For example, if all the characteristics of two products are identical except for the interest rate, you might be able to model the products together, using a weighted average interest rate (this approach is suggested for term deposits, which generally pay an interest rate that varies according to the length of deposit).

The choice should give priority to accurately projecting the products that account for the largest share of the institution's resources. If three products account for 90 percent of its activity and four others for only 10 percent, the smallest four can probably be combined with little loss in accuracy.

Finally, loan products must be carefully priced to ensure that they fully cover their costs. The pricing structure should take into account the following elements:²

- Operating costs
- A provision for expected loan losses
- The market-rate cost of funds
- The effect of inflation
- Generation of sufficient reserves for growth.

The design of successful loan products requires an understanding of a broad range of issues related to clients, markets, economic conditions, and internal institutional issues.³ Loan products need to be carefully designed, tested, and then refined to ensure that they always work effectively and efficiently. And they need to be periodically reviewed to ensure that they continue to meet the requirements of the institution and the changing demands of its clients, especially of its repeat customers. As the client base evolves, it may be necessary to redesign products or to introduce new products, always using the same careful process.

4.2.1 Choosing a lending methodology

The choice of lending methodology to reach a particular client group is among the most crucial decisions a microfinance institution makes. There are three general approaches for microfinance institutions:⁴

- Individual lending
- Solidarity group lending
- Village banking.

The choice of methodology is generally based on client characteristics (such as social cohesion, geographic mobility, previous experience with credit, available collateral, and whether urban or rural), institutional issues (staff skill levels, provision of other services, commitment to group development), and loan characteristics (size of loans, loan terms, level of loan analysis required).

Different methodologies call for different techniques in marketing, appraisal, disbursement, and follow-up of loans. So the methodology chosen must match institutional capacity. It must also be suitable for large-scale expansion (for further discussion see chapter 5).

In the Microfin model there is no need to indicate the lending methodology. All calculations should be based on individuals, regardless of methodology. For example, if an institution using a village banking methodology works with groups of 20 women, the average loan size indicated in the product definition should be the average loan per woman, not per group. Similarly, when projecting the volume of loan activity, the number of end borrowers should be used rather than the number of groups receiving loans.

4.2.2 Designing loan products as a series of loan cycles

In most microlending methodologies loan products are structured as a progressive series of loans, or cycles, with each loan cycle associated with potentially different loan sizes and terms. First loans are typically small and short term, while later loans increase in size and duration as clients expand their business and demonstrate creditworthiness. Microfin tracks activity for the first five loan cycles separately, but groups activity for the sixth and subsequent cycles on a single line. If clients' loans are expected to continue to grow in size after the sixth loan, weighted averages should be used when indicating the values for this last loan cycle.

4.3 Defining loan products in Microfin

In Microfin a loan product is defined in five steps:

- Step 1: Set average loan amounts
- Step 2: Define repayment conditions
- Step 3: Identify any compulsory savings
- Step 4: Set the pricing structure
- Step 5: Analyze the loan product.

Immediately below the NUMBER OF PRODUCTS section on the PRODUCTS page is the PRODUCT DEFINITION SUMMARY section, which provides a helpful overview of the definitions for all products (figure 4.2). Once data have been input, this summary of information for each product helps in spotting data entry errors and allows comparison of the financial products offered by the institution. The beginning (month 1) and ending (month 60) values for parameters shown here can be helpful in identifying inaccurate information in the optional gray input cells typically hidden off the right-hand side of the screen.

FIGURE 4.2

Summarizing the product definitions

LOAN PRODUCTS	Product 1	Product 2	Product 3	Product 4
Step 1: Average loan amount				
First cycle loan size, Month 1	100	0	0	0
Month 60	160	0	0	0
Sixth cycle loan size, Month 1	550	0	0	0
Month 60	998	0	0	0
Loan size linked to inflation?	Monthly	Monthly	Yearly	Yearly
Step 2: Repayment Conditions				
Repayment frequency	Monthly	Monthly	Monthly	Weekly
First cycle loan term, Month 1	6	0	0	0
Month 60	6	0	0	0
Sixth cycle loan term, Month 1	12	0	0	0
Month 60	12	0	0	0
Percent on-time repayment, Month 1	90%	0%	0%	0%
Month 60	95%	0%	0%	0%
Grace period?	No	No	No	No

FAQ 9

What if the loan amounts and terms are not structured by cycles?

For some loan products the amounts and terms are determined primarily by an analysis of the clients and their businesses. In such cases the loans in a particular cycle may vary widely. Microfin's modeling by cycle can be overridden by inputting the same loan size and term for each cycle:

	Amount	Term
First loan	500	6 months
Second loan	500	6 months
Third loan	500	6 months

The model will still keep track of the number of loans by cycle, but average loan sizes and terms will not vary as the distribution of loans by cycle changes.

4.3.1 Step 1: Set average loan amounts

The first step in defining a loan product is to indicate the average loan amount. Microfin accommodates a different average loan size for each of six loan cycles. In addition, loan sizes can be adjusted for each of 36 future projection periods—24 monthly periods (in years 1 and 2) and 12 quarterly periods (in years 3, 4, and 5).

There are six input rows in the AVERAGE AMOUNTS BY CYCLE section, one for each loan cycle. The blue cells in the INITIAL BALANCE column should be filled in with the most recent average loan amounts by cycle. These numbers will be carried forward in the section below (DATA USED IN CALCULATIONS) until a change is entered in the gray input cells. In figure 4.3, for example, the 700 entered for the sixth cycle in month 3 is carried forward to month 4 and beyond.⁵

For most loan products average loan sizes typically increase over time as a result of inflation. To simplify the calculation of this increase, the model includes a drop-down list of options to LINK LOAN AMOUNTS TO INFLATION. There are three options:

- Do not automatically index average loan size to inflation
- Index average loan size to inflation each month
- Index average loan size to inflation at beginning of each year.

If the first option is chosen, any changes would have to be entered manually in the gray cells. Figure 4.4 shows loan amounts indexed monthly to an inflation rate of 10 percent a year. The inflation rate is entered on the MODEL SETUP page (see section 3.4.3). Loan amounts are increased from the previous month except when a new loan size has been entered in the gray input cells, as with the 600 entered in month 4.

Properly set up, the average loan size table models the progression in the size of loans that a client will receive. For example, a new client might receive a first-cycle

FAQ 10

What if I don't know the average loan size by cycle?

The average loan size by cycle is important information not only for loan portfolio projections, but also for understanding how a loan product is designed and how it is being implemented. This information can be assembled from loan records for a sampling of clients in a particular period, such as all loans disbursed in the past two months. Group the loans into first loans, second loans, and so on, and calculate the average for each group.

FIGURE 4.3

Defining average loan amounts by cycle without inflation

	Initial	1	2	3	4	5
#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	May-98
Step 1: Average loan amount		Step 1: Set average loan amount for Solidarity				
(1) Average amounts by cycle						
Input changes in this section						
1	First cycle	100				
	Second cycle	200				
	Third cycle	300				
	Fourth cycle	400				
	Fifth cycle	500				
	Sixth and subsequent cycles	600	700			
2	Data used in calculations					
	Second cycle	100	100	100	100	100
	Third cycle	200	200	200	200	200
	Fourth cycle	300	300	300	300	300
	Fifth cycle	400	400	400	400	400
	Sixth and subsequent cycles	500	500	500	500	500
	Data used in calculations	600	600	600	700	700
3	(2) Link loan amounts to inflation	Do not automatically index average loan size to inflation				

Note: This figure does not contain case study data.

CASE STUDY BOX 3

Setting FEDA's loan amounts and repayment conditions

At the end of 1997 FEDA offered a single loan product, group loans. Clients formed groups of five, and after meeting initial savings goals, each client received a loan of the same size and term. Each group member cosigned for the others. All loans required monthly payments. The loan progression was very rigid (case study box table 3.1). FEDA did not offer a grace period on repayments.

CASE STUDY BOX TABLE 3.1

FEDA's old loan product

Loan cycle	Average amount (freeons)	Average contractual term (months)	Average effective term (months)
First	100	12	13
Second	200	12	13
Third	300	12	13
Fourth	400	12	13
Additional	400	12	13

FEDA's strategic analysis found that the client retention rate was disturbingly low (dropping from 70 percent to 50 percent after the fourth loan) and that clients complained about the small loans, particularly the ceiling of 400 freeons, and the rigid 12-month loan terms. It found no serious complaints about the solidarity group methodology.

Based on this information, management decided to redesign the loan product as of January 1998 (case study box table 3.2). After the first three cycles loan amounts and terms would no longer be fixed, but determined by the client's credit history and needs. (Thus the numbers entered in the model for the projections were averages.) Loans could increase as justified, with a new ceiling of 1,000 freeons per borrower. Management decided that larger amounts could not be granted under the solidarity group approach. It expects the average loan size in the sixth and subsequent cycles to increase gradually, from 550 freeons in January 1998 to 650 in January 1999 to 750 in January 2000. Average loan amounts are expected to increase annually by the rate of inflation.

Shorter initial loan terms would allow clients to progress more quickly to larger loans. And raising the ceiling to 1,000 freeons would respond to clients' complaint that small loans were constraining their growth.

CASE STUDY BOX TABLE 3.2

FEDA's redesigned loan product

Loan cycle	Average amount (freeons)	Average effective term (months)
First	100	6
Second	200	6
Third	300	6
Fourth	400	9
Fifth	500	9
Sixth and subsequent	550–750	12

FIGURE 4.4

Defining average loan amounts by cycle with inflation

	#	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98
Step 1: Average loan amount		Step 1: Set average loan amount for Solidarity					
(1) Average amounts by cycle							
Input changes in this section							
1	First cycle	100					
	Second cycle	200					
	Third cycle	300					
	Fourth cycle	400					
	Fifth cycle	400	500				
	Sixth and subsequent cycles	400	550			600	
2	Data used in calculations						
	Second cycle	100	100	101	102	102	103
	Third cycle	200	200	202	203	205	206
	Fourth cycle	300	300	302	305	307	310
	Fifth cycle	400	400	403	406	410	413
	Sixth and subsequent cycles	400	500	504	508	512	516
	Data used in calculations	400	550	554	559	600	605
3	(2) Link loan amounts to inflation	Index: average loan size to inflation each month <input type="text" value=""/>					

FAQ 11

Why does Microfin sometimes show the blue input cells in the initial balance column and sometimes in the month 1 column?

When Microfin needs a piece of information from the previous fiscal period to perform calculations, the blue input cells for this information appear in the INITIAL BALANCE column. This is the case, for example, for the interest rate charged on the initial loan portfolio, because the interest rate may change in month 1, but the previous interest rate will need to be charged on outstanding loans.

In other cases the historical information is not needed to complete calculations. For example, salaries paid to staff in the previous year are not required for calculations; instead, the new fiscal year salaries should be input in the MONTH 1 column.

It may not always be apparent why the blue input cells appear in one column rather than the other. So users need to be observant to make sure that the information is entered correctly.

loan for 100 in month 1. If the term of the loan is three months, it will be fully repaid in month 4, and the client will then receive a second-cycle loan of 205. The size of the second loan reflects both the typical increase granted by the program between cycles (100) and the effect of inflation (5). The model assumes that the entire loan is disbursed in the first month; multiple disbursements are beyond its capabilities.

Average loan amounts generally need to be input in the gray cells in only two cases. The first case is when a loan product is being redesigned—if, for example, the planning process leads management to conclude that loan sizes and terms need to be altered to better meet clients' needs or to improve repayment and reduce risk. The new average loan sizes should be input for the month in which they are to take effect (see the fifth- and sixth-cycle loans in figure 4.4).

The second case is when an increasingly large share of clients reach the sixth and subsequent cycles. Because the loan size in this row is an average for multiple cycles, it is likely to increase faster than inflation. Failing to correct this manually will result in underestimation of the loan portfolio and financial income.

4.3.2 Step 2: Define repayment conditions

Defining repayment conditions involves identifying three factors that affect the projection of loan principal repayments: repayment frequency, effective loan term, and grace period (figure 4.5).

SPECIFYING THE REPAYMENT FREQUENCY

The model offers the following options for REPAYMENT FREQUENCY:

- Payment daily, weekly, or every two weeks
- Monthly payments
- Single end-of-term payment.

FIGURE 4.5

Defining repayment conditions

	Initial	1	2	3	4	5
#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	May-98
<div style="border: 1px solid gray; padding: 2px;"> Auto-width Help </div>						
<div style="border: 1px solid gray; padding: 2px;"> Help Step 2: Define repayment conditions for [Ent </div>						
4	(1) Repayment frequency	<div style="border: 1px solid gray; padding: 2px;"> Monthly payments ▼ </div>				
<div style="border: 1px solid gray; padding: 2px;"> (2) Effective Loan Term </div>						
NOTE: In the Initial Balances column describe the current loan product d Enter term in months, regardless of repayment frequency, using month Note: After Month 24, minimum loan term is 3 months.						
5	Input changes in this section					
	First cycle	13	6			
	Second cycle	13	6			
	Third cycle	13	6			
	Fourth cycle	13	9			
	Fifth cycle	13	9			
	Sixth and subsequent cycles	13	12			
6	Data used in calculations					
	First cycle	12	6	6	6	6
	Second cycle	12	6	6	6	6
	Third cycle	12	6	6	6	6
	Fourth cycle	12	7	7	7	7
	Fifth cycle	12	8	8	8	8
	Sixth and subsequent cycles	12	9	9	9	9
<div style="border: 1px solid gray; padding: 2px;"> (3) Grace period (in months) </div>						
Note: The grace period in any month must be less than the						
	Input changes on this line	0				
7	Grace period used in calcs	0	0	0	0	0
8	Input validation					

FAQ 12
What about products with quarterly repayments or with a variety of repayment frequencies?

Microfin cannot calculate quarterly payments. To approximate a loan product with quarterly payments, select the monthly payments option. The model will understate portfolio requirements somewhat, because it will project that loans will be repaid more rapidly than they actually will be. Because it understates the portfolio, it will also understate interest income.

A product with a variety of repayment frequencies, such as weekly and monthly, should be defined as having monthly repayments. Estimated cash flows will be only slightly inaccurate.

Although it is not intuitively obvious, daily, weekly, and biweekly repayment frequencies can be grouped together because in all three cases more than one payment falls due within the period of a month—Microfin’s projection frequency. For these loans some payments will fall due in the same month in which the loans are disbursed, so Microfin projects some repayments in the month of disbursement.

ESTABLISHING THE EFFECTIVE LOAN TERM

For accuracy, the model calculates repayments as they are expected to be made rather than as they are originally scheduled. A repayment schedule is designated for loans when they are disbursed; this schedule represents the contractual loan term. But clients may pay back their loans more quickly or more slowly than this schedule. The average number of months it takes clients to repay their loans is considered the **EFFECTIVE LOAN TERM**, and it is this number that is used to generate the repayment stream.

Consider a loan of 100 with a contractual loan term of four months and payments of 25 a month. If clients are expected to repay the loan in five months on average rather than four, the projections must be based on five installments of 20 rather than four installments of 25. It is important to recognize the effect of late payments in loan portfolio projections; failing to take them into account can lead to overstatements of projected loan disbursements and commission income and reduced loan officer caseloads.⁶

Because of the way the model projects monthly activity, it is not possible to model loan terms with fractions of months. The effective loan term must therefore

FAQ 13
What if I don’t know the effective loan term?

The effective loan term can be calculated by analyzing a sample of loan records. For each loan identify the time from the initial disbursement to the final payment. Loans paid in advance will have a shorter effective term than contractual term.

FAQ 14

What if the institution requires a fixed amount of compulsory savings rather than a rate?

Microfin does not support fixed amounts of compulsory savings, such as 10 per loan or 2 per month regardless of loan size. The equivalent effective percentage must be calculated and input into the model. For example, if all clients are required to save 10 before receiving a loan and the average loan size (for all loans, not just first-cycle loans) is 200, the savings requirement can be approximated in the model by inputting a 5 percent up-front savings rate.

be stated in months, rounded to the nearest month. For example, if a loan's term is 20 weeks, the term must be entered as 5 months (20 weeks divided by 4.3 weeks per month equals 4.7 months, rounded up to 5). The term must be measured from the date of the initial disbursement to the date of the final installment. Thus for a loan with a three-month grace period and six monthly installments, a term of nine months should be entered.

In addition, because Microfin switches from monthly to quarterly calculations after year 2, it cannot model with precision loans with terms shorter than three months in years 3–5. Loans of less than three months would be fully repaid in the same period in which they were disbursed, and before the end of the period the clients would receive yet another loan—an activity that would be impossible to model. Thus for any loan cycles in which the loan terms are less than three months, the model increases the terms to three months beginning in year 3. In most cases this will result in only a minor loss in accuracy.

SPECIFYING THE GRACE PERIOD

The last factor affecting the calculation of loan repayments is the **GRACE PERIOD**. If borrowers are granted an initial grace period before they must begin to repay principal, this affects the timing and amount of loan repayments.⁷ Since grace periods are relatively uncommon in microfinance, the model allows input only of an optional grace period for all loans for a product rather than grace periods that vary with the loan cycle. The grace period entered must be shorter than the loan term for any of the loan cycles; otherwise, calculations cannot be made. If the grace period exceeds the loan term, an error message will appear on the **INPUT VALIDATION** line (line 8).

4.3.3 Step 3: Identify any compulsory savings

Many microfinance institutions make savings a requirement for receiving a loan. Referred to as compulsory savings in this handbook, these savings are also called mandatory savings, forced savings, or collateral savings (because one of their main purposes is to serve as collateral for the loan). Because compulsory savings are directly linked to a loan and are a condition for receiving a loan, they are considered part of the loan product rather than an independent savings product.

DISTINGUISHING BETWEEN COMPULSORY AND VOLUNTARY SAVINGS

The economic impact of compulsory savings can be quite different from that of voluntary savings. Voluntary savings products can attract idle resources from some clients and channel them to others in the form of loans for investment in productive activities. Through this financial intermediation the microfinance institution increases the productive resources in the economy. By contrast, compulsory savings involve funds that are not necessarily idle, because the borrower-saver may want to borrow additional funds for productive investment.⁸ So the net increase in productive resources is equal only to the difference between the loan

CASE STUDY BOX 4

Defining FEDA's compulsory savings requirements

FEDA has required clients to save 10 percent of their requested loan amount before disbursement. These savings have been held at Freedonia National Bank (FNB). Clients have been dissatisfied with the service offered by FNB, but FEDA is not legally allowed to hold savings deposits. When FEDA converts to a nonbank financial institution in the fourth year of its strategic plan, however, it plans to eliminate the compulsory savings requirement (in month 37), replacing it with the voluntary savings product called passbook savings.

amount and the compulsory savings. Moreover, compulsory saving raises the cost of a loan to clients, because they must pay interest on the full loan amount while their economic resources increase only by the net amount received.⁹

Compulsory and voluntary savings can be distinguished using the following criteria:

- If clients are required to save in order to borrow, the savings are compulsory, even if the savings requirement is fulfilled as part of the loan repayment process (that is, savings deposits are made with loan repayments) rather than before receiving a loan.
- If clients save more than they are required to, only the required amount should be considered compulsory. The balance can be considered voluntary savings, even if it can legally be used as loan collateral.

MODELING COMPULSORY SAVINGS

Microfin can calculate compulsory savings in several ways. UP-FRONT compulsory savings, required before or at the time a loan is disbursed, can be calculated as a percentage of the requested loan amount (figure 4.6). For example, if the client is to receive a loan for 100 and the compulsory savings rate is 10 percent, the client will deposit 10 of compulsory savings in the same month the loan is disbursed.¹⁰ Alternatively, compulsory savings can be calculated as a percentage of the cumulative loans received. For example, if a client previously received a loan of 100 and will now receive a loan of 200, the client must have 30 (10 percent of the cumulative total of 300) on deposit to qualify for the loan.

Compulsory savings are sometimes made as ONGOING deposits, calculated as a percentage of the monthly principal payment (based on the effective loan term). For example, if the ongoing savings requirement is 10 percent and a client makes five monthly payments of 20 in loan principal, the client will also be required to deposit 2 a month in a savings account. By the time the loan is repaid, the client will have 10 in savings.

Up-front and ongoing savings may be combined in the same loan product, for example, by requiring 5 percent of the requested loan amount up front and 10 percent of each loan installment.

The approach used in Microfin to calculate the total amount of compulsory savings requires that the savings rates remain unchanged from month to month. The model provides an option, however, for ELIMINATION OF COMPULSORY SAVINGS

FAQ 15

What if the institution plans to change the compulsory savings rate?

The model provides no simple way to change the compulsory savings rate over time (except for eliminating it entirely). If the compulsory savings are not held by the microfinance institution, this is not an issue because the savings do not appear on the balance sheet nor are they used for loan funds. If the institution does control the savings funds and if the change is significant, one option is to model the compulsory savings using one of the four voluntary savings products in Microfin. Doing so, however, will require some auxiliary calculations of savings estimates to plug into the model.

FIGURE 4.6

Defining compulsory savings requirements

		Initial	1	2	3	4	5	6	
		#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98
Compulsory Savings		Compulsory Savings Parameters							
		NOTE: The following parameters are used for compulsory savings for all four loan pr							
(1) Control of compulsory savings	<input type="checkbox"/> Show this savings on the MFI's balance sheet	NOTE: If s							
	NOTE: The above choice also determines if MFI pays interest cost								
(2) Interest rate paid Input changes on this line Value used in calculations	NOTE: Input the annualized rate paid on the savings balance; input the ra		8.0%						
	-	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%		
(3) Percent to be held in reserve Input changes on this line Value used in calculations	Data okay		100%						
	-	100%	100%	100%	100%	100%	100%		
(4) Indexing of savings	<input type="checkbox"/> Value of savings is indexed to an external value								

FAQ 16

What if the institution intends to change the method for calculating interest rates during the projection period?

If at some point in the projection period the microfinance institution will switch from declining balance to flat interest (or vice versa), the new interest rate will need to be entered as the equivalent rate for the method used in the product definition. For example, if the product is defined as having a 24 percent declining balance interest rate and the institution decides to change to a 20 percent flat interest rate, the new interest rate needs to be entered as 33.1 percent, the equivalent effective interest rate, in the optional gray input cell for the appropriate month. If the institution is switching from 20 percent flat interest to 24 percent declining balance interest, the

(Text continues on next page)

from the loan product definition. Microfin closes all compulsory savings accounts in the month indicated under this option. If there is a voluntary savings product, some or all of the savings may be transferred to the voluntary product, but this must be done manually.

Microfin projects compulsory savings regardless of whether the savings are held by the microfinance institution. This is done to provide a point of reference for the volume of savings mobilized and to determine the impact of the savings requirement on the cost to the client.

4.3.4 Step 4: Set the pricing structure

Because microfinance institutions' primary source of earned income is their loan portfolio, the pricing of credit services is one of the most crucial issues that an institution faces. Pricing should be reviewed periodically to take into account changing circumstances, such as shifts in inflation, cost of funds, default rates, and the institutional cost structure.

For young institutions the costs of operations in the first several years will probably exceed the amount collected in interest and fees. Yet from the outset pricing decisions should reflect a logic that will enable the institution to cover all costs, and generate a reserve for growth, once it reaches sufficient volume.

A product's pricing is determined by several factors: the method used for calculating interest, the interest rate, any fees or commissions, and whether loan values are pegged to an external standard.

The two most common interest rate methods used by microfinance institutions can be selected from the drop-down list (figure 4.7). Interest can be

FIGURE 4.7

Establishing the pricing structure for loan products

Step 4: Pricing Structure		Step 4: Set pricing structure for Solidarity Group Loans							
12	(1) Interest rate method	<input type="button" value="Help"/>	Charged on declining balance						NOTE: The method cannot be used for new loans. It will apply to the existing portfolio.
13	(2) Interest rate charged								NOTE: State the annualized equivalent of the interest rate
	Interest rate for existing portfolio	-	30.0%	This rate is applied to any initial balances in the loan product portfolio					
	Input changes on this line	1		36.0%					
14	Interest rate for new loans		36.0%	36.0%	36.0%	36.0%	36.0%	36.0%	36.0%
15	(3) Fees and Commissions								
	"Upfront" fee or commission			Numbers less than 1.00 are treated as a percent of loan amount; numbers greater than 1.00 are treated as a percent of loan payment.					
	Input changes on this line	-	0.03						
	Value used in calculations		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
16	"Ongoing" fee or commission			Numbers less than 1.00 are treated as a percent of loan payment; numbers greater than 1.00 are treated as a percent of loan amount.					
	Input changes on this line	-							
	Value used in calculations		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
17	(4) Indexing of loans receivable		<input type="checkbox"/> Value of outstanding loan principal is indexed to an external value						

charged on the declining balance of the loan amount or on the original face amount of the loan (commonly referred to as flat interest). When interest is charged on the amount of the loan still outstanding, the amount of interest decreases with each payment. Thus for this method—the approach generally used by commercial banks—the nominal and effective interest rates are identical (in the absence of fees). Charging interest as a fixed percentage of the original loan amount, as if the entire loan were still outstanding, yields a much higher effective rate. In Microfin the interest rate method for a loan product cannot be changed during the five-year period of the projections, and the same method will apply both to the initial portfolio and to any new loans issued during the projection period.

Once the interest rate method is specified, the next step is to enter the INTEREST RATE CHARGED. Interest rates must always be entered in Microfin as their nominal, annualized equivalents. For example, if a microfinance institution charges 4 percent a month, this rate must be entered as 48 percent. If it charges 4 percent every four weeks, this must be entered as 52 percent (4 percent times 13 four-week periods per year).

FAQ 16 (CONTINUED)

new rate needs to be entered in the corresponding month as 14.5 percent, the flat interest rate that generates the equivalent of a 24 percent effective interest rate. The CLIENT COST worksheet can be used to convert interest rates from one method to the other (see annex 5).

CASE STUDY BOX 5

Setting FEDA's pricing structure

FEDA has charged 30 percent annual interest using declining balance calculations, and a 3 percent fee on all loans at the time of disbursement (entered in the model as 0.03). All lending has been in local currency, with no indexing to external values.

Management decided to leave the current pricing structure in place, at least initially. If the profitability projections turn out to be unacceptable, it will then reprice the loan product.

TABLE 4.1
Possibilities for modeling fees and commissions

Type of fee	Basis of calculation	
	Percentage	Fixed amount
Up-front	Of loan amount	Per loan
Ongoing	Of monthly principal payment	Per month

FAQ 17

What if a loan product has multiple fees and commissions?

If a product has more than one up-front or ongoing commission, it may be possible to combine the fees when inputting them in the model. For example, a 1 percent processing fee and a 2 percent technical assistance fee, both charged on the initial loan amount, could simply be combined as a 3 percent up-front fee. But if one up-front fee is calculated as a percentage (say 3 percent) and a second fee is calculated as a fixed amount (say 10 a loan), an estimated effective rate will need to be input that approximates the income derived from the two fees (such as 3.5 percent).

The interest rate charged on loans issued before month 1 of the projections must be entered as the `INTEREST RATE FOR EXISTING PORTFOLIO`. If the interest rate is to change in the future, the new rate can be input as the `INTEREST RATE FOR NEW LOANS`. The new interest rate will then take effect for any new loans issued, but the previous interest rate will continue to be charged on existing loans until they are repaid in full. There are limitations in Microfin's interest calculations if interest rate changes are frequent or substantial, however.¹¹ And Microfin does not support floating interest rates where changes in rates are retroactive for existing loans.

`FEES AND COMMISSIONS` often account for a significant share of credit program income. In countries where there is a regulatory limit on interest rates, fee income is often structured to make up a particularly large share of lending income.

Fees and commissions can be modeled as `UP-FRONT` or `ONGOING` or as a combination of the two. And they can be calculated as percentages or as fixed amounts (table 4.1). Microfin determines whether the basis of calculation is a percentage or a fixed amount from the figure input by the user. It interprets numbers less than 1.00 as percentages (thus 0.05, for example, is interpreted as 5 percent) and numbers equal to or greater than 1.00 as fixed amounts. This approach is used in several sections of Microfin. These sections are clearly marked in the model, but users should take care not to misstate the input figures.

The last factor in the pricing of a loan product is whether loans are tied to some hedge against inflation, which is indicated under `INDEXING OF LOANS RECEIVABLE`. For example, loans might be denominated in a foreign currency, such as the U.S. dollar, that is less prone to lose value as a result of inflation. Or loan values might be tied to an official inflation index, in which case clients must repay (in local currency) more principal than they received in order to return an amount with equivalent purchasing power. Choosing an indexing option when pricing a loan means that the interest rate charged does not need to include an inflation risk premium. If this option is used, the `PRODUCT INDEXING RATE` section must be completed on the `MODEL SETUP` page.

4.3.5 Step 5: Analyze the loan product

All the product parameters defined in steps 1–4 can be combined to create a portrait of the loan product, as shown in the loan analysis table (figure 4.8). The table analyzes the loan product definition as of month 1. Any changes to the product introduced after month 1 will not be captured in this analysis. If

the institution plans to introduce a new product at some point during the projection period, it is appropriate to define that product as of month 1. (Loan conditions such as loan size and term can be entered in the MONTH 1 column even if the product is not used until a future date. The model does not project any activity until the month the product is introduced on the PROGRAM page.) If the loan is not defined starting in month 1, the analysis table in step 5 will not display any information, since the calculations are based on month 1 data.

The loan analysis table repeats the information on loan size and term by cycle and augments it. The AVERAGE MONTHLY PAYMENT includes principal, interest, and any ongoing commission and helps to gauge whether loan payments are within the clients' capacity. If the payments are perceived as too high, loan terms can be lengthened or loan amounts reduced. The CUMULATIVE TIME columns show how long it takes a client to progress to higher loan cycles and larger loans. The EFFECTIVE INTEREST columns show the total effective interest rate earned by the microfinance institution through interest, commissions, and indexing income, expressed in both nominal (unadjusted) and real (inflation-adjusted) terms. The effective interest rate can vary for loans in different cycles because of differences in loan terms. Short-term loans result in higher effective rates when up-front fees are charged because the greater turnover of the portfolio results in more loans and thus more fees.¹²

The last column, COST INCLUDING COMPULSORY SAVINGS, shows the cost of the loan from the perspective of the client. The calculation treats compulsory savings as a reduction in the loan received by the client, and thus as an increase in the cost of the loan. (The values in this column will not be accurate until the rate paid on savings deposits has been input. See section 4.4.1.)

Microfin includes a tool, the CLIENT COST worksheet, for making more precise calculations of effective interest rates and considering other cost issues that may influence a client's decision to take out a loan. This worksheet is located at one of the end tabs of the Microfin workbook. (For an explanation of the worksheet see annex 5.)

FAQ 18
How do I model an insurance fee charged on a loan product?

There are two alternatives for modeling a fee charged for insurance—for example, to ensure loan repayment in the event of the borrower's death. The first is to exclude the fee from the projections and treat the insurance as a separate financial service (see FAQ 6). The second is to treat the insurance fee like any other fee charged on a loan product (see section 4.3.4). The insurance payments will then be counted as income by the model, rather than as a liability, as is most often the case with insurance. In the OTHER OPERATIONAL EXPENSES section of the PROGRAM/BRANCH page an expense line will need to be included, estimating the amount paid out of the insurance fund. The difference will be considered profit.

FIGURE 4.8
Analyzing loan products in the loan analysis table

Step 5: Analysis		Step 5: Analyze product definition for Solidarity Group Loans																																																																					
18	A) Review summary analysis table	<div style="border: 1px solid gray; padding: 5px;"> <p>Help</p> <p>The following table analyzes this loan product, using values from "Month 1" columns</p> <table border="1"> <thead> <tr> <th>Loan size</th> <th>Percent Increase</th> <th>Contract Term</th> <th>Avg. Month Payment</th> <th>Cumulative Time (months)</th> <th>(years)</th> <th>Effective Interest (Unadj.)</th> <th>(Real)</th> <th>Cost incl. Comp.Sav.</th> </tr> </thead> <tbody> <tr> <td>100</td> <td></td> <td>6</td> <td>18</td> <td>6</td> <td>0.5</td> <td>47.4%</td> <td>34.0%</td> <td>55.6%</td> </tr> <tr> <td>200</td> <td>100%</td> <td>6</td> <td>37</td> <td>12</td> <td>1.0</td> <td>47.4%</td> <td>34.0%</td> <td>55.6%</td> </tr> <tr> <td>300</td> <td>50%</td> <td>6</td> <td>55</td> <td>18</td> <td>1.5</td> <td>47.4%</td> <td>34.0%</td> <td>55.6%</td> </tr> <tr> <td>400</td> <td>33%</td> <td>9</td> <td>51</td> <td>27</td> <td>2.3</td> <td>44.2%</td> <td>31.1%</td> <td>52.1%</td> </tr> <tr> <td>500</td> <td>25%</td> <td>9</td> <td>64</td> <td>36</td> <td>3.0</td> <td>44.2%</td> <td>31.1%</td> <td>52.1%</td> </tr> <tr> <td>550</td> <td>10%</td> <td>12</td> <td>55</td> <td>48</td> <td>4.0</td> <td>42.5%</td> <td>29.5%</td> <td>50.1%</td> </tr> </tbody> </table> </div>							Loan size	Percent Increase	Contract Term	Avg. Month Payment	Cumulative Time (months)	(years)	Effective Interest (Unadj.)	(Real)	Cost incl. Comp.Sav.	100		6	18	6	0.5	47.4%	34.0%	55.6%	200	100%	6	37	12	1.0	47.4%	34.0%	55.6%	300	50%	6	55	18	1.5	47.4%	34.0%	55.6%	400	33%	9	51	27	2.3	44.2%	31.1%	52.1%	500	25%	9	64	36	3.0	44.2%	31.1%	52.1%	550	10%	12	55	48	4.0	42.5%	29.5%	50.1%
		Loan size	Percent Increase	Contract Term	Avg. Month Payment	Cumulative Time (months)	(years)	Effective Interest (Unadj.)	(Real)	Cost incl. Comp.Sav.																																																													
		100		6	18	6	0.5	47.4%	34.0%	55.6%																																																													
		200	100%	6	37	12	1.0	47.4%	34.0%	55.6%																																																													
		300	50%	6	55	18	1.5	47.4%	34.0%	55.6%																																																													
		400	33%	9	51	27	2.3	44.2%	31.1%	52.1%																																																													
		500	25%	9	64	36	3.0	44.2%	31.1%	52.1%																																																													
		550	10%	12	55	48	4.0	42.5%	29.5%	50.1%																																																													
19	B) Analyze product in more detail	Use the Cost to Client spreadsheet to analyze the product in more detail, considering: <ul style="list-style-type: none"> * more precise specification of loan conditions * transaction costs to the client due to methodology * financial implications of any peer lending guarantees 																																																																					

4.4 Defining savings products in Microfin

As explained, Microfin treats compulsory and voluntary savings differently. This section describes how to work with these two approaches to savings.

4.4.1 Establishing parameters for compulsory savings

The relationship between compulsory savings and the loan products to which they are linked is established in step 3 of the loan product definition (see section 4.3.3). Several other factors relating to the treatment of these savings also need to be established. This is done in the SAVINGS INPUT section of the model, found by clicking on the SAVINGS button on the PRODUCTS page (figure 4.9). The parameters chosen here will apply to all compulsory savings linked to any of the four loan products.

The first step is to indicate the CONTROL OF COMPULSORY SAVINGS, that is, whether the savings are held by the microfinance institution and appear on its balance sheet. If the savings are held by an independent commercial bank or are controlled by groups of clients (as in many village banking methodologies), the box SHOW THIS SAVINGS ON THE MFI'S BALANCE SHEET should remain unchecked. Savings will be projected but will not appear on the microfinance institution's balance sheet nor be included in the funds available to finance the portfolio.

The second step is to enter the INTEREST RATE PAID, stated in annual terms. If the institution does not control compulsory savings, Microfin assumes that it does not pay this interest and therefore does not treat the interest as an expense. The interest rate should still be input, however, so that the cost to the client can be accurately calculated in step 5 of the loan product definition.

FIGURE 4.9
Setting parameters for compulsory savings

	Initial #	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98
Compulsory Savings		Compulsory Savings Parameters					
		NOTE: The following parameters are used for compulsory savings for all four loan products					
(1) Control of compulsory savings	<input type="checkbox"/>	NOTE: If selected, the savings will be held by the MFI and appear on its balance sheet. NOTE: The above choice also determines if MFI pays interest cost.					
(2) Interest rate paid		NOTE: Input the annualized rate paid on the savings balance; input the rate used in calculations.					
Input changes on this line	-	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Value used in calculations		8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
(3) Percent to be held in reserve		Data okay					
Input changes on this line	-	100%	100%	100%	100%	100%	100%
Value used in calculations		100%	100%	100%	100%	100%	100%
(4) Indexing of savings	<input type="checkbox"/>	NOTE: This option allows the value of savings to be indexed to an external value.					

CASE STUDY BOX 6

Setting the parameters for FEDA's savings products

The compulsory savings required by FEDA are held by the Freedonia National Bank, which pays depositors an interest rate of 8 percent a year. These savings are blocked while a client has an outstanding loan and can be seized by FEDA if the client fails to repay the loan. But the funds are not otherwise available for FEDA's use. Thus the staff entered 100 as the `PERCENT TO BE HELD IN RESERVE`.

Starting in year 4 FEDA plans to begin offering two voluntary savings products. Passbook savings would offer an interest rate equal to inflation, projected at 10 percent a year. Term deposits would pay interest ranging between 12 percent and 18 percent, depending on the term, with the average rate expected to be 15 percent.

Pending legislation allowing nonbank financial institutions will probably mandate that 25 percent of any savings deposits be placed in short-term reserve deposits, with the rest available for on-lending at the institution's discretion. FEDA's management expects to establish a reserve of 40 percent of passbook savings (holding the additional 15 percent for supplemental liquidity) and the mandated 25 percent of term deposits.

As with loans, savings accounts will not be indexed to any external value.

The third step is to define the `PERCENT TO BE HELD IN RESERVE`. If the microfinance institution does not control the savings, this share should be set at 100 percent. If the institution does hold the savings, management can indicate the percentage of savings that will be held back as reserves. This amount will be routed to the `SAVINGS RESERVES` line of the balance sheet, where it will be credited the investment interest rate specified in the investments section of the model.

The last step is to indicate whether there is any `INDEXING OF SAVINGS`. If savings are indexed, the microfinance institution—or the bank, if the microfinance institution does not control the savings—will incur a cost of funds in addition to the interest paid. The method Microfin uses for calculating this cost is explained in section 6.3.2.

4.4.2 *Designing voluntary savings products*

Voluntary savings are often viewed as “a financial service that is more critical than credit, since all people of scarce means, whether they have a microenterprise or not, have to save.”¹³ Properly designed, savings services represent a secure, liquid form of investment for clients, one they can draw on for personal use, for investment in a business activity, or for emergencies. Compared with compulsory savings, voluntary savings allow the client more discretion in making deposits and withdrawals, and they are not necessarily linked to the credit program.

Many microfinance institutions may not be ready to provide voluntary savings services directly, however. Putting deposits from the public at risk in the loan portfolio or in other investments requires a high level of financial prudence, discipline, and skill. In addition to dealing with the legal and regulatory issues relat-

ing to savings mobilization,¹⁴ institutions should reach a stable level of profitability and develop a rigorous financial management system before they consider accepting deposits. Until a microfinance institution has the institutional capacity to manage and safeguard savings deposits, it is best off collaborating with a local bank to provide these services to its clients.

Basic parameters in three areas determine the design of voluntary savings products:¹⁵

- The minimum and maximum amounts that can be deposited and withdrawn (including any minimum balance requirements)
- The frequency of deposits and withdrawals allowed (for example, whether the institution can lock in funds for a specific term, or whether clients can make deposits and withdrawals on demand)
- The interest rate paid on deposits.

The less frequent the allowable withdrawals for a savings product, the higher the interest rate is likely to be, because the institution can count on the use of the funds for long-term investment opportunities, including its loan portfolio, and the clients must be compensated for not having access to their funds for an extended period. The more frequent the withdrawals and the transactions allowed, the lower the interest rate is likely to be, as the institution must be compensated for the cost of processing many small transactions. Savings products reflecting the range of possible choices on these three variables include demand deposits and certificates of deposit. In general, experience suggests that clients value security of funds, ease of deposit, and flexibility in withdrawal more than high interest rates.

4.4.3 *Establishing parameters for voluntary savings products*

The model's parameters for voluntary savings products are identical to those for compulsory savings, except that voluntary savings are always assumed to be in the control of the microfinance institution rather than a third party. Thus they always appear on the balance sheet (in the CURRENT LIABILITIES section, under SAVINGS DEPOSITS), and the interest expense is always charged to the microfinance institution. Average deposits for each savings product and the number of savings accounts are projected on the PROGRAM/BRANCH page (see section 5.3).

Notes

1. "Transaction costs are those costs of applying for, obtaining and repaying a loan and include such items as transportation, paperwork, and the value of time spent on the process and not directly in the business of generating wealth" (Robert Peck Christen, *Banking Services for the Poor: Managing for Financial Success*, Washington, D.C.: ACCION International, 1997, p. 116).

2. For estimated ranges for the components of the effective interest rate see Robert Peck Christen, *Banking Services for the Poor: Managing for Financial Success* (Washington,

D.C.: ACCION International, 1997, p. 113). Also see CGAP, "Microcredit Interest Rates" (CGAP Occasional Paper 1, World Bank, Washington, D.C., 1996) and Women's World Banking, "Principles and Practices of Financial Management" (New York, 1994, pp. 29–30) for more detailed analyses of pricing.

3. An important institutional issue is to ensure that a product is not so complex in design that the institution is unable to manage it efficiently.

4. See Charles Waterfield and Ann Duval, *CARE Savings and Credit Sourcebook* (New York: PACT Publications, 1996, pp. 79–130) for a full treatment of lending methodologies.

5. Except in the context of the case study, monetary amounts are presented without units of currency in the handbook.

6. Microfin handles loan defaults in a different way from late payments. The portion of the month's loan disbursements projected to be in default is dropped from the repayment calculations and never flows back to the institution. The loan loss provisions are then increased to offset the uncollectable portfolio. For more information on how Microfin projects loan defaults see section 6.3.3.

7. Microfin does not provide for a grace period on interest payments. For institutions that grant such a grace period, cash flow will be slightly misstated because the model assumes that interest income comes in monthly.

8. In most cases clients cannot access their compulsory savings while they have an outstanding loan. So the potential benefit to the client of having emergency funds on reserve cannot be realized.

9. See annex 5 for additional information and CGAP, "Microcredit Interest Rates" (CGAP Occasional Paper 1, World Bank, Washington, D.C., 1996) for a more detailed discussion.

10. Savings are sometimes required one or more months before loan disbursement. Because Microfin does not model this alternative, cash balances will be slightly understated in such cases (assuming that the microfinance institution handles the savings accounts).

11. When the interest rate is changed, Microfin takes the outstanding portfolio at that moment and projects it to be repaid over the next x months, where x is the current average loan term. During these months this portfolio is charged the old interest rate (say 30 percent), while all new loans are charged the new rate (say 36 percent). But if the interest rate changes a second time (say to 40 percent) before the old portfolio is fully repaid, the portion of the old portfolio still outstanding will now be charged 36 percent in the model. Thus there can be some inaccuracies in interest calculations if interest rate changes are frequent or extreme. But the error might not be significant if, for example, the model assumes that a small portion of the portfolio is charged 36 percent rather than 30 percent for a few months.

12. See CGAP, "Microcredit Interest Rates" (CGAP Occasional Paper 1, World Bank, Washington, D.C., 1996) for a detailed explanation of effective interest rates and their calculation.

13. Craig Churchill, ed., "Establishing a Microfinance Industry" (Microfinance Network, Washington, D.C., 1997, p. 42).

14. In most countries banking regulations restrict the collection of savings deposits to formally accredited financial institutions. The decision about whether to formalize is

one of the most crucial that a microfinance institution will face (for a discussion of this issue see chapter 2).

15. Charles Waterfield and Ann Duval, *CARE Savings and Credit Sourcebook* (New York: PACT Publications, 1996, p. 56).

Defining Marketing Channels by Projecting Credit and Savings Activity

Once a microfinance institution has defined the credit and savings products it will offer, the next step in operational planning is to identify marketing channels. In financial modeling this means developing projections for credit and savings activity. Though based primarily on an understanding of the environment in which the microfinance institution and its clients operate, the credit and savings projections also draw on information from other parts of the strategic planning process, including:

- The institution's target clients (for example, the market segments exhibiting the greatest demand for its financial services)
- The areas in which the institution has or can develop a competitive advantage (such as a strong branch network)
- The overarching strategy that the institution has chosen.

Credit and savings projections need to be closely linked to the choices made in strategic planning on product and market options (see section 2.5.1). The choice of strategy—market penetration, product development, market diversification, or a combination of product development and market diversification—will be expressed concretely in projections of activity by product and by branch.

Based on the relevant external factors identified in its strategic analysis, the microfinance institution selects the marketing channels that will best ensure that its services reach the targeted clients. Possible marketing channels might include:

- Existing offices and branches
- New branches or satellites
- Credit windows in the offices of other institutions
- An alliance with a bank to provide savings services (if the institution does not offer these directly).

Growth must be pursued in a realistic and measured way. Program expansion should not exceed the institution's administrative capacity. And growth estimates should be compared with the assessments of market demand and competition performed during the strategic analysis.

Experience strongly suggests that developing a strong, decentralized, branch-based distribution system is the optimal approach for a microfinance institution,¹ and Microfin follows this approach. So the selection of marketing channels is reflected in the projected distribution of financial products by branch. Decentralizing authority for loan processing and collections places responsibility for lending decisions with

those closest to the clients—the credit staff. Standardizing systems, procedures, and products across branches helps ensure consistency in such activities as staff training, loan processing, and portfolio and financial reporting.

5.1 Using the PROGRAM/BRANCH/REGION page to generate projections

Microfin generates credit and savings projections on the first part of the PROGRAM/BRANCH/REGION page (the second part generates income and expense projections and is covered in the next chapter). This page, the largest in Microfin, contains all the information related to loans, savings, income, staffing, operational expenses, and fixed assets for a single branch or region or for a program as a whole. If multibranch analysis is selected in the model setup, the page is replicated for each branch office to be modeled and the pages are named BRANCH 1, BRANCH 2, and so on. If multiregion analysis is chosen, the pages are labeled REGION 1, REGION 2, and so on. If the consolidated approach is used, the name of this page is PROGRAM and all program-level activity is modeled on the page. (See section 3.4.1 for a complete explanation.) Since program, branch, and regional projections work similarly in Microfin, *program* rather than *branch* or *region* is used in the rest of the handbook for simplicity, except when the discussion relates specifically to modeling branches or regions.

Between the PRODUCTS page and the PROGRAM/BRANCH page is the INST.CAP. page, which has information used in the institutional capacity and resources analysis (covered in chapter 6). This analysis also relates to the PROGRAM/BRANCH page, but it follows the credit and savings projections. Skip the INST.CAP. page at this time, returning to it after the credit and savings projections are completed.

5.1.1 Changing the number of branch or regional pages

Adding or deleting branch or regional pages is straightforward. When multibranch analysis is selected on the MODEL SETUP page, a page named BRANCH MGMT shows up between the BRANCH 1 and HEAD OFFICE pages, with a large button labeled ADD NEW BRANCH. Follow this procedure to add a new branch page:

1. Use File Save to save your work before attempting to add a new branch page.
2. Click on the ADD NEW BRANCH button. This starts a macro that replicates the BRANCH 1 page, inserting a copy, titled BRANCH 2, between BRANCH 1 and BRANCH MGMT. If this process takes longer than five minutes and the computer is continually accessing the hard drive, you have exceeded the available RAM and may need to reboot your computer. (For RAM requirements with different versions of Excel see table 3.3.) Before proceeding, close any other software applications that may be taking up RAM. If the problem persists, the only alternative is to purchase more RAM for the system (see annex 1).
3. Test the recalculation time for the model by hitting F9. If recalculation takes unreasonably long and the computer is continually accessing the hard drive, you have exceeded the RAM limits.
4. If you decide not to continue with the new branch page, close the spreadsheet *without* saving the file. Open the previous version that you saved to continue working.

It is generally best to complete the credit and savings projections and the expenses for one branch before replicating the BRANCH 1 page. That makes it possible to copy all the inputs from the BRANCH 1 page to the new branch page, saving some work in inputting data for the next branch office.

Names can be assigned to each branch page using the BRANCH PAGE NAMES section of the BRANCH MGMT page. To assign names, input the names in the gray cells, hit F9 so that the changes take effect, and then use the RENAME BRANCH PAGES macro button to rename the pages. Names must be no more than 10 characters and must not include anything except A–Z, 0–9, and “.” or the macro will fail.

5.1.2 Validating the data

Because of the large amount of information to be input on the PROGRAM/BRANCH page, a concise data validation section is included at the top of the page (figure 5.1). This section simply verifies that data have been entered in each section of the page; it does not verify that the data are realistic or accurate. A warning message appears if, for example, a product has been activated on the PRODUCTS page but no projections have yet been made on the PROGRAM/BRANCH page, or if no data have yet been entered for additional fixed assets during the five years.

5.2 Generating loan portfolio projections

The LOAN PROJECTION INPUT section is the first input section on the PROGRAM/BRANCH page, because completing it is the first step in generating financial projections (use the LOAN INPUT button at the top of the page to move directly to this section). This section appears four times—once for each loan product—

FIGURE 5.1
Validating the data on the PROGRAM/BRANCH page

Data Validation Section		This section simply verifies if data has been entered into each section of the branch page. It does NOT verify if that data is realistic			
Data entry section	Initial Bal.	Month 60	Comments		
Loan Products - Active Loans					
Solidarity Group Loans	3,600	11,981	Product 1 appears complete		
[Lnprod 2 not in use]	0	0	Product 2 data appears okay		
[Lnprod 3 not in use]	0	0	Product 3 data appears okay		
[Lnprod 4 not in use]	0	0	Product 4 data appears okay		
Savings Products -- Total Savings					
Passbook Savings	0	1,114,890	Product 1 appears complete		
Term Deposits	0	880,055	Product 2 appears complete		
[savprod 3 not in use]	0	0	Product 3 data appears okay		
[savprod 4 not in use]	0	0	Product 4 data appears okay		
Staffing and Expenses					
Number of Loan Officers	13	40			
Maximum overcapacity of Loan Officers	2.3	NOTE: You may wish to review your staffing projections to lower overcapacity		
Branch staff other than Loan Officers	1	13	Staffing appears complete		
Monthly Loan Officer senior salary	360	494	Salaries appear complete		
Monthly Operational Expenses	2,714	11,436	Operational expenses appear complete		
Fixed Assets	8,000	36,500	Fixed Asset input appears complete		

but is displayed only for the loan products designated as active on the PRODUCTS page.

Generating portfolio projections for a loan product is a four-step process:

- Step 1: Input initial balances
- Step 2: Project the number of active loans
- Step 3: Input client retention rates
- Step 4: Review graphs for the loan product.

This four-step process is repeated for each loan product.

FAQ 19

What if I don't know the distribution of active loans by cycle?

A good MIS should be able to generate the number of active loans by cycle without much difficulty. But if this information is unavailable, it will need to be estimated. A sampling of loan records can produce close estimates (see box A3.1 in annex 3 for more information). Since distributions may not be intuitive, careful thought should be given to the estimates.

Distributions will vary depending on the length of time the loan product has been used, the growth rate of the number of active loans for the product, the client retention rate, and the relative loan terms for the cycles. If loan terms are similar, there will generally be fewer loans in the later cycles than in the earlier cycles.

If loan terms vary by cycle, however, the shares will vary significantly. For example, if first loans are for three months and all other loans are for six, there could be twice as many clients in the second cycle as in the first.

5.2.1 Step 1: Input initial balances

If a loan product is in use by the institution or at the branch being modeled, initial balances on the number of loans and the amount outstanding must be input for that product. If the product is not in use, the initial balances section should be cleared out. (To clear out an entry, input zero or delete the entry, but do not use the space bar.) As with all initial balances, the information must be for the date immediately preceding the MONTH 1 column (31 December 1997 in the example in figure 5.2).

The INITIAL NUMBER OF ACTIVE LOANS must be broken down by loan cycle. To do this, first enter the TOTAL NUMBER OF ACTIVE LOANS in line 1. Then enter the

CASE STUDY BOX 7

Entering FEDA's initial loan product balances

FEDA projected that it would have 3,600 active clients at the end of 1997, all with solidarity group loans. FEDA's staff entered this number in the model as the total number of active loans, along with an estimated distribution of the clients by loan cycle generated by the credit supervisor (case study box table 7.1).

CASE STUDY BOX TABLE 7.1

Estimated distribution of FEDA's loans, by cycle (percent)

Loan cycle	Share
First	33
Second	33
Third	20
Fourth	8
Fifth	4
Sixth and subsequent	2
Total	100

From the balance sheet, they saw that FEDA had a gross outstanding balance for its single loan product of 504,000 freeons and entered that figure in the next section of the model. They elected to use the repayment stream projections automatically generated by Microfin, since they had no better projections.

FIGURE 5.2

Entering initial loan product balances

Show/Hide Detail		Graphs		Initial			
		#	Balance	1 Jan-98	2 Feb-98	3 Mar-98	
Loan Product 1: Solidarity Group							
Step 1: Initial Balances		STEP 1: Input initial balances for					
Initial number of active loans		Help	# active	%	Effec.Term	Amount	
1	Total number of active loans		3,600	100%	13	.	
2	First cycle		1,188	33%	13	100	
3	Second cycle		1,188	33%	13	200	
4	Third cycle		720	20%	13	300	
5	Fourth cycle		288	8%	13	400	
6	Fifth cycle		144	4%	13	400	
7	Sixth and subsequent cycles		72	2%	13	400	
Initial balance and repayment stream							
8	Initial gross outstanding balance		504,000	Data Ok			
9	Auto-generated repayments		504,000	72,000	66,462	60,923	
10	Manually-entered repayments		-				
11	Repayments used in calculations		504,000	72,000	66,462	60,923	
			Data Ok				

percentage share for each cycle in lines 2–6. Line 7 will calculate automatically to bring the total to 100 percent. In most cases the shares can be rounded to the nearest 10 percent without a significant loss in accuracy. When the model is recalculated, the distribution of loans among cycles will be calculated on the basis of the percentages entered. The initial distribution of active loans provides the information for projecting future loans. For example, if there are 100 loans in the third cycle, the model will project disbursements of new fourth-cycle loans as those loans mature.

The next step is to input information for the INITIAL BALANCE AND REPAYMENT STREAM. Entering the INITIAL GROSS OUTSTANDING BALANCE for the loan product in line 8 enables Microfin to calculate AUTO-GENERATED REPAYMENTS in line 9. This calculation is based on the numbers in the EFFEC.TERM and AMOUNT columns, which are drawn from the INITIAL BALANCE column of the loan product definition section on the PRODUCTS page.² (Note that the average effective term for all active loans, in line 1, cannot exceed 24 months, the maximum period for repayment stream calculations.) The calculation assumes that the same number of loans matures each month—that is, that the loan product has been stable, with little growth in loan disbursements in recent months. If there has been significant growth in the number of active loans in recent months, the auto-generated repayments will overstate repayments in the early months and understate repayments in the later months. Line 10, MANUALLY-ENTERED REPAYMENTS, allows users the option of overriding the auto-generated repayments if they have more precise data, such as from the MIS.

The output information in line 11, REPAYMENTS USED IN CALCULATIONS, will be used in the LOAN PRODUCT OUTPUT section to project the size of the portfolio.

FAQ 20
What if the institution has a loan product whose initial average effective term exceeds 24 months?

Microfin can model new product activity for any loan term. But it cannot perform accurate calculations if the average effective term for the initial loan portfolio identified in step 1 of the LOAN PRODUCT INPUT section exceeds 24 months.

An institution facing this situation has several options. If the loan product with a term longer than 24 months accounts for a small share of the total portfolio, it could exclude the product from the analysis. If the loan product accounts for a small share of the portfolio and the term is less than 36 months, the institution could model the loan term as 24 months, an option that would result in some imprecision in projections but capture most of the essential information. But if the loan product makes up a significant share of the portfolio, the current version of Microfin cannot produce reliable results and the institution should use another model.

5.2.2 Step 2: Project the number of active loans

Projecting the number of active loans is a vital step. Microfin is designed so that this number, combined with the loan product definition (see chapter 4) and the client retention rate (see section 5.2.3), generates the loan portfolio and financial income projections. So careful thought should be given to the information input in this step.

Many projection models begin with the number of loan officers, which determines the number of active clients. But Microfin and the handbook's business planning framework have a "market-driven" orientation, and the model bases projections of active clients on estimates of demand. The analysis of clients and markets early in the strategic planning process should have led to estimates of demand for specific financial products in specific geographic areas; FEDA, for example, estimated the market for working capital loans in the Brownstown Market area to be 12,500 clients and, based on its market analysis, expects to reach 75 percent of them within five years. Decisions on objectives and activities made during the strategic planning process—such as, in FEDA's case, to expand from 3,600 to 7,500 borrowers in the Brownstown Market area within five years—also are incorporated in the operational planning and financial modeling at this stage.

CASE STUDY BOX 8

Projecting FEDA's active loans

FEDA's market study showed that the institution has the potential to grow from 3,600 to 7,500 clients in its current market area, Brownstown Market, by the end of the five-year plan. In addition, FEDA intends to open a second branch office, in East Side, in August 1998. This branch is expected to expand to 4,500 clients by the end of 2002, bringing the total number of clients to 12,000.

Having decided on the MODEL SETUP page to model multiple branches on a single page, FEDA's staff used the BRANCH CONSOLIDATION ESTIMATE section to project loan activity year by year (case study box table 8.1).

CASE STUDY BOX TABLE 8.1

Projected number of active loans for FEDA, 1998–2002

Period	Brownstown	East Side
Current	3,600	0
1998	4,500	300
1999	5,500	1,500
2000	6,250	2,500
2001	7,000	3,500
2002	7,500	4,500

They accepted the estimated average monthly growth rates generated by the model for years 2–5, but refined the estimates to account for the opening of the second branch by entering 0.02 in month 1 and 0.032 in month 9. That resulted in projections of slower growth in the first eight months and faster growth in the final months to reach the correct projected number of clients at year-end.

FIGURE 5.3

Using the branch consolidation estimate worksheet

	Initial Balances	Year 1 FY98	Year 2 FY99	Year 3 FY00	Year 4 FY01	Year 5 FY02
Input annual targets for active branches						
Branch 1	3,600	4,500	5,500	6,250	7,000	7,500
Branch 2	0	300	1,500	2,500	3,500	4,500
Branch 3						
Branch 4						
Branch 5						
Branch 6						
Branch 7						
Branch 8						
Branch 9						
Branch 10						
TOTAL ACTIVE LOANS	3,600	4,800	7,000	8,750	10,500	12,000
Avg monthly linear growth		100	183	146	146	125
Avg monthly % growth		2.4%	3.2%	1.9%	1.5%	1.1%

FAQ 21
How do I project the phasing out or elimination of a loan product?

A loan product can be phased out or eliminated in the model by inputting numbers in line 12 indicating negative growth (see figure 5.4). If the number of loans in line 14 reaches zero, the model considers the product to be eliminated and automatically sets retention rates to zero. As current outstanding loans are repaid, the number of active loans will gradually drop to zero (see section 5.2.3).

If the projected number of loans is still positive, however, Microfin respects the retention rates input in the model and considers clients who repay their loans eligible to renew them, even if that causes the number of active loans to exceed the projections. So it is possible for an institution to “grandfather” clients, allowing those already receiving the product to continue receiving it but excluding any new clients from eligibility for that product.

In addition to defining the projected level of activity, the numbers input in step 2 will define the shape of the growth curve for both active clients and the portfolio, establishing the main parameters for the decisions in the institutional resources and capacity analysis (see chapter 6) and the financing analysis (see chapter 7). Thus careful attention needs to be paid here to the findings of the strategic planning process. For example, the institutional assessment might have identified significant weaknesses that need to be addressed before major expansion is undertaken, or potential sources of financing to fund rapid expansion.

Many factors need to be taken into account when projecting the number of active clients. As planning progresses, it may well be necessary to return and revise these projections to adjust for issues identified later in the planning process.

When a user has chosen to model all branch activity in a single consolidated workbook, a section titled **BRANCH CONSOLIDATION ESTIMATE** is displayed for each loan product on the **PROGRAM** page (figure 5.3). In the multiregion mode this section is titled **REGIONAL CONSOLIDATION ESTIMATE** and it allows the user to indicate the activity by branch in the region. In the multibranch mode this section is hidden, and the user proceeds immediately to the section shown in figure 5.4.

Filling in initial balances and annual targets for each active branch in the **BRANCH CONSOLIDATION ESTIMATE** section generates an aggregate total for the loan product. It also generates the **AVERAGE MONTHLY LINEAR GROWTH** (the growth rate if loans grow by the same number each month, resulting in a straight line) and the **AVERAGE MONTHLY PERCENT GROWTH** (the growth rate if loans grow by the same percentage each month, resulting in an upwardly curving line). Microfin automatically

FIGURE 5.4

Projecting the number of active loans

	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98
Step 2: Number active loans					
Number of active loans for this product					
12 Input (% or actual monthly growth)	5	100		0.024	
13 Monthly growth used in calculations		100	100	2.4%	2.4%
14 Total number of active loans *		3,600	3,700	3,800	3,891

transfers the average monthly percentage growth to the first month of each fiscal year in line 13 (see figure 5.4). It will then automatically generate detailed projections for the loan product without any further data entry. But modifications can easily be made (for example, to adjust for seasonal variations in demand or for a branch that opens in midyear) by inputting a number in line 12 for any month.

Users who have selected the multibranch mode and users who want to override automatically generated growth rates need to input any change from the previous month in the number of active loans in line 12. This change can be stated as a percentage change or as an absolute fixed amount. Microfin interprets numbers between -1.00 and 1.00 as percentage changes (for example, 0.03 is interpreted as a growth rate of 3 percent a month, and -0.01 as a rate of decline of 1 percent). It interprets numbers greater than 1.00 and less than -1.00 as absolute amounts (for example, 150 as an increase of 150 clients from the previous month, and -100 as a drop of 100 clients). After recalculation (using F9), the number input in line 12 is interpreted in line 13 and carried forward as the monthly growth rate until a new number is entered in line 12. Line 14 projects the total number of active loans by applying the monthly growth rate to the number of active loans in the previous month.

Clicking on the VIEW GRAPH button will display a graph of the number of active loans by cycle (figure 5.5). Although the information by cycle will not be accurate until step 3 is completed, the total number of active loans will be accurate.

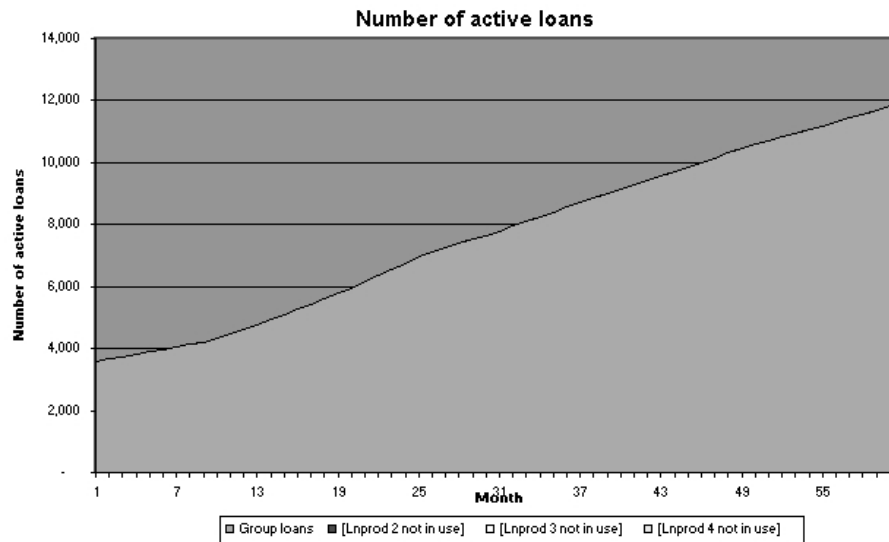
This section of Microfin can be confusing. When the model is in the consolidated or multiregion mode, it automatically transfers the growth numbers from the estimate worksheet in figure 5.3 to line 13 in figure 5.4 at the beginning of each fiscal year and can therefore override any growth rates input manually in line 12. To override these automatically generated growth rates, the user must manually input new growth rates in line 12 at the beginning of each fiscal year.

5.2.3 Step 3: Input client retention rates

In step 3 users complete the portfolio projections by providing information on CLIENT RETENTION RATES. As microfinance institutions mature, they become increas-

FIGURE 5.5

Graphing active loans by cycle



ingly aware of the importance of maintaining high client retention rates. Repeat clients are crucial if a microfinance institution is to reach the scale of operations needed to achieve significant outreach and ensure financial sustainability. Clients who made regular, on-time repayments on previous loans represent a lower credit risk and demand less staff time for monitoring. Follow-up loans are less expensive to review and process. Follow-up loans are also larger, leading to higher income for the staff time invested. And for every client who drops out, the microfinance institution must attract a new client, incurring the costs of identifying and screening potential new clients.

In monitoring client retention rates, institutions should use surveys to find out why clients leave the program. Possible reasons include:

- A poor repayment history (indicating clients who are not desirable as repeat customers)
- External reasons, related to adverse changes in the economy or political situation, in the client's market, or in the client's household
- Internal reasons, related to the quality of the institution's products or its service.³

If clients have left the program because of poor product design (in lending methodology or loan terms and conditions) or poor service (such as delays in providing repeat loans), the microfinance institution needs to consider redesigning its loan products or credit procedures.

Microfin measures client retention as the percentage of clients who progress from one loan cycle to the next within the same loan product:

$$\frac{\text{Number of clients during month receiving loans from cycle } x + 1}{\text{Number of clients during month repaying a loan from cycle } x}$$

For example, if in month 12, 100 first-cycle loans are fully paid back and 80 second-cycle loans are issued, the second-cycle retention rate is 80 percent. The other 20 clients are considered to have dropped out as clients for this loan product. To maintain the same number of active loans, 20 new clients would need to be brought in as first-cycle borrowers.

Microfin allows users to input a different client retention rate for each loan cycle. It is not uncommon for retention rates to vary significantly between cycles, depending on the design of the loan product, the clientele, and the institution's orientation. For example, if the institution views the first loan as a screening mechanism, the retention rate for the second loan may be relatively low. The model also allows users to change the retention rate for a cycle in any future month, for example, to account for a gradual improvement due to product redesign.

For an institution with a single loan product the retention rate is inversely related to the dropout rate, or desertion rate, an indicator often monitored in microfinance.⁴ But for an institution with multiple loan products the retention rate is not necessarily 1 minus the desertion rate; definitions need to be carefully

FAQ 22

What if I don't know the retention rate for a loan product?

A microfinance institution that does not track its retention rate can calculate it from existing loan data (see box A3.1 in annex 3). Experimentation with the model will show that the client retention rate has a dramatic effect on the projections. So if there is uncertainty about the retention rate, a sensitivity analysis should be performed to assess the impact of changes in the retention rate. (Such analyses can be performed using the EXPERIMENTATION WORKSHEET; see the discussion in section 5.2.3.)

As defined in Microfin, retention rates are highly dependent on the term of the loan. Thus if the loan terms are projected to change significantly, projected retention rates will need to be adjusted.

FAQ 23

How can I model clients' graduation from one product to another?

Microfinance institutions can enhance their service by offering loan products that clients "graduate to" when the initial loan product no longer meets their needs. Microfin does not provide automatic modeling of this transition, but its effect can be simulated.

If clients graduate from product 1 to product 2, the client retention rate for product 1 must reflect this transition, dropping at higher loan cycles as clients shift to product 2. These clients will come in as first-cycle borrowers for product 2. Thus the number of such clients must be estimated and incorporated into the demand estimate for product 2 in step 2, projecting active loans.

compared. The retention rate for a product must reflect the shifting of clients from that product to another one offered by the institution. For example, if a significant share of clients borrowing product 1 "graduate" to product 2 after the third cycle, this shift should be captured in low retention rates for product 1 starting in the fourth cycle.

Microfin assumes that follow-up loans are disbursed in the same month that the previous loans are repaid. For a microfinance institution that is slow in processing follow-up loans, this assumption will not always be accurate and Microfin will overstate the size of the portfolio.

Because retention rates have such a significant impact on projections and because they can be misinterpreted, step 3 begins with an ANALYSIS OF CLIENT RETENTION RATES (figure 5.6). This section should be used to both confirm that the retention rates used in the projections reflect actual trends and to project the long-term implications of those trends. The left-hand part of this section, ANALYSIS OF DATA FROM INITIAL BALANCES, projects the number of years clients will continue to borrow based on the initial balance data. The data in the TERM column are drawn from the product definition, and the data in the RETENTION column are input based on the historical retention rates for the product. The PERCENT CLIENTS and YEARS AS CLIENT columns use these data to determine what percentage of clients will remain borrowers through each cycle. In the example in the figure 49 percent of clients are expected to continue on to the third cycle, remaining clients for three years, and only 9 percent of all

FIGURE 5.6

Analyzing client retention rates

		Initial	1	2	3	4	5	6	7	
		#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98
Step 3: Retention rates		Help	STEP 3: Input client retention rates for Solidarity Group Loans							
15 Analysis of client retention rates	Analysis of data from Initial Balances				Experimentation Worksheet					
		Term	Retention	% clients	Yrs as client	Term	Retention	% clients	Yrs as client	
	First cycle	12		100%	1.0	7		100%	0.6	
	Second cycle	12	70%	70%	2.0	7	90%	90%	1.2	
	Third cycle	12	70%	49%	3.0	7	90%	81%	1.8	
	Fourth cycle	12	70%	34%	4.0	10	90%	73%	2.6	
	Fifth cycle	12	50%	17%	5.0	10	80%	58%	3.4	
	Sixth cycle	12	50%	9%	6.0	13	70%	41%	4.5	
	16 Seventh cycle	12	50%	4%	7.0	13	70%	29%	5.6	
	Eighth cycle	12	50%	2%	8.0	13	70%	20%	6.7	
17 Client retention rate	Second cycle	2		80%		90%				
	Third cycle	2		85%		90%				
	Fourth cycle	2		85%		90%				
	Fifth cycle	2		70%		80%				
	Sixth and subsequent cycles	2		70%		70%				
	Second cycle		70%	80%	80%	80%	90%	90%	90%	90%
	Third cycle		70%	85%	85%	85%	90%	90%	90%	90%
	Fourth cycle		70%	85%	85%	85%	90%	90%	90%	90%
	Fifth cycle		50%	70%	70%	70%	80%	80%	80%	80%
	Sixth and subsequent cycles		50%	70%	70%	70%	70%	70%	70%	70%
18 Number of active clients, Year 5 (end)		11,961	NOTE: These figures are drawn from the Loan Output projection sections below							
19 No. of new clients in 5 years		17,313	The number of "first cycle" loans is the number of clients that must be drawn in at some p							
20 No. of clients leaving during 5 years		8,958	Compare these numbers to the market estimates. If they are too high, look for ways to im							

CASE STUDY BOX 9

Analyzing FEDA's client retention rates

FEDA has had poor client retention rates. On average, 70 percent of clients continue through the second, third, and fourth cycles, but retention rates for later cycles drop to 50 percent, primarily because of the 400 freeon loan ceiling.

Confident that the redesign of the loan product would address clients' most serious complaints, management expected a rapid improvement in the client retention rate. So it used the ANALYSIS OF CLIENT RETENTION RATES section to estimate new retention rates reflecting a gradual increase (case study box table 9.1).

CASE STUDY BOX TABLE 9.1

FEDA's projected client retention rates

(percent)

Loan cycle	Initial balance	Month 1	Month 4
Second	70	80	90
Third	70	85	90
Fourth	70	85	90
Fifth	50	70	80
Sixth	50	70	70

Reviewing the loan demand projections, management saw that even with the significant improvement in retention rates, FEDA would still need to attract about 17,000 new clients in the next five years to reach its expansion targets, and that about 8,000 of these clients would drop out during the five years. Management recognized that high client retention would need to be a primary goal in the coming years.

clients stay through a sixth loan (six years). (The analysis section projects seventh- and eighth-cycle loans using the retention rate for the sixth and subsequent cycles.)

Microfin's definition of retention rates is dependent on the loan term; that is, as loan terms for a product change, the retention rates should change. The right-hand part of the section provides an EXPERIMENTATION WORKSHEET that allows users to test different combinations of loan terms and retention rates to use in the projections. Once realistic retention rates have been settled on, the rates must be manually transferred to the input cells beginning in line 17.

The analysis section includes five-year totals for active clients, new clients coming into the program during the five years, and clients leaving the program during those five years (lines 18–20). It is important to compare these numbers with the market estimates made earlier. Low client retention rates can result in large numbers of clients passing through an institution during a five-year period. Thus it is quite possible for an institution to have more former than current clients and for a geographic market to become fully saturated with former and current clients (compare the more than 17,000 clients in line 19 with the estimated 26,500 clients in the geographic area in FEDA's strategic plan).

FAQ 24

How can I best model seasonal changes in demand?

Microfinance institutions often experience a surge in seasonal demand. There are five main sources for such seasonal changes, each of which is modeled differently:

- New clients requesting loans. This change is modeled by increasing the growth rate for the product in step 2, projecting the number of active loans.
- Old clients who have gone without a loan for some time coming back to request a new loan. This change can be modeled by increasing the client retention rate for the month, but this should be done with care. Since the client retention rate is applied to the number of loans maturing in that month, trying to capture returning clients through this process could result in distorted projections. In theory, the retention rate for a month could exceed 100 percent if the intent is to draw back in a large number of dormant clients.

(Text continues on next page)

5.2.4 Step 4: Review graphs for the loan product

Microfin contains a variety of graphs allowing analysis and interpretation of the data for each loan product (see annex 2). Three graphs are available for each of the four loan products, and five consolidate data for all loan products. Microfin presents the graphs at two levels, which can potentially cause confusion. The program- or branch-level graphs described here can be accessed using the graph buttons on the PROGRAM/BRANCH page.⁵ If multiple branch pages are established, these graphs will be replicated for each branch, and each set of graphs will display information only for that branch. On the AGGREG GRAPHS page are graphs that display aggregate information for the institution, as summarized on the ADMIN/HEAD OFFICE page. Many of these graphs are similar to the branch-level graphs.

Interpreting financial projections in environments with moderate to high inflation can be difficult. To aid this analysis, the model displays graphs with financial information in either nominal or real (inflation-adjusted) terms. Users can toggle between nominal and real values by clicking on the SHOW REAL VALUES box in the upper right corner.

GRAPHS BY PRODUCT

The three graphs for individual products are as follows:

- Number of active loans by cycle (for an example see figure 5.5). This graph shows the number of active loans for a single product by month and by cycle. It is helpful in assessing the effect of changes in client retention rates and in determining what percentage of clients are in early cycles and thus require more staff time and receive smaller loans.
- Income from interest, fees, and indexing (figure 5.7). This area graph shows the total financial income generated by the loan product. It also breaks down the income into interest income, fees and commissions, and income generated by indexing the loan balance to an external value.

FIGURE 5.7

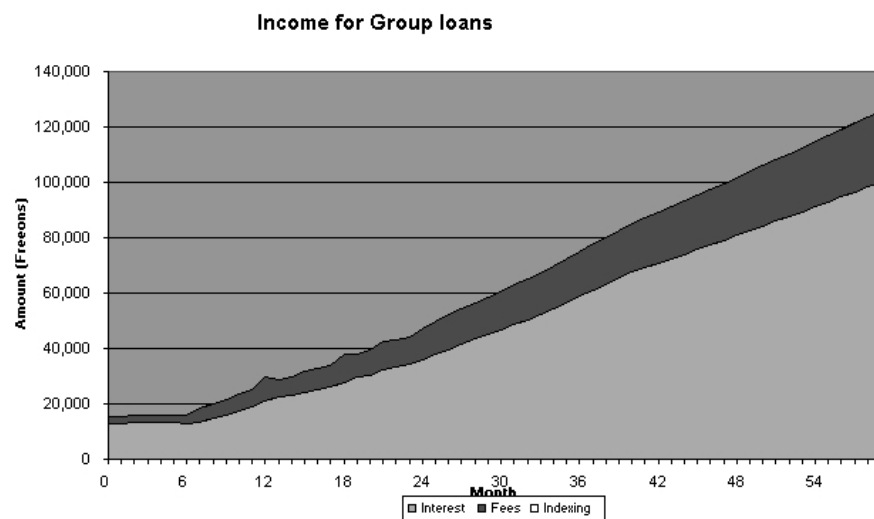
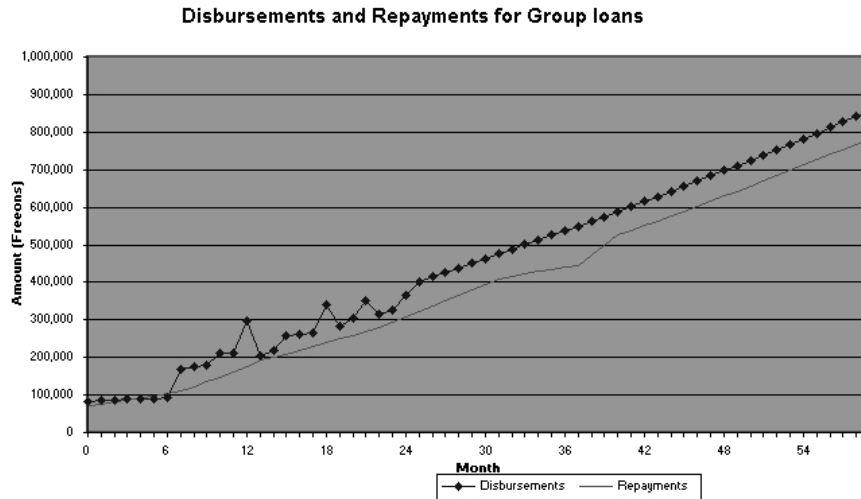
Graphing the income from a product

FIGURE 5.8
Graphing disbursements and repayments for a product



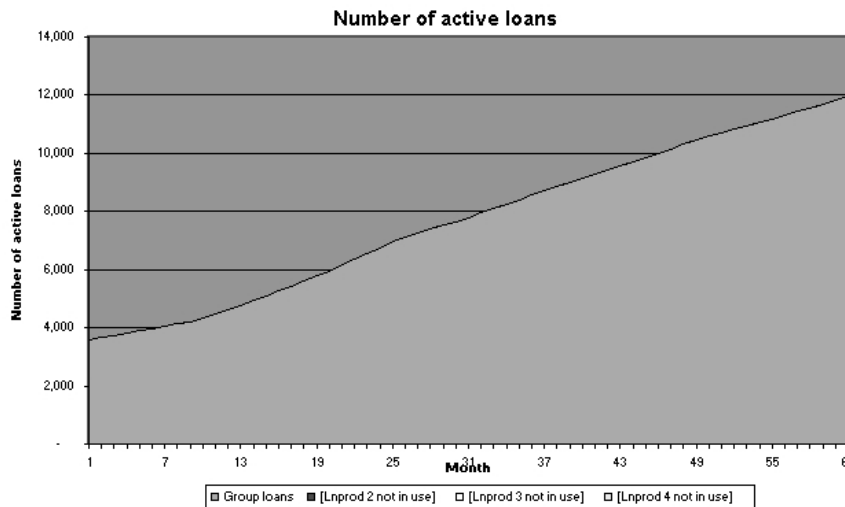
- Disbursements and repayments (figure 5.8). This graph shows two lines, one for monthly disbursements and the other for monthly repayments. Any gap between the two indicates growth (or shrinkage) in the portfolio. Disbursements will change as the number or sizes of loans change. Repayments will change with disbursements, but with a lag related to the loan term. This graph should be checked against the one showing the number of loans disbursed (see below).

GRAPHS FOR ALL LOAN PRODUCTS

Five graphs show consolidated data for all four loan products:

- Number of active loans by product (figure 5.9). This area graph shows the number of loans by product.

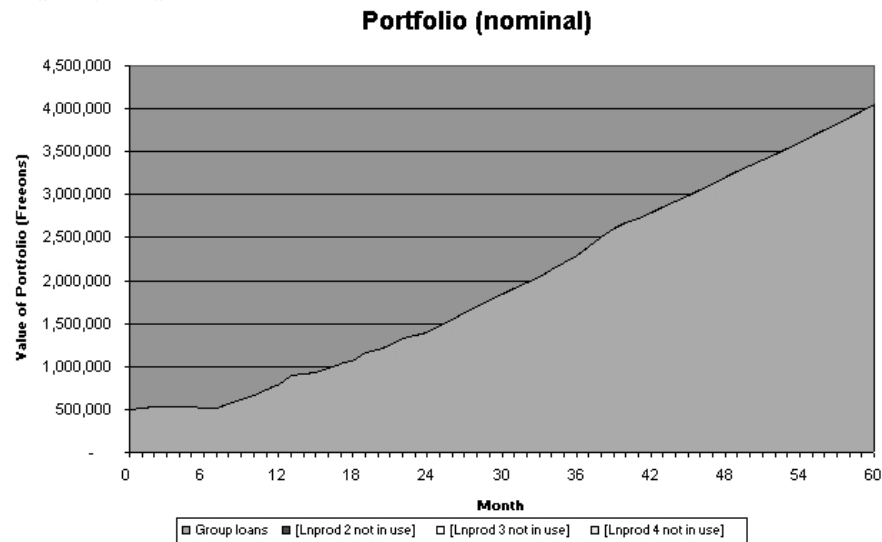
FIGURE 5.9
Graphing the number of loans by product



FAQ 24 (CONTINUED)

- Clients repaying loans early in order to receive new, larger loans. This change is difficult to model precisely, since loan maturation is determined by the effective loan term in the month the loan is disbursed. The average loan term would need to be artificially shortened in the months before the increase in seasonal demand. Unless this is a common, accepted practice in the institution, it should not be attempted in Microfin.
- Clients paying off their loans as scheduled but requesting significantly larger follow-up loans. This change can easily be captured in Microfin by increasing the average loan size during the months of high demand and reducing it when demand returns to normal. This change would be made on the PRODUCTS page.
- The institution offering a special seasonal product. This change can be captured by defining a special seasonal loan product on the PRODUCTS page and then projecting seasonal demand on the PROGRAM/BRANCH page. This approach assumes that clients have two active loans, one standard and one seasonal.

FIGURE 5.10
Graphing the portfolio



FAQ 25

Why do lines in the graphs start to smooth out in month 25?

Microfin calculates monthly values for all data in the first two years, or 24 months. Starting in year 3, it calculates only quarterly values for all information. To display this information in graphs, Microfin needs to generate three data points for each quarter in years 3–5. It does this by extrapolating between the beginning and ending points for the quarter. This extrapolation produces smoother lines than the precise monthly data presented for the first 24 months.

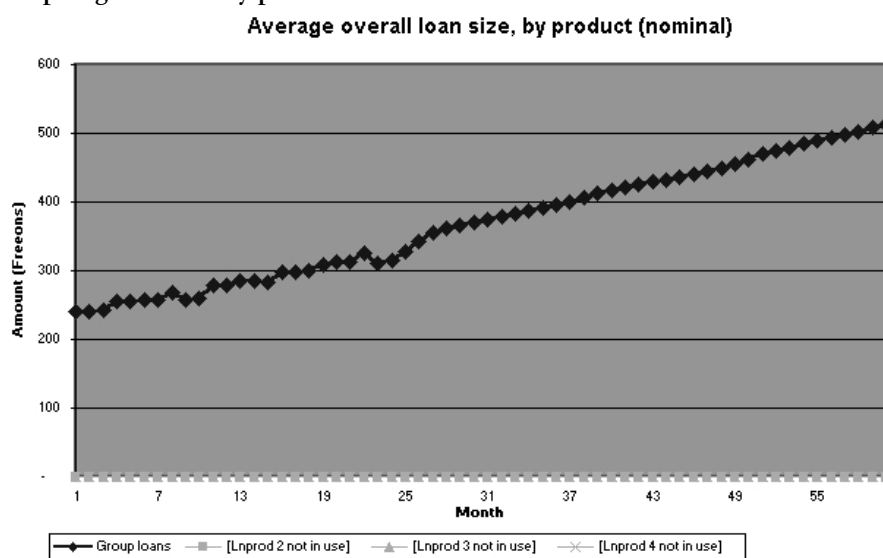
- Portfolio by product, nominal and real (figure 5.10). This area graph shows the total portfolio by product. Clicking on the **SHOW REAL VALUES** box toggles the graph between nominal and real values.
- Number of loans disbursed by month and by product. This area graph indicates how many loans are disbursed per month for each product. Odd shapes can result if loan terms differ significantly from one cycle to the next or if the growth in clients changes substantially from one month to the next. To study the detail behind this graph, click on the **SHOW/HIDE DETAIL** button on the **PROGRAM/BRANCH** page and examine the data in the **LOAN PRODUCT OUTPUT** section.
- Average overall loan size, by product, nominal and real (figure 5.11). This line graph shows the average size of all loans disbursed by month for each product. The average size generally increases over time as more clients receive loans from higher loan cycles, but then plateaus as the loan distribution between cycles stabilizes. Clicking on the **SHOW REAL VALUES** box toggles the graph between nominal and real values.
- Average loan term, by product. This line graph shows the average loan term of all loans disbursed by month for each product. The average term generally increases over time if later-cycle loans have longer terms than early-cycle loans.

5.2.5 Getting to complete portfolio projections

Microfin combines the information from the **LOAN PRODUCT INPUT** section with the information from the loan product definition on the **PRODUCTS** page to generate complete portfolio projections. Once the loan product input section is complete for each loan product in use, the **LOAN PRODUCT OUTPUT** section will display the projections. To find this section, click on the **LOAN OUTPUT** button to move down the **PROGRAM/BRANCH** page.

FIGURE 5.11

Graphing loan size by product



The first section, AGGREGATE LOAN ACTIVITY, summarizes the number of active loans and loan portfolio by product and presents several indicators of overall portfolio activity (figure 5.12). VIEW GRAPH buttons allow users to view this information graphically.

The LOAN PRODUCT OUTPUT section also includes a section for each active loan product, providing more detail on the number of active loans and loan portfolio by month (figure 5.13). Some of the line descriptions are underlined in light green, indicating that sections under these lines present detail by loan cycle. Clicking on the SHOW/HIDE DETAIL button toggles between the levels of detail. (For the concise contents of this section see figure 5.13; for the detailed contents see annex 2.)

FIGURE 5.12

Reviewing projections of aggregate loan activity

Show/Hide Detail	Graphs	#	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	
Aggregate Loan Activity			View Graph		Note: When "demand" is projected as falling in the inp				
Total Active Loans *			3,600	3,672	3,745	3,820	3,897	3,975	
Product 1: Solidarity Group Loans *			3,600	3,672	3,745	3,820	3,897	3,975	
Product 2: [Lnprod 2 not in use]*			0	0	0	0	0	0	
Product 3: [Lnprod 3 not in use] *			0	0	0	0	0	0	
Product 4: [Lnprod 4 not in use] *			0	0	0	0	0	0	
Overall growth in borrowers				2.0%	2.0%	2.0%	2.0%	2.0%	
			View Graph						
Total Loan Portfolio *			504,000	517,978	526,687	530,120	531,939	527,660	
Product 1: Solidarity Group Loans *			504,000	517,978	526,687	530,120	531,939	527,660	
Product 2: [Lnprod 2 not in use]*			0	0	0	0	0	0	
Product 3: [Lnprod 3 not in use] *			0	0	0	0	0	0	
Product 4: [Lnprod 4 not in use] *			0	0	0	0	0	0	
Overall growth in portfolio				2.8%	1.7%	0.7%	0.3%	-0.8%	
Total portfolio activity									
Total disbursements, all products				89,850	90,667	91,593	96,318	97,189	
Total repayments, all products				75,872	81,958	88,161	94,498	101,468	
Total number of loans disbursed *				372	373	375	377	378	
First loans as % of active loans				33%	33%	33%	33%	33%	

FIGURE 5.13
Reviewing projections by loan product

Show/Hide Detail		Graphs		Initial	1	2	3	4
		#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	
Product 1: Solidarity Group Loans								
Number of loans		View Graph						
Number of loans disbursed *				372	373	375	377	
First cycle				128	129	131	113	
Follow-up cycles				244	244	244	264	
Number of active loans *			3,600	3,672	3,745	3,820	3,897	
First loans as % of active loans			33%	33%	33%	33%	33%	
Portfolio Activity		View Graph						
Loan Disbursements *				89,850	90,667	91,593	96,318	
Total Monthly Repayments *				75,872	81,958	88,161	94,498	
Indexing income				0	0	0	0	
Less write-off				0	0	0	0	
Gross Outstanding Portfolio			504,000	517,978	526,687	530,120	531,939	
Average outstanding loan balance			140	141	141	139	136	
Average loan disb. size *				242	243	244	255	
Average loan disb. size (real) *				240	239	238	247	
Outstanding Portfolio (real) *			504,000	513,880	518,387	517,638	515,305	

FAQ 26
What if compulsory savings balances for each loan product are not available?

If the institution's MIS is unable to generate compulsory savings balances broken down by loan product, an approximation is adequate for the projections. The aggregate total for compulsory savings will be reliable except in the rare cases where compulsory savings are eliminated for one product but not for another.

A basic understanding of Microfin's approach to loan portfolio calculations can be helpful in properly using and interpreting the projections. To introduce users to the portfolio calculations, annex 4 contains a short exercise integrating information from the loan product definition, the loan product input section, and the loan product output section. It is advisable to go through this exercise at this time before proceeding with the model.

5.3 Generating savings projections

The SAVINGS PROJECTION section can be found by clicking on the SAVINGS button on the PROGRAM/BRANCH page.

5.3.1 Compulsory savings projections

Compulsory savings projections appear at the beginning of the savings section. To generate the projections, the initial balance of compulsory savings must be entered in the INITIAL BALANCE column for each loan product (figure 5.14). Microfin then automatically completes the projections based on the specifications in each loan product definition and the loan activity projections for each loan product.

5.3.2 Voluntary savings projections

Projecting voluntary savings is a two-step process in Microfin. First the NUMBER OF DEPOSITORS is projected, then the AVERAGE SAVINGS PER DEPOSITOR are projected (figure 5.15). Total savings are the product of the two.

FIGURE 5.14

Projecting compulsory savings

Show/Hide Detail		Graphs		Initial	1	2	3	4
		#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	
Compulsory Savings			View Graph					
Total Compulsory Savings *			70,000	72,687	75,406	78,167	81,350	
Loan Prod 1: Solidarity Group Loans			70,000	72,687	75,406	78,167	81,350	
As percentage of loan portfolio			14%	14%	14%	15%	15%	
Average balance per borrower			19	20	20	20	21	

The number of depositors can be projected from one of two possible sources or a combination of the two. The first potential source is a PERCENTAGE OF BORROWERS for a loan product. For example, if a microfinance institution has two loan products, it might estimate that 60 percent of borrowers of loan product 1 will also open voluntary savings accounts for savings product 1, but that only

FIGURE 5.15

Projecting voluntary savings

(quarterly projections)

Show/Hide Detail		Graphs		Y3 Q4	Y4 Q1	Y4 Q2	Y4 Q3	Y4 Q4
		Dec-00	Mar-01	Jun-01	Sep-01	Dec-01		
Passbook Savings								
Step 1: Number of depositors								
Source 1: Percentage of borrowers								
Input (% of borrowers saving)								
1	Product 1: Solidarity Group Loans		60%	65%	70%	75%		
2	Product 2: [Lnprod 2 not in use]							
3	Product 3: [Lnprod 3 not in use]							
4	Product 4: [Lnprod 4 not in use]							
Data used in calculations								
5	Product 1: Solidarity Group Loans	0%	60%	65%	70%	75%		
6	Product 2: [Lnprod 2 not in use]	0%	0%	0%	0%	0%		
7	Product 3: [Lnprod 3 not in use]	0%	0%	0%	0%	0%		
8	Product 4: [Lnprod 4 not in use]	0%	0%	0%	0%	0%		
9	Number of depositors from Source 1	0	5,477	6,210	7,000	7,849		
Source 2: Specified number of depositors								
Input (% or actual monthly growth)			100.00					
10	Monthly growth used in calculations	0.0%	100	100	100	100		
11	Number of depositors from Source 2	0	300	600	900	1,200		
12	Total number of depositors *	0	5,777	6,810	7,900	9,049		
Step 2: Avg savings per depositor								
Input (% or actual monthly growth)			13.67	0.05				
14	Monthly growth used in calculations	0.0%	14	5.0%	5.0%	5.0%		
15	Avg savings amount per depositor *	0	41	47	55	64		
16	Total Savings Portfolio *	0	236,854	323,222	434,035	575,577		
17	Percent growth in portfolio	0%	0%	36%	34%	33%		

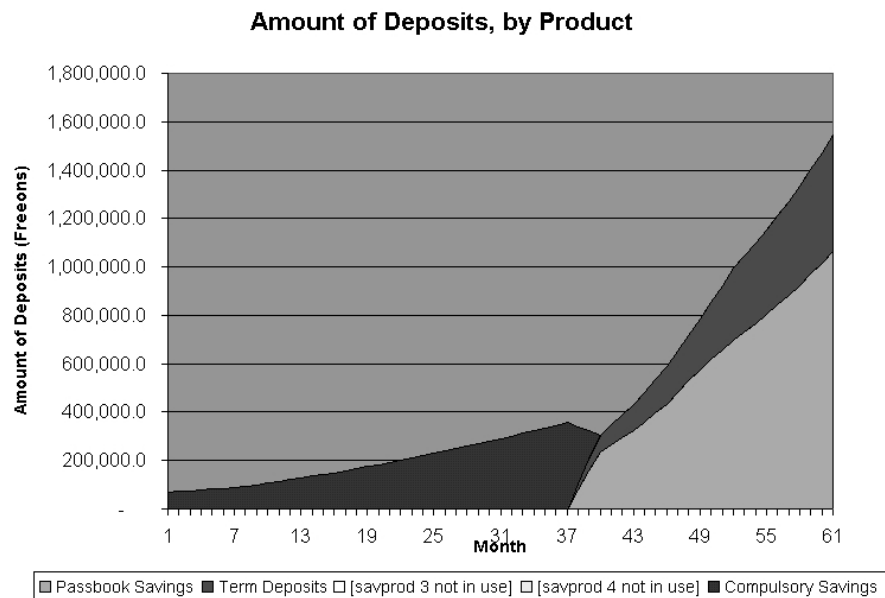
30 percent of borrowers of loan product 2 will do so. (An estimate of more than 100 percent would reflect the savings-led strategy of cooperatives and credit unions.) The estimate for each loan product is entered in the input line for that product (see figure 5.15, noting that in this example numbers are input in the quarterly rather than monthly columns). The percentages can be varied each month, allowing the institution to account for changes in demand for the savings product. The number of savers also will change as the number of borrowers changes.

The second potential source for projections of the number of depositors is an estimate of market demand growth. Following steps like those used in projecting the number of active loans (see section 5.2.2), users first need to enter the initial number of depositors for each savings product in the INITIAL BALANCE column. They then need to enter the change in that number from the previous month in line 10. Again, Microfin interprets numbers between -1.00 and 1.00 as percentage changes, and numbers greater than 1.00 and less than -1.00 as absolute amounts. The number input in line 10 is interpreted in line 11 and carried forward as a regular monthly growth rate until a new number is entered in line 10. Line 12 calculates the total number of savers by applying the monthly growth rate to the number of savers in the previous month. As mentioned, both sources may be used simultaneously. Line 13 adds the number of savers from lines 9 and 12.

Projections of the average savings per depositor are generated in a similar way. Users need to enter any initial balance of deposits for each savings product in the INITIAL BALANCE column and then the percentage or absolute growth from the previous month in line 14.

FIGURE 5.16

Graphing deposits by product



CASE STUDY BOX 10

Projecting FEDA's compulsory and voluntary savings

At the end of 1997 FEDA's borrowers had 70,000 freeons of compulsory savings on deposit at Freedonia National Bank, an amount projected to grow to more than 350,000 freeons by the end of year 3. When FEDA begins offering voluntary savings in the first quarter of year 4, after terminating the compulsory savings requirement in month 37, management estimates that 60 percent of clients with compulsory savings will transfer them to voluntary savings accounts. FEDA expects these clients to maintain the same average savings balance, projected at about 40 freeons by Microfin. (Because of the shift from monthly to quarterly calculations, this initial balance of 40 freeons must be generated by inputting a third of the amount for the first quarter of year 4, resulting in an average balance of about 40 freeons for the quarter when Microfin converts to quarterly calculations.)

The percentage of borrowers voluntarily saving is projected to increase by 5 percentage points a quarter as client confidence and awareness increase, reaching 80 percent in the first quarter of year 5. (This trend is modeled in line 1 by entering 65 percent in the Y4Q2 column, 70 percent in the Y4Q3 column, 75 percent in the Y4Q4 column, and 80 percent in the Y5Q1 column; see figure 5.15.) Average savings account balances are expected to increase by 5 percent a month in year 4 and by 3 percent a month in year 5 (modeled in line 14 by entering 0.05 in the Y4Q2 column and 0.03 in the Y5Q1 column).

In addition, FEDA expects nonborrowers to open passbook savings accounts starting in the second quarter of year 4 (modeled in line 10). It estimates 100 new accounts a month through year 4 and a 5 percent monthly increase in accounts in year 5 (modeled in line 10 by entering 100 in the Y4Q2 column and 0.05 in the Y5Q1 column).

FEDA will also begin offering term deposits (savings product 2) in the first quarter of year 4. Management estimates that 5 percent of borrowers will open accounts, with that share growing to 10 percent by the beginning of year 5 (modeled in line 1 by entering 5 percent, 6 percent, 7 percent, 8 percent, and 10 percent in columns Y4Q1 to Y5Q1). In addition, it expects nonborrowers to open 25 new accounts a month starting in the second quarter of year 4 (modeled by entering 25 in the Y4Q2 column of line 10). The average balance for term deposits is expected to start at 150 freeons and grow by 3 percent a month (modeled in line 14 by entering 50, or 150 divided by 3, in the Y4Q1 column, and 0.03 in the Y4Q2 column).

As projections are created, users can view the results by clicking on the VIEW GRAPH buttons. There are three savings graphs, projecting the number of depositors, the amount of deposits, and the average deposit. The sample graph in figure 5.16 shows the phasing out of compulsory savings in month 37 and the introduction of two new voluntary savings products.

The last part of the savings section summarizes the voluntary savings mobilization, showing the total number of depositors and the total amount on deposit by product (for an example see annex 2).

Notes

1. See Robert Peck Christen, *Banking Services for the Poor: Managing for Financial Success* (Washington, D.C.: ACCION International, 1997, p. 238).
2. This link is the reason that it is important to ensure that the information input in the INITIAL BALANCE column on the PRODUCTS page reflects the existing loan product, not a proposed redesign.
3. Craig Churchill, ed., "Establishing a Microfinance Industry" (Microfinance Network, Washington D.C., 1997, p. 25).
4. The desertion rate is often a time-related formula (for example, the number of clients who left in the previous 12 months), while Microfin is linked to the loan cycle term.
5. When Microfin displays graphs, Excel switches automatically to a full screen. To return to a normal view, click on View, then Full Screen.

Planning Institutional Resources and Capacity

The projections of credit and savings activity are based on careful market and environmental analyses: what products are appropriate in which markets, and how quickly can they be introduced and scaled up? Now the institution must develop an equally clear plan for putting into place the institutional resources and capacity needed to deliver the projected level of services.

In this step of the planning process users complete the PROGRAM/BRANCH page, the INST.CAP. page, and the ADMIN/HEAD OFFICE page and then review most of the information entered on those pages on the GRAPHS pages.

6.1 Building on the institutional assessment

From the institutional assessment prepared during strategic planning, the institution needs to develop a clear plan for building on the factors that are key to creating and maintaining a strong market position and for addressing the areas identified as needing strengthening. It should reflect a clear commitment to institutional development in its budget, in such areas as staff training and management information systems.

The institution should clearly prioritize the areas requiring institutional development. Operations will likely be growing, so trying to take on too much at once could prevent success in all areas. The institution should create a framework to gauge whether agreed on benchmarks (such as in staff training or MIS studies) are being met and, most important, whether the goal of institutional strengthening—improved performance—is being achieved.

In completing this phase of the operational plan and financial projections, the institution will need to project the timing and costs of each of its priority activities for institutional development. The costs of these activities should be included in the budget in the appropriate categories.

6.2 Setting up the institutional resources and capacity projections

On the INST.CAP. page users choose options and provide information necessary to complete the projections relating to institutional resources and capacity. The information on this page is linked to sections on the PROGRAM/BRANCH and ADMIN/HEAD OFFICE pages.¹ This section describes the options and the information covered on the INST.CAP. page (for a printout of the page see annex 2).

The headings in this section, and in most other sections of this chapter, correspond to the names of sections in the model.

6.2.1 Adjustments to cash flow analysis

Expenses should always be input in the model in the period in which they are incurred. This practice results in more accurate profit and loss calculations and more precise financial ratios. For example, payroll taxes should be entered monthly, as the expense is incurred, even if they are paid quarterly. But cash flow projections would erroneously assume that the taxes are paid monthly rather than quarterly. So to produce accurate cash flow projections, accrual adjustments need to be made to these types of expenses to reflect the actual timing of cash outflows.

There may also be prepaid expenses requiring adjustment. For example, if annual office rent of 2,400 is paid every January, the expense should be entered as a monthly amount of 200, but the cash flow projections would need to be adjusted so that the full cash outflow is recorded in January.

Users needing to adjust cash flow projections can check the box for this option, enabling the ADJUSTMENTS TO CASH FLOW ANALYSIS feature. This makes accrual sections available for use in the staffing sections and other operational expenses sections of the PROGRAM/BRANCH and ADMIN/HEAD OFFICE pages and in the CALCULATION OF FINANCIAL COSTS section of the FIN.SOURCES page.

6.2.2 Loan provisioning and write-off policies

Microfin allows users to choose monthly, quarterly, semiannual, or annual LOAN WRITE-OFF FREQUENCY to determine how often the loan loss reserve and gross portfolio are reduced by the estimated amount of unrecoverable loans (figure 6.1). For a discussion on setting the amount of write-off for each product see section 6.3.3.

Microfin also allows the calculation of loan loss provisions based on a projected aging of the loan portfolio, divided into five brackets. It treats the first bracket

FIGURE 6.1
Defining loan loss provisioning rates and write-off frequency

Loan provisioning and write-off policies							
Loan write-off frequency	Semi-annually		NOTE: Write-off frequency is used only fo				
	The loan loss reserve and the gross loan portfolio will be reduced by an esti uncollectable loans at the frequency indicated above. The loan loss percent:						
Loan loss provisioning rates	From	To	Prov %	Distribution of middle aging brackets			
	Current loans (< 30 days)	0	30	0%	Default	Override	% used
	Past due 31-60 days	31	60	25%	60%		60% Enter
	Past due 61-90 days	61	90	50%	25%		25%
	Past due 91-180 days	91	180	75%	15%		15%
	Past due more than 180 days			100%			

as current loans in all ratio calculations, and the fifth bracket as all loans that will be written off at the scheduled write-off frequency. The middle three brackets are provided to generate an estimate of portfolio aging and of the necessary reserves (see section 6.3.3 for an explanation). Microfin combines the aging information entered here with a targeted portfolio at risk rate entered later to generate portfolio aging information. (Despite the accuracy of Microfin's portfolio projections, the model is not capable of projecting aging by number of days.)

Users need to set the aging of the five brackets by inputting the cutoff number of days in the `TO` column. Hitting F9 will then update the aging categories in the description column on the left. Users then need to enter provisioning estimates in the `PROV %` column. These typically increase as the length of delinquency increases. Provisioning for the fifth category must be 100 percent. The model multiplies these percentages by the value of the portfolio in each category to determine the targeted amount for the loan loss reserve. Finally, users may refine the distribution for the middle three aging brackets, although it is recommended that the default values be used. The use of this distribution information is explained in section 6.3.3.

6.2.3 Cost allocation methods

Microfin distinguishes between direct (or program or branch-level) expenses and indirect (or administrative or head office) expenses. When projections are being prepared with multiple branch pages, all head office expenses are allocated to the branch offices to generate complete branch office income statements and determine branch profitability. But if the consolidated option has been chosen on the `MODEL SETUP` page, the cost allocation methods do not need to be defined and this section can be skipped.

Microfin divides costs between financial costs and indirect nonfinancial costs. Financial costs include all interest payments on portfolio financing loans and unrestricted loans.² Indirect nonfinancial costs are personnel expenses, other operational expenses, and depreciation and amortization expenses identified on the `HEAD OFFICE` page. Users can choose between two methods for allocating these categories of expenses—as a percentage of the branch's loan portfolio (the most likely choice for financial costs) or as a percentage of each branch's direct nonfinancial expenses (the most likely choice for indirect nonfinancial expenses).³

6.2.4 Staffing information

Microfinance institutions refer to loan officers by a variety of titles. In the `STAFFING INFORMATION` section users can enter the `LOAN OFFICER TITLES` used by their institution to customize the appearance of the model. Both long and short versions of the job title are requested.

Job titles are then requested for all other staff. Staff need to be divided between program and administrative staff, or between branch and head office

FAQ 27

What do I do if a staff position is considered part program and part administrative?

If a staff position is considered to be divided between program and administrative expenses, it can be entered in both the program and administrative staffing sections. Later, when staffing levels are projected, the position can be split between the two categories—for example, 0.5 in the program expenses line and 0.5 in the administrative expenses line (see section 6.3.6). When multiple branches are being modeled, care must be taken not to overstate the total allocations. For example, if the split is 50 percent program and 50 percent administrative and there are two branches, 0.5 should be entered on the `HEAD OFFICE` page and 0.25 on each `BRANCH` page.

The position's full salary and benefits must be entered in the salary input line on both the `PROGRAM` and `ADMIN` pages. When the full salary is multiplied by the percentage on each page, the costs of the position will be properly calculated and allocated.

In multiservice institutions senior managers might allocate only part of their time to the financial services being modeled in Microfin. In such cases only the percentage of time dedicated to financial services should be entered. For example, if the executive director spends 75 percent of her time on financial services programming, enter 0.75 in the line for number of staff but enter her full salary and benefit costs in the salary input line.

Use of this approach should be limited, to avoid making calculations too cumbersome and using up the lines for staff positions.

FAQ 28

What if the institution works out of a single office? Or what if the head office also provides services to clients?

In either of these cases it is necessary to split expenses such as rent between the portion that can be considered program expenses and the portion that is administrative. If the accounting system does not already perform this separation, an approximation can be made for modeling purposes. There are many approaches for dividing expenses between program and administrative categories, some of which are quite complex.⁴

Microfin also requests that fixed assets be split between program and administrative categories. This separation should be made when possible, but it need not be too detailed, as depreciation expense is generally a small percentage of total expenses.

staff, depending on the mode of projections chosen on the MODEL SETUP page. If there are more staff positions than input lines, staff should be combined by approximate salary levels. Microfin will later multiply the number of staff on each line by the salary indicated for that staff position to generate total personnel cost. Thus combining two or more staff positions with the same approximate salary allows accurate projections.

The STAFFING INFORMATION section includes an option that allows users to automate the projection of staffing levels by linking staff positions to such key variables as loan officers or borrowers. This option is explained in detail in section 6.3.6.

The section also provides an option to automatically adjust salary and benefit levels in the first month of each fiscal year. If this option is chosen, the model increases salaries annually by the inflation rate. Users can enter an additional percentage adjustment in the box on the following line. (This feature is enabled only if the inflation adjustment option is chosen.) A positive number increases salaries by more than inflation, a negative number by less than inflation. If these automatic adjustment options are not enabled, salaries will need to be adjusted manually. Even if the options are enabled, the salaries calculated by the model can be manually overridden by entering different amounts (see section 6.3.6).

6.2.5 Other operational expenses

Users can establish categories for other operational expenses for both program and administrative levels in the same way as for staffing. Financial costs, depreciation, and miscellaneous expense categories should be excluded from these two lists, as they are automatically incorporated elsewhere in the model. As with staffing, Microfin includes an option that allows users to automate projections of other operational expenses. This option is explained in detail in section 6.3.7.

6.2.6 Fixed asset categories

Users can also establish fixed asset categories for both program and administrative levels. After entering the category names, users need to enter cost information—a BASE COST PER UNIT and a rate for indexing this cost to INFLATION (figure 6.2). In the example in the figure computers cost 2,000 per unit. Advances in technology are expected to cause this cost to rise more slowly

FIGURE 6.2

Setting up fixed asset projections

Program-level Fixed Assets	Names used	Cost per unit		Life (yrs)	
		Base	% inflation	Input	Used
Computers	Computers	2,000	80%		5.0
Assorted office furniture	Assorted office furniture	1,000	100%	7.0	7.0
	[not used]		100%		5.0
	[not used]		100%		5.0

CASE STUDY BOX 11

Setting up FEDA's institutional resources and capacity projections

After reviewing the options on the INST.CAP. page, FEDA's staff and management made the following decisions:

- They decided not to use the detailed ADJUSTMENTS TO CASH FLOW sections for their initial planning.
- In keeping with FEDA's policy, they indicated that LOAN WRITE-OFFS would be reviewed and processed every six months.
- They completed the section on LOAN LOSS PROVISIONING RATES to reflect the following: FEDA considers loans less than 30 days overdue to be current, with no provisioning. Loans 31–60 days overdue are provisioned at 25 percent, loans 61–90 days overdue are provisioned at 50 percent, loans 91–180 days overdue are provisioned at 75 percent, and loans more than 180 days overdue are provisioned at 100 percent and written off every six months.
- They accepted the default distribution percentages for the middle three aging brackets.
- On the MODEL SETUP page they had opted not to model individual branches, so the section on COST ALLOCATION METHODS did not apply.
- They indicated that FEDA refers to members of its field staff as *loan officer*, with the short form being *officer*.
- They showed that, in addition to its loan officers, FEDA considers its credit supervisor, bookkeeper, and operations manager part of the PROGRAM-LEVEL STAFFING. All other staff are considered administrative. In August 1998, when another branch office would open, FEDA would shift the operations manager to the position of branch manager of the old branch and hire a branch manager for the new one. So the staff entered “op manager/branch manager” as the job title. They indicated that a bookkeeper also would work in the new branch and that tellers and security guards would work in both branches starting in year 4.
- For ADMINISTRATIVE-LEVEL STAFFING the staff entered the following positions: executive director, finance manager, secretary, and runner. They also entered MIS supervisor, human resources director, and savings director, positions FEDA intends to add.
- They opted for SALARY AND BENEFIT ADJUSTMENTS at the beginning of each fiscal year, because FEDA's board generally grants an increase equal to the inflation rate.
- For PROGRAM-LEVEL OPERATIONAL EXPENSE categories they specified rent, utilities, transportation, general office expenses, and repairs, maintenance, and insurance.
- For ADMINISTRATIVE-LEVEL OPERATIONAL EXPENSE categories they entered rent; utilities; transportation; general office expenses; repairs, maintenance, and insurance; professional fees and consultants; board expenses; and staff training.
- For PROGRAM-LEVEL FIXED ASSET categories they indicated computers, assorted office furniture, and employee furniture groupings. For computers they specified a base price of 2,000 freeons, projected to increase at 80 percent of inflation, and a life of five years. For general office furniture they entered a base price of 1,000 freeons, projected to increase at 100 percent of inflation, and a life of seven years. And they indicated that employee furniture groupings cost 200 freeons per employee, a cost projected to increase at 100 percent of inflation, and have a life of seven years.
- For ADMINISTRATIVE-LEVEL FIXED ASSET categories they entered computers, assorted office furniture, and vehicles. For computers they repeated the information entered in the program-level asset section. For office furniture they specified a base price of 1,500 freeons, projected to increase at 100 percent of inflation, and a life of seven years. They indicated that vehicles cost 20,000 freeons, projecting that this cost would increase at 100 percent of inflation, and that they have a life of six years.
- They left the BUILDING categories unused since FEDA owns no buildings.
- For OTHER ASSETS categories they specified the MIS.

than inflation, at 80 percent of the inflation rate established on the MODEL SETUP page.

Users also have the option of entering the estimated LIFE (in years) of each asset category. (The model assumes that the depreciable life of an asset and its useful life will be the same.) The minimum life for fixed assets is five years; the INPUT column needs to be used only if a category has a longer life, such as the seven-year life of “assorted office furniture.” Microfin allows users to automate the fixed asset acquisition strategy by linking the targeted level of each category to key variables. The use of this option is explained in detail in section 6.3.8.

6.2.7 Building categories

Any buildings owned by the institution and appearing on the balance sheet should be identified in this section. Microfin depreciates buildings over a 10-year period. Any land owned by the institution should not be included in this section; land is identified and valued on the ADMIN/HEAD OFFICE page (see section 6.4.4).

6.2.8 Other assets categories

In this section users should identify any major assets, such as an MIS or the costs associated with a change in legal structure, that are amortized rather than considered expenses in the month in which they are purchased or incurred. Information on other assets is incorporated on the ADMIN/HEAD OFFICE page only. Microfin amortizes these assets over a 10-year period, with the residual value appearing on the balance sheet as the line item OTHER LONG-TERM ASSETS (NET).

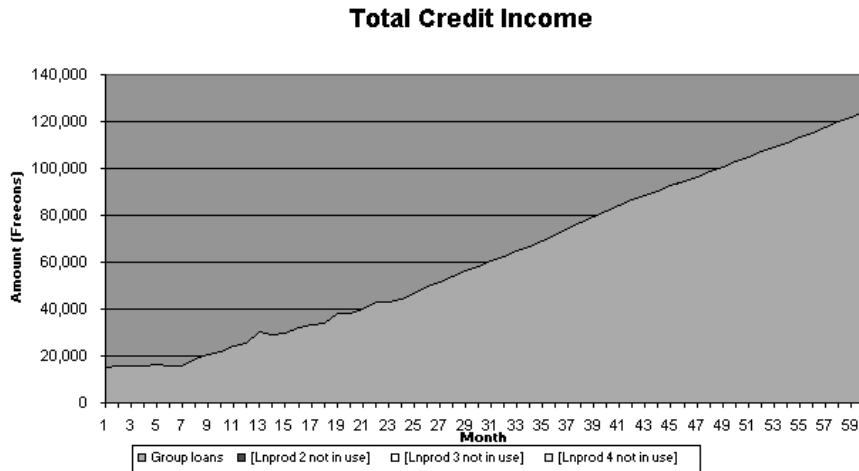
6.3 Projecting the program budget

The PROGRAM/BRANCH page includes sections related to budgeting program activities: income, financial costs, loan loss provision and write-off, loan officer analysis, program-level staffing, other operational expenses, and fixed assets; the BRANCH page also includes the branch-level income statement. Clicking on the INCOME/EXPENSE button at the top of the page allows users to move directly to this part of the page.

6.3.1 Income

The model automatically projects financial income based on lending activity and the income structure defined for each product. It summarizes the income in this section, by product. Clicking on the SHOW/HIDE DETAIL button exposes support lines for detailed analysis, and the VIEW GRAPH button shows the related graph (figure 6.3).

FIGURE 6.3
Graphing financial income by product



6.3.2 Financial costs

To project financial costs, the model first calculates INTEREST PAID ON DEPOSITS for both compulsory and voluntary savings (if compulsory savings are not held directly by the institution, the model excludes interest paid on those deposits). Next it adds the COST OF BORROWED FUNDS to determine TOTAL FINANCIAL COSTS. But the data here remain incomplete until the financing projections are completed in the next phase of the planning process.

If multiple branches are being modeled, a section titled ALLOCATION OF COST OF BORROWED FUNDS will be visible. It repeats the allocation method chosen on the INST.CAP. page for reference and indicates the allocation percentage for the branch. The amount allocated will not appear until the financing projections are completed.

6.3.3 Loan loss provision and write-off

To generate projections for loan loss provisioning and loan write-offs, Microfin requires users to input two variables in this section—PORTFOLIO AT RISK and ANNUAL LOAN WRITE-OFF RATE. The portfolio at risk is the outstanding balance of all loans considered overdue expressed as a percentage of the total portfolio immediately after unrecoverable loans have been written off. The loan write-off rate is expressed as a percentage of the outstanding loan portfolio. For example, if the institution expects to write off 50,000 in a year in which the ending portfolio is 1,000,000, the annual loan write-off rate is 5 percent. Independent portfolio at risk and loan write-off rates may be set for each loan product and each branch, and they may be varied monthly to reflect changing conditions (figure 6.4). (Because of the method Microfin uses to calculate loan loss reserves, however, any changes in portfolio at risk and annual

FIGURE 6.4
Setting portfolio at risk and loan write-off rates

	Initial	1	2	3	4	5	6
#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98
Loan Loss Provision and Write-off							
	NOTE: Portfolio at risk measure must be for the point in time AFTER write-offs have						
	NOTE: Portfolio at risk must always be greater than loan loss rate						
	NOTE: Loan loss is calculated as an ANNUALIZED percent of the ending OUTSTAN						
Portfolio quality targets							
Product 1: Solidarity Group Loan							
	Input: Portfolio at risk > 30 days						
1	Portfolio at risk > 30 days	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
	Input: Annual Loan Write-off Ratio						
2	Loan write-off ratio	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
Portfolio aging							
3	Current loans (<30 days)	90.0%	89.7%	89.4%	89.1%	88.8%	88.5%
4	Past due 31-60 days	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
5	Past due 61-90 days	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
6	Past due 91-180 days	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
7	Past due more than 180 days	0.0%	0.3%	0.6%	0.9%	1.2%	1.5%
8	Loan Loss Provision *		1,547	1,856	1,642	1,540	1,221
9	Provisioning as % of disbursements		1.9%	2.2%	1.9%	1.7%	1.3%
10	Loan Write-off		0	0	0	0	8,907
11	Write-off as % of portfolio		0.0%	0.0%	0.0%	0.0%	1.8%
	Note: Enter reserve as a positive number						
12	Ending Loan Loss Reserve	20,000	21,547	23,403	25,046	26,585	27,808
13	Loan Loss Reserve Ratio	4.0%	4.2%	4.5%	4.8%	5.0%	3.9%

write-off rates will not take effect until after the next period in which loans are written off.)

Microfin uses the portfolio at risk and loan write-off rates to project portfolio quality. Immediately after a period in which loan write-offs occur,⁵ the percentage of loans in the fifth aging category (line 7) is set to zero and that for current loans (line 3) is set to the target established for portfolio at risk (90 percent in the example). The remaining portfolio (10 percent) is distributed among the middle aging brackets using the distribution percentages established on the INST.CAP. page. The model assumes that the quality of the portfolio gradually deteriorates between write-offs, and moves loans into the unrecoverable category (line 7) at the rate determined by the annual loan write-off rate. As a result of this deterioration, the percentage of current loans decreases (dropping to 87.9 percent), returning to 90 percent once the next write-offs are made. The result is a “sawtooth” pattern for portfolio at risk like those typical for financial institutions, with the size of the “teeth” dependent on the quality of the loan portfolio and the frequency of write-offs.

CASE STUDY BOX 12

Projecting FEDA's loan loss provisioning

FEDA estimated that its portfolio at risk for more than 30 days would be 10 percent. It had estimated write-offs of 3.5 percent of its portfolio for 1997, and decided to use this write-off rate for all future projections. The loan loss reserve as of 31 December 1997, found on the balance sheet, was 20,000 freeons.

Once the model determines the aging for a particular month, it uses the provisioning rates from the INST.CAP. page to determine the appropriate ending reserve (line 12). Establishing more conservative (higher) provisioning rates will result in a higher ending reserve and thus higher monthly provisions on the institution's income statement.

Once Microfin has determined the necessary ending reserve, it calculates the monthly provision as:⁶

$$\begin{array}{r}
 \text{Ending reserve from the current period} \\
 - \text{Ending reserve from the previous period} \\
 + \text{Write-offs during the current period} \\
 \hline
 \text{Required provision for the current period}
 \end{array}$$

Microfin shows the month's provisioning as a percentage of the month's disbursements (line 9). And it shows the ending reserve as a percentage of the outstanding portfolio (line 13). This ratio, referred to as the LOAN LOSS RESERVE RATIO, follows the sawtooth pattern mentioned above.

The initial loan loss reserve (or the reserve designated for the branch, if multiple branches are being modeled) must be input in the INITIAL BALANCE column of line 12. Unlike the balance sheet entry on the MODEL SETUP page, here the reserve is entered as a *positive* number. If the institution's provisioning policies differ significantly from those used in Microfin, the model might consider the institution "overprovisioned" and would calculate a negative provision in month 1. This adjustment might result in spikes in several graphs and ratios. To avoid these spikes, users may prefer to adjust the loan loss reserve in the initial balance sheet on the MODEL SETUP page.

6.3.4 Loan officer analysis

Loan officers, who typically make up more than half the staff of a microfinance institution and originate and monitor all lending activity, are vital to the success of the institution. Microfin therefore singles out this staff position for extensive analysis. The loan officer projections are among the most complex parts of Microfin, and a detailed explanation of the CONTROL VARIABLES that drive the projections is warranted (figure 6.5).

Many approaches to planning and financial modeling in microfinance institutions start with the loan officers. Managers set targets for the number of loan officers on staff in a particular month. Estimates of the number of loans that can be processed by each officer then drive the portfolio projections. As seen in the last chapter, however, Microfin is a "market-driven" model that bases portfolio projections on an estimate of the market size and the targeted market penetration. The institutional resources and capacity analysis then focuses on determining how many loan officers are required to reach the portfolio targets.

FAQ 29

Our loan officers work with multiple products. How can we determine the full-time-equivalent caseload?

For institutions with a single loan product or whose loan officers work with a single product, loan officer projections are straightforward. But institutions whose loan officers work with more than one loan product must determine the number of full-time-equivalent (FTE) senior loan officers as if these officers were working with single products in order for Microfin to make reliable projections.

Microfin needs to know the FTE caseload for each product. For example, product 1 may have an FTE caseload of 400 and product 2 an FTE caseload of 100. The average senior loan officer may currently work with 300 clients, but this caseload would change if the product mix were to change. If it is projected that the number of clients for product 2 will increase relative to those for product 1, the average caseload will drop.

Optimal FTE caseloads are best determined by careful time allocation studies and analysis of products' lending methodology.⁷ But estimates can be made by determining what percentage of a loan officer's time is spent with clients for each loan product. Take the example of an average senior loan officer who works with 250 clients, 200 for product 1 and 50 for product 2. If the loan officer estimates that product 1 clients take 60 percent of work time and product 2 clients the remaining 40 percent, the FTE caseloads, determined by dividing the number of clients by the percentage share of work time, are 333 for product 1 and 125 for product 2.

Estimating full-time-equivalent caseloads

	Clients	Percentage share of work time	FTE caseload
Product 1	200	60	333
Product 2	50	40	125
Total	250	100	

Calculations of FTE caseloads should always be compared with best practice targets for microfinance institutions with comparable lending methodologies and types of clients.

The fundamental concept in the **LOAN OFFICER ANALYSIS** is that loan officers work with an identifiable caseload, or number of active loans. A target caseload is entered in the model for each loan product (line 7). This caseload can be varied monthly, for example, to project an increase resulting from modifications to lending procedures or from staff training. The target caseload should be that expected for an experienced loan officer, the goal that field staff are expected to reach, rather than the average caseload derived by dividing the number of clients by the number of loan officers. Where loan officers work with multiple products, the caseload for a product should be stated as a full-time-equivalent (FTE), the caseload an officer would reach if working only with that product (see FAQ 29).

Microfin distinguishes three levels of experience for loan officers—entry, intermediate, and senior level—and allows users to identify the productivity for each level, expressed as a percentage of the caseload achieved by a full-time-equivalent senior officer (entered in lines 1 and 2 of the **PERCENT FTE CASELOAD** column). Users also estimate the time it takes for a loan officer to receive **PROMOTION** from one level to the next. In the example in figure 6.5 entry-level officers work with a caseload of 175 clients (50 percent of 350) for six months, after which time they are promoted to intermediate level, where they work with a caseload of 260 (75 percent of 350). After another six months they are promoted to senior level, where they work with a full caseload of 350 clients.

Three more control variables are used in the projections. The **AVERAGE LONGEVITY (IN YEARS)** for loan officers indicates the average time staff serve

in that position before quitting, being fired, or being promoted to a different position (line 4). This variable will be used to project staff attrition later in the analysis. Most microfinance institutions prefer to cluster the hiring of new loan officers in order to coordinate introductory training. The **MINIMUM HIRING SIZE** variable will be used to group hiring when the projections determine that additional loan officers are needed (line 5). Because of staff orientation, training, and apprentice periods, loan officers often need to be hired some time before they begin working with clients on their own. The **MONTHS TO HIRE IN ADVANCE OF NEED** variable takes account of this.

CASE STUDY BOX 13

Setting the control variables for FEDA's loan officer projections

FEDA's lending methodology permits experienced field staff to work with a caseload of 350 clients. So its staff entered this caseload size in the MONTH 1 column of line 7. Loan officers generally take 12 months to move up to the senior level and a full caseload (entered as 6 months in each of the two PROMOTION cells). Beginning staff generally work with 50 percent of a full caseload, and intermediate staff with 75 percent (entered in the two PERCENT FTE CASELOAD cells).

FEDA has had problems with staff turnover because of low salaries. Because management intends to address the salary issue in fiscal 1998, it expects loan officers' average longevity, the length of time before staff leave or are promoted to other positions, to be five years (entered in line 4).

FEDA generally hires new loan officers in groups of at least three in order to coordinate staff orientation and training. Staff entered this MINIMUM HIRING SIZE in line 5. Loan officers normally are treated as trainees for two months, during which time they learn about the institution and work alongside experienced staff. Staff reflected this period as MONTHS TO HIRE IN ADVANCE OF NEED in line 6.

At the end of 1997 FEDA had 13 loan officers, 5 of whom had been with FEDA for nine months, and 8 for more than a year. Staff entered these numbers in the INITIAL BALANCE column of lines 13-15.

Note: The analysis of loan officer hiring levels is covered in case study box 14.

FIGURE 6.5

Defining control variables for the loan officer analysis

		Initial	1	2	3	4
		#	Jan-98	Feb-98	Mar-98	Apr-98
Loan Officer Analysis						
Control variables						
1	Entry level					
2	Intermediate level					
3	Senior level					
4	Average longevity (in years)	5.0	Length of time the average Loan Officer works before le			
5	Minimum hiring size	3	Hire in groups of this size or greater to minimize hiring f			
6	Months to hire in advance of need	2	The "targeted" number of staff on Line 9 is determined t			
For Solidarity Group Loans						
7	Optimal Loan Officer caseload	Help	NOTE: This should be the caseload figure that experien			
	Data input	-	350			
	Data used in calculations		350	350	350	350
8	FTE Senior Officers for projected loans		10.5	10.7	11.0	11.2
9	FTE Senior Loan Officers (targeted)		11.0	11.2	11.5	11.7
Total targeted staffing						
10	FTE Senior Loan Officers (targeted)		11.0	11.2	11.5	11.7

Once the control variables are established, the model can begin to determine the staffing levels that will be needed. It divides the number of active loans for each month (from the LOAN PRODUCT OUTPUT section) by the target caseload for that month to determine the number of FTE SENIOR OFFICERS FOR PROJECTED LOANS (line 8). This number indicates how many officers would be required if all officers were senior level and worked exclusively with this loan product. Line 9 then indicates the targeted number of FTE senior officers by looking ahead the number of months indicated by the MONTHS TO HIRE IN ADVANCE OF NEED variable. Figure 6.5 shows that FEDA must have 11 FTE senior officers in January to meet the projected demand two months later, in March. Once the number of targeted FTE senior officers is derived for all active loan products, these targets are summed in line 10.

The next part of the LOAN OFFICER ANALYSIS projects the number of loan officers at each experience level and the hiring schedule (figure 6.6). Users must first enter the number of existing loan officers in the INITIAL BALANCE column of lines 13–15, dividing staff among the three categories of experience established in lines 1–3. The number of full-time-equivalent officers is calculated in line 26 and then compared with the targeted level calculated in line 9 (and repeated in line 27). Any shortfall or excess is stated in line 28 and displayed graphically in the

FIGURE 6.6

Calculating loan officer staffing levels

	Initial	1	2	3	4	5
	#	Jan-98	Feb-98	Mar-98	Apr-98	May-98
		HINT: Put 0s in months where you don't want to hire -- This will cluster hiring in				
New hiring and transfers in						
11 Suggested hiring of entry level Officers	Help	-	-	-	-	-
12 Override on entry level hiring	2	1				
13 Entry level		1	-	-	-	-
14 Intermediate level	-	5				
15 Senior level	-	8				
Layoffs and Transfers out						
16 Entry level	-					
17 Intermediate level	-					
18 Senior level	1					
19 Loan Officer attrition						
Promotions						
20 Entry level to intermediate level		-	-	-	-	-
21 Intermediate level to senior level		-	-	-	-	-
Staffing levels by category						
22 Entry level		-	1	1	1	1
23 Intermediate level		5	5	5	5	5
24 Senior level		8	8	8	8	8
25 Number of Loan Officers *		13	14	14	14	14
Analysis						
26 FTE Loan Officers (calculated)	View Graph	11.8	12.3	12.3	12.3	12
27 FTE (targeted -- from calculation above)			11.0	11.2	11.5	11.7
28 Shortfall or excess			1.3	1.0	0.8	0
29 Capacity analysis			+	+	+	.
30 Caseload per Loan Officer *		277	263	269	274	281
31 Portfolio per Officer		38,769	37,073	37,863	38,371	38,761
32 Loans disbursed per Officer per month			25	26	26	26

CASE STUDY BOX 14

Projecting FEDA's program staff

At the program level at the end of 1997 FEDA had 13 loan officers, 1 credit supervisor, 1 bookkeeper, and 1 operations manager. On the PROGRAM page FEDA's staff entered this information in the INITIAL BALANCE column of the PROGRAM-LEVEL STAFFING section. They decided to use Microfin's automated staffing projections feature. And in the NUMBER OF BRANCHES section they indicated that a second branch would open in August 1998.

Then they returned to the INST.CAP. page to fill in the section for automating staffing projections:

- They decided to hire one credit supervisor for every 12 loan officers and to round up as soon as the number of supervisors reaches 0.3 (that is, a second supervisor would be hired with the 16th loan officer, since $16/12 = 1.3$).
- They decided to hire one branch manager and one bookkeeper for each branch that opens.
- They decided to hire a teller for every 4,000 borrowers and for every 6,000 depositors and to round up at 0.2. They entered these numbers in the appropriate columns.
- Two security guards would be hired for each branch starting in year 4. They entered 0.5 to reflect these plans (that is, to indicate that a security guard would be hired for each 0.5 of a branch).

The staff moved back to the PROGRAM page, hit F9, and examined the results. The projections showed that the number of credit supervisors would start at one and increase to four in year 5 as loan officers are hired. This seemed logical, as did the calculations for branch managers, which showed that a second one would be hired when the second branch opens. Projections showed that another bookkeeper would also be hired then. However, Microfin projected the hiring of tellers starting in month 1 even though FEDA would not initiate teller services until year 4. So the staff entered zeroes in the input section for tellers and for security guards from month 1 through the first quarter of year 4 to override the automatic projection. Hitting F9, they saw their changes take effect: Microfin recommended hiring four tellers and four security guards in year 4 and three more tellers by the end of year 5.

Since the credit supervisor and branch manager positions would be filled by promoting existing loan officers, the staff returned to the LOAN OFFICER ANALYSIS section and indicated a LAYOFF OR TRANSFER OUT of three senior loan officers in August 1998 (input as 3 rather than -3). On recalculating the model, they noticed that it was projecting loan officer hires for four consecutive months starting in July 1998, to compensate for the promotions and the staffing of the new branch office. They decided to group the hiring in August. So they entered 0 in the July column to delay hiring and 10 in the August column indicating the addition of 10 new loan officers in that month.

Research during strategic planning had showed that salaries would need to rise by 20–25 percent to be competitive. Management decided to raise all salaries by 20 percent in January 1998 and then to increase them annually by inflation. The staff projected the monthly cost for each position (including salaries, benefits, and payroll taxes) effective in January 1998 and entered this information in the MONTH 1 column (case study box table 14.1). The model would then automatically increase the salaries by the inflation rate in the first month of each fiscal year.

(Box continues on next page)

FAQ 30

Why does the model indicate significant over- or undercapacity in loan officers?

Microfin performs loan officer calculations in such a way that it should never show undercapacity (represented by -!) unless the user has overridden automated scheduling of hiring by inputting zeroes in line 12 (see figure 6.6).

But there are several situations in which the model might show significant overcapacity. If the entry-level capacity (caseload) is set low, the model may project the hiring of a large number of officers to meet current demand. As these officers are promoted, their capacity may increase faster than the number of active clients, resulting in overcapacity. To minimize this effect, Microfin requires the entry-level caseload to be at least 25 percent of the FTE caseload.

Overcapacity can also result when increasing caseloads are projected in line 7 (see figure 6.5). If staff productivity is projected to increase more rapidly than active clients, the model will indicate overcapacity. In this situation it may be logical to shift loan officers to other positions or to lay off officers.

The model may also signal overcapacity if the number of active clients is projected to stagnate or decline. If demand has been accurately forecast, it may again be necessary to transfer or lay off officers.

FAQ 31
How can I model staff incentive pay in Microfin?

Linking staff compensation to performance is an effective way to promote increased productivity and quality. But Microfin cannot, of course, determine whether individual staff are meeting targets established for incentive pay schemes. So users need to estimate average incentive bonuses and incorporate them in the average monthly salary and benefit cost.

CASE STUDY BOX 14

Projecting FEDA's program staff (continued)

CASE STUDY BOX TABLE 14.1

Projected monthly cost of FEDA's program staff, January 1998
 (freeons)

Staff position	Cost
Loan officer, entry level	270
Loan officer, intermediate	360
Loan officer, senior	450
Credit supervisor	450
Branch manager	525
Bookkeeper, teller, security guard	270

Since the new branch manager, bookkeeper, teller, and security guard would all start in later months, the staff entered the relative salaries for fiscal 1998 for these positions in the MONTH 1 column of the salary section. The salaries would be automatically adjusted for inflation and converted to their quarterly equivalents, but no costs would be added to expenses until there are staff in these positions.

green band in line 29. Overcapacity is indicated by the symbol +! for each full-time equivalent, and shortfalls by -!. If a shortfall is projected, Microfin automatically recommends hiring new loan officers, suggesting a number in line 11 at least as high as the minimum hiring size indicated in line 5.

The suggested number can be manually overridden in line 12. For example, if rapid growth prompts Microfin to suggest hiring in two consecutive months, this hiring can be grouped in the first month by entering the total number of hires in that month, or postponed until the second month by entering zero in the first month. Because of the way Microfin is designed, a shortfall should never appear in lines 28 and 29 unless the user has manually overridden in line 12 the hiring schedule suggested by Microfin in line 11.

For each month Microfin performs calculations relating to the promotion and attrition of loan officers. Promotion is calculated by comparing the length of employment with the data entered in lines 1 and 2. For example, if promotion from entry to intermediate level takes six months, a new hire in month 1 will be moved to the intermediate level in month 7. Attrition is based on the AVERAGE LONGEVITY in line 4. Each period Microfin tabulates the number of person-months worked; when this total exceeds the average longevity, the model reduces the number of senior loan officers by the estimated attrition. If undercapacity would result, it suggests hiring entry-level officers.

The last input lines in this section, under LAYOFFS AND TRANSFERS OUT, allow users to project intentional reductions in the number of loan officers at each level (lines 16–18). Layoffs and transfers should be entered as positive numbers. If the number entered for a level exceeds the number of loan officers at that level, an

error message will appear above line 16. Use of the LAYOFFS AND TRANSFERS OUT lines should be limited to cases of significant and prolonged overcapacity (such as two or more officers for more than 3 consecutive months) or planned transfers over the next 12 months (for example, the transfer of a senior loan officer to the position of manager of a new branch). Despite the sophistication of the LOAN OFFICER ANALYSIS section, the numbers derived are still estimates, and indications of slight overcapacity or undercapacity can generally be ignored when preparing the operational plan.

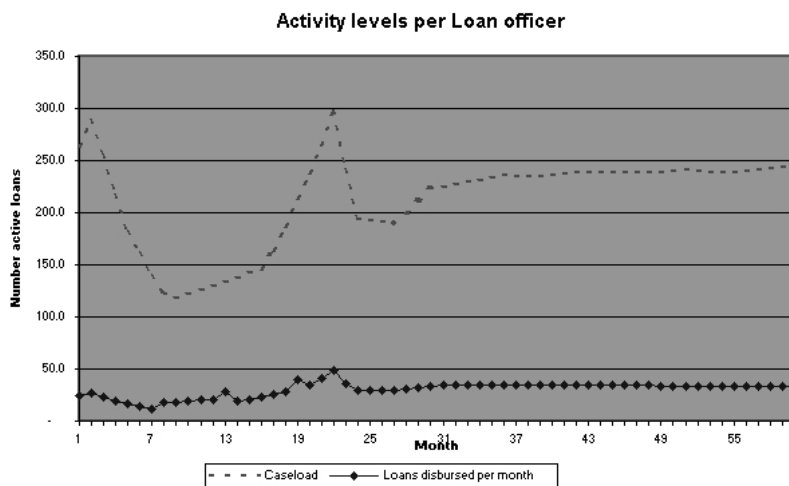
The section concludes with three staff productivity ratios, which should be carefully reviewed once input is complete. Graphs of two of these, CASELOAD PER LOAN OFFICER (which is based on the actual number of loan officers, not the number of full-time-equivalent senior officers) and LOANS DISBURSED PER OFFICER PER MONTH, can be viewed by clicking on the VIEW GRAPH button (figure 6.7).

The long-term average caseload never reaches the optimal caseload because it is rare for all of an institution's loan officers to reach senior level. Microfin tracks loan officers by level of experience for years 1 and 2 but shifts to an averaging method in years 3–5, estimating the average caseload as midway between the caseloads of intermediate-level and senior loan officers.

6.3.5 Number of branches

This short section, where users enter the projected number of branches, is exposed in the consolidated mode and in the regional modeling mode. It is hidden in the branch modeling mode. The number of branches input here is used in automated staffing and expense calculations, which link staffing and expense projections to the number (see sections 6.3.6 and 6.3.7).

FIGURE 6.7
Graphing staff productivity ratios



6.3.6 Program-level staffing

Once Microfin has completed the loan officer projections, it moves on to projections of other program staff. These projections are completed in the PROGRAM-LEVEL STAFFING section of the PROGRAM/BRANCH page. However, users who have opted for automated projections of staffing will need to return to the STAFFING INFORMATION section of the INST.CAP. page to establish the necessary links (see the explanation below).

JOB DESCRIPTION AND NUMBER

Here and elsewhere in the PROGRAM-LEVEL STAFFING section job titles are pulled from the INST.CAP. page. Users need to input the number of existing staff in each position in the INITIAL BALANCE column, under line 1 (figure 6.8). Positions that are split between program and administrative functions can be entered as a fraction, for example, 0.5 for a half-time position (see FAQ 27). Any projected changes in staffing for each position can be entered in subsequent months. Total staffing levels are presented below line 2.

FIGURE 6.8

Setting up program-level staffing projections

Show/Hide Detail		Graphs		Initial	1	2	3	4
		#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	
Program-level Staffing		Note: Job titles are input on the Inst.Cap. page						
		Step 1: Enter initial number of staff in "initial balances" column						
1 Job description and number [INPUT]		Step 2: Enter any changes in staffing in the "job description and num						
	Loan Officers		13.0	13.0	13.0	13.0	13.0	13.0
	Credit Supervisor	-	1.0					
	Bookkeeper	-	1.0					
	Operations Manager / Branch Manage	-	1.0					
	Teller	28	0.0	0.0	0.0	0.0	0.0	0.0
	Security Guard	28	0.0	0.0	0.0	0.0	0.0	0.0
	[not used]	-						
	[not used]	-						
	[not used]	-						
	[not used]	-						
2 Job desc. and number [OUTPUT]								
	Loan Officers		13.0	13.0	13.0	13.0	13.0	13.0
	Credit Supervisor	Auto	1.0	1.0	1.0	1.0	1.0	1.0
	Bookkeeper	Auto	1.0	1.0	1.0	1.0	1.0	1.0
	Operations Manager / Branch Manage	Auto	1.0	1.0	1.0	1.0	1.0	1.0
	Teller	Auto	-	-	-	-	-	-
	Security Guard	Auto	-	-	-	-	-	-
	[not used]	Man	-	-	-	-	-	-
	[not used]	Man	-	-	-	-	-	-
	[not used]	Man	-	-	-	-	-	-
	[not used]	Man	-	-	-	-	-	-
3 Total number of branch employees *			16.0	16.0	16.0	16.0	16.0	16.0
Analysis		View Graph						
4 Loan Officers as % total branch staff			81%	81%	81%	81%	81%	81%
5 Active loans per branch staffperson *			225	230	234	239	244	
6 Optional user-defined analysis ratio								

OPTIONAL AUTOMATION OF STAFFING PROJECTIONS

Microfin allows users to automate projections of staffing levels by linking the number of staff in a position to projections for one or more of the following: number of loan officers, number of borrowers, number of depositors, or number of branches (figure 6.9). These links are established on the INST.CAP. page, in the STAFFING INFORMATION section, since the same links must apply to all the branch pages. The number entered as the link establishes the ratio. For example, if the target is one credit supervisor for every 12 loan officers, the number 12 should be entered in the OFFICERS column. The ROUND UP column can be used to determine when Microfin will recommend hiring the next staff person. For example, if the ratio is one credit supervisor for every 12 loan officers and 18 loan officers are projected for a particular month, there should be 1.5 credit supervisors. If the ROUND UP column is set to 0.3, this number would be rounded up to 2.0, since 0.5 is greater than 0.3.

When more than one link is established, the ratios are calculated and then added to derive the total number of staff. For example, if an institution has 12,000 borrowers and 8,000 depositors and the link for tellers is established at 4,000 for each, as shown in figure 6.9, the model will project a need for five tellers (three for borrower activity and two for depositor activity).

Users can choose to automate only a few staff positions. If a link is established anywhere for a staff position, the message AUTO will appear on the left in the section of the PROGRAM page shown in figure 6.8; otherwise the caption will read MAN. And users can override automated staffing projections by entering numbers in the input section on the PROGRAM/BRANCH page, as is done for tellers in figure 6.8. Manual overrides must be done month by month; if no number is entered in the input section, the automation starts again.

ANALYSIS

Back in the PROGRAM-LEVEL STAFFING section of the PROGRAM/BRANCH page, the ANALYSIS shows two ratios—LOAN OFFICERS AS A PERCENTAGE OF TOTAL BRANCH STAFF (line 4), and ACTIVE LOANS PER BRANCH STAFF PERSON (line 5) (see figure 6.8). There is an additional line for a user-defined ratio (line 6). Users can click on the VIEW GRAPH button to view the program staff composition (figure 6.10) and the caseload per program staff person.

FAQ 32

How do I account for economies of scale when using automated projections of staffing and expenses?

It is often assumed that as a microfinance institution scales up, it will become more efficient and thus profitable as a result of economies of scale, or the ability to spread its overhead costs over a larger operational base. The impact of economies of scale can be monitored through the operating cost ratio, which compares total operating costs with the institution's assets (see section 8.5.4). Evidence shows that most economies of scale are captured at a level of 5,000–10,000 active clients. Further growth requires proportional investment in administrative support to maintain the quality of service.

Microfin's automation features help users make realistic projections of expenses by clearly linking expense line items to key activities. For example, branch manager salary costs and branch rent will always increase linearly with the number of branches, but if branch activity is projected to increase, these costs will be distributed over a larger asset base, resulting in economies of scale.

(Text continues on next page)

FIGURE 6.9

Automating staffing projections

Program-level Staffing	Link to none or any combination of the following				
	Officers	Borrowers	Depositors	Branches	Round up
Loan officer					
Credit Supervisor	12.0				0.3
Op Manager / Branch Manager				1.0	
Bookkeeper				1.0	
Teller		4,000	4,000		0.2
Security Guard					

FIGURE 6.10
Graphing the composition of program staff



FAQ 32 (CONTINUED)

Microfin's automation capabilities allow only one base value for the five-year projection period, however, which can be limiting in some cases. For example, if the number of loan officers is projected to double, will larger branch offices need to be rented, increasing rental expense per branch? If so, a combination of automation and manual overrides could be used. For somewhat less precise results, rental expense could be projected to increase at a rate greater than inflation to account for increasing costs per branch. Or expenses could be projected to increase by less than inflation to reflect economies of scale.

Microfin provides a means for automating the projection of other operational expenses similar to that used for staffing. On the INST.CAP. page users can link operational expenses to a percentage of monthly or annual inflation, the number of loan officers, the number of program staff, the number of borrowers, the number of depositors, the number of branches, or a combination of these (see figure 6.14). The link to inflation can be used independent of other links; in this case the model applies the inflation adjustment to whatever amount is entered manually in the input section for operational expenses on the PROGRAM page (see figure 6.13). Automated projections may also be overridden by using the input section but the overrides must be input month by month; if no number is entered in the input section, the automation starts again.

MONTHLY SALARY AND BENEFITS PER PERSON [INPUT]

Calculation of staffing costs begins with input of the monthly salary and benefits per staff person (figure 6.11). The monthly cost for each staff position should be determined by adding all annual costs associated with it—salary, insurance, payroll taxes, bonuses, pension, and all other benefits—and dividing the total by 12. The result should be input in the blue cells in the MONTH 1 column. Any expected changes in salary and benefit costs can then be entered in future months using the gray cells.

If the SALARY AND BENEFITS ADJUSTMENT option has been enabled on the INST.CAP. page, salaries will be automatically adjusted by inflation, plus or minus any additional percentage indicated, in the first month of each fiscal year (see section 6.2.4). These automatic increases can be overridden by entering an amount in the gray cells, an option that might be chosen if, for example, the salary for a certain staff position is expected to increase at a different rate than those for other staff positions.

It is recommended that users enter monthly costs in the MONTH 1 column even for a staff position that is unfilled. Doing so will enable Microfin to automatically adjust the salary each year so that when the staff position is filled, the starting salary will be in line with those of staff in other positions.

MONTHLY SALARY AND BENEFITS PER PERSON [OUTPUT]

This section shows the monthly (and, as of year 3, the quarterly) costs for each staff position, pulling down information from the input section and performing any specified annual adjustments. In the input section monthly values should always be entered; the output section automatically converts salaries to their quarterly equivalents for years 3–5.

FIGURE 6.11

Calculating program staffing expenses

<input type="button" value="Show/Hide Detail"/>		<input type="button" value="Graphs"/>		#	Initial	1	2	3	4	5
				Balance	Jan-98	Feb-98	Mar-98	Apr-98	May-98	
7	Monthly Sal&Ben per person [Input]	<input type="button" value="Help"/>	NOTE: Salaries are automatically increased each year, as indicated c							
	Loan Officers, Entry level	-			270					
	Loan Officers, Intermediate level	-			360					
	Loan Officers, Senior level	-			450					
	Credit Supervisor	-			450					
	Bookkeeper	-			270					
	Operations Manager / Branch Manage	-			525					
	Teller	-			270					
	Security Guard	-			270					
	[not used]	-								
	[not used]	-								
	[not used]	-								
	[not used]	-								
8	Monthly Sal&Ben per person [Output]	Note: This following are the "per staffperson" figures								
	Loan Officers, Entry level				270	270	270	270	270	270
	Loan Officers, Intermediate level				360	360	360	360	360	360
	Loan Officers, Senior level				450	450	450	450	450	450
	Credit Supervisor				450	450	450	450	450	450
	Bookkeeper				270	270	270	270	270	270
	Operations Manager / Branch Manager				525	525	525	525	525	525
	Teller				270	270	270	270	270	270
	Security Guard				270	270	270	270	270	270
	[not used]				-	-	-	-	-	-
	[not used]				-	-	-	-	-	-
	[not used]				-	-	-	-	-	-
	[not used]				-	-	-	-	-	-
9	Total salary and expenses	Note: The following multiplies number of staff by the "per staffperson" salaries								
	Loan Officers				5,400	5,400	5,400	5,400	5,400	5,400
	Credit Supervisor				450	450	450	450	450	450
	Bookkeeper				270	270	270	270	270	270
	Operations Manager / Branch Manager				525	525	525	525	525	525
	Teller				0	0	0	0	0	0
	Security Guard				0	0	0	0	0	0
	[not used]				0	0	0	0	0	0
	[not used]				0	0	0	0	0	0
	[not used]				0	0	0	0	0	0
	[not used]				0	0	0	0	0	0
10	Total branch salary and benefits *				6,645	6,645	6,645	6,645	6,645	6,645

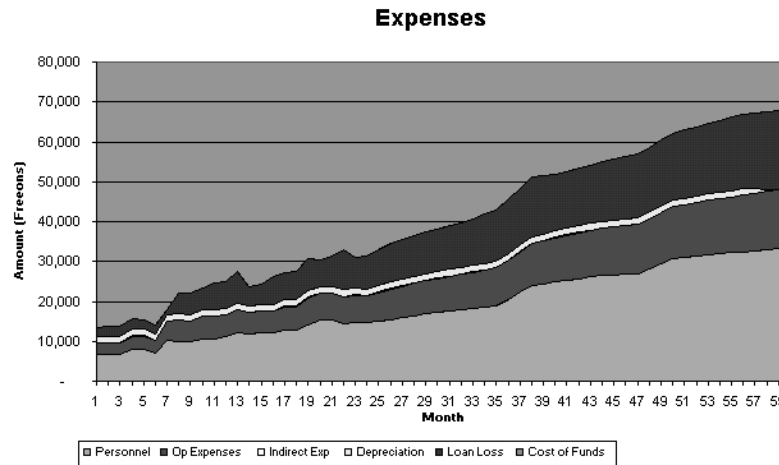
TOTAL SALARY AND EXPENSES

This section multiplies the number of staff in each position by the cost per staff person, showing the total cost in line 10. The results can be displayed graphically by clicking on the VIEW GRAPH button (figure 6.12).

ADJUSTMENT FOR ACCRUED EXPENSES

If the option ADJUSTMENTS TO CASH FLOW ANALYSIS has been enabled on the INST.CAP. page (see section 6.2.1), a final section will appear (lines 11–14). This section allows users to indicate (on line 11) what amount of the expenses calculated in line 10 is cash expenses for the period. Payouts on accruals are entered in line 13, and the balance of accrued staff expenses is shown in line 14 and carried forward to the balance sheet.

FIGURE 6.12
Graphing total program expenses



6.3.7 Program-level other operational expenses

The PROGRAM-LEVEL OTHER OPERATIONAL EXPENSES section calculates all expenses at the program level other than financial costs, loan loss provisioning, personnel, and depreciation (figure 6.13). The first section, PROGRAM OTHER OPERATIONAL EXPENSES [INPUT], allows input of the monthly expenses for the categories specified on the INST.CAP. page. These amounts are transferred to the PROGRAM OTHER OPERATIONAL EXPENSES [OUTPUT] section and carried forward until a change is made in the input section. If an expense is paid at other intervals, the monthly expense should be entered here in order to produce a reliable monthly income statement; for example, if rent of 1,200 is paid annually, this should be entered as a monthly expense of 100. In years 3–5 monthly amounts are converted to quarterly amounts in the output section.

Line 2 allows users to input a value or rate for projecting miscellaneous expenses. The model interprets a number less than 1.00 as a percentage of all other operational expenses, and a number greater than 1.00 as a fixed monthly amount. The result is shown in line 5. Total expenses are summed in line 6, and lines 7–10 allow users to adjust cash expenses for accrued and prepaid expenses if the ADJUSTMENTS TO CASH FLOW ANALYSIS option has been enabled on the INST.CAP. page (see section 6.2.1 for an explanation of its use).

A common mistake in preparing financial projections is to underestimate future operational expenses, resulting in exaggerated estimates of profitability. Users choosing to project operational expenses without using the automation feature must provide for all changes in expenses, including those from inflation. Manual projections should be chosen only if a long-range budget has already been generated after careful thought, generally through a separate budgeting worksheet.

Microfin's automation capabilities allow only one base value for the five-year projection period, however, which can be limiting in some cases. For example, if

FIGURE 6.13

Projecting other operational expenses at the program level

		Initial	1	2	3	4	5	6	
		#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98
Program-level Other Op. Exp.									
				NOTE: Expense category descriptions are set on the Institutional					
				NOTE: Input monthly expense amounts in this section					
1	Program Other Op. Expenses, [Input]								
	Rent	-	Auto						
	Utilities	-	Auto						
	Transportation	-	Auto						
	General office expenses	-	Auto						
	Repairs, maintenance, insurance	-	Auto						
	[not used]	-	Manual						
	[not used]	-	Manual						
	[not used]	-	Manual						
	[not used]	-	Manual						
	[not used]	-	Manual						
	[not used]	-	Manual						
2	Misc. expenses (% or absolute)	-		0.08					
3	Misc. expenses (% or absolute)			8%	8%	8%	8%	8%	8%
4	Program Other Op. Expenses, [Output]								
	Rent		Auto	450	450	450	450	450	450
	Utilities		Auto	150	150	150	150	150	150
	Transportation		Auto	1,300	1,300	1,300	1,300	1,300	1,200
	General office expenses		Auto	640	645	650	655	661	624
	Repairs, maintenance, insurance		Auto	50	50	51	51	52	52
	[not used]		Manual	-	-	-	-	-	-
	[not used]		Manual	-	-	-	-	-	-
	[not used]		Manual	-	-	-	-	-	-
	[not used]		Manual	-	-	-	-	-	-
	[not used]		Manual	-	-	-	-	-	-
	[not used]		Manual	-	-	-	-	-	-
5	Miscellaneous expenses			207	208	208	209	209	198
12	Optional user-defined analysis ratio								

the number of loan officers is projected to double, will larger branch offices need to be rented, increasing rental expense per branch? If so, a combination of automation and manual overrides could be used. For somewhat less precise results, rental expense could be projected to increase at a rate greater than inflation to account for increasing costs per branch. Or expenses could be projected to increase by less than inflation to reflect economies of scale.

Microfin provides a means for automating the projection of other operational expenses similar to that used for staffing. On the INST.CAP. page users can link operational expenses to a percentage of monthly or annual inflation, the number of loan officers, the number of program staff, the number of borrowers, the number of depositors, the number of branches, or a combination of these (figure 6.14). The link to inflation can be used independent of other links; in this case the model applies the inflation adjustment to whatever amount is entered manually in the input section for operational expenses on the PROGRAM/BRANCH page (see figure

CASE STUDY BOX 15

Projecting FEDA's program-level other operational expenses

To generate projections of FEDA's program-level other operational expenses, the staff first distinguished program (or branch-level) from administrative expenses. Then they prepared budget estimates for the program-level expenses and entered these estimates in the PROGRAM-LEVEL OTHER OPERATIONAL EXPENSES [INPUT] section. Since they had opted for automated projections, they also input these expenses, along with the links, in the section for automated projection of expenses on the INST.CAP. page. (These inputs are in parentheses below.) Here is the information the staff entered in the model:

- Rent: 450 freeons per branch per month, increasing annually by inflation (450 in the branch column and 100 percent in the annual inflation column)
- Utilities: 150 freeons per branch per month, increasing monthly by inflation (150 in the branch column and 100 percent in the monthly inflation column)
- Transportation: 100 freeons per loan officer per month, increasing monthly by 80 percent of inflation (100 in the officers column and 80 percent in the monthly inflation column)
- General office expenses: 40 freeons per employee per month, increasing monthly by inflation (40 in the program staff column and 100 percent in the monthly inflation column)
- Repairs, maintenance, and insurance: 50 freeons per branch per month, increasing monthly by inflation (50 in the branch column and 100 percent in the monthly inflation column)
- Miscellaneous: 8 percent of total program-level other expenses. (This information is input on the PROGRAM page.)

6.13). Automated projections may also be overridden by using the input section, but the overrides must be input month by month; if no number is entered in the input section, the automation starts again.

The examples in figure 6.14 demonstrate the use of the automation option. The cost of utilities is linked to 100 percent of monthly inflation and established at a base rate of 150 per branch. Each month the cost will be determined as 150 times the number of branches times the cumulative inflation index since month 1 (the inflation index comes from the MODEL SETUP page). For a branch that opens in year 2 the model will begin projecting the cost of utilities not at 150 per

FIGURE 6.14

Automating projections of other operational expenses at the program level

Program-level Operational Expense	Link to inflation		Link to none or any combination of the following				
	Monthly	Annually	Officers	Prog Staff	Borrowers	Depositors	Branches
Rent		100%					450.00
Utilities	100%						150.00
Transportation	80%		100.00				
General office expenses	100%			40.00			
Repairs, maintenance, and insurance	100%						50.00

month, but at the inflation-adjusted amount. Rent is linked to 100 percent of the annual inflation rate and established at 450 per branch. Thus in each month the rent will be determined as 450 times the number of branches; it will remain constant for the first 12 months and then increase in the first period of each fiscal year by the annual inflation index. Transportation expenses are projected to increase by less than the inflation rate, 80 percent in this case.

Careful thought should be given to each expense category to ensure that future projections reflect necessary investments. Line 11 assists by generating the ratio of program other operational costs to the portfolio, an indicator that can be used to gauge the accuracy of cost projections (see figure 6.13). If this ratio declines substantially, operating expenses have probably been underestimated. Line 12 allows input of an optional user-defined ratio. Clicking on the VIEW GRAPH button will display the first of several expense graphs that should be studied in conjunction with generating operational expense projections (see figure 6.12).

6.3.8 Program-level fixed assets

The PROGRAM-LEVEL FIXED ASSETS section has two purposes: to allow users to approximate depreciation costs and to help them develop a plan for fixed asset acquisition and ensure that funding is available for that purpose. Like the projections for staffing and for other operational expenses, the fixed asset analysis combines basic information input on the INST.CAP. page with information entered in this section. Users begin the analysis by inputting INITIAL BALANCE INFORMATION for the categories of fixed assets identified on the INST.CAP. page (figure 6.15).

In the first column the INITIAL PURCHASE VALUE should be entered for each line item, that is, the value as tracked on the gross fixed assets line of the balance sheet. These amounts are summed in line 2, and the ACCUMULATED DEPRECIATION (input as a negative amount in line 3) is then subtracted to yield the NET VALUE OF FIXED ASSETS. The sum of the amounts in lines 2–4 from all PROGRAM/BRANCH

FIGURE 6.15

Inputting initial balances for fixed assets

Initial Balance information	Initial Purch Value	Total Life (yrs)	Monthly Depreciation	Group 1		Group 2	
				Quantity	Remaining	Quantity	Remaining
					Life (yrs)		Life (yrs)
1 Computers	4,000	5.0	87	2	2.0		
General office furniture	1,000	7.0	12	1	3.0		
Employee furniture grouping	3,000	7.0	36	7	3.0	4	4.0
[not used]		5.0	0				
[not used]		5.0	0				
[not used]		5.0	0				
[not used]		5.0	0				
[not used]		5.0	0				
[not used]		5.0	0				
2 Total gross value	8,000		114				
3 Less: accumulated depreciation	(3,000)						
4 Net value of fixed assets	5,000						

CASE STUDY BOX 16

Inputting initial balances for FEDA's program-level fixed assets

FEDA's staff entered INITIAL BALANCE INFORMATION showing that the institution had the following fixed assets at the program level as of the end of 1997:

- Two computers purchased three years ago for a total value of 4,000 freeons, with a remaining life of two years
- One set of general office furniture purchased for 1,000 freeons four years ago, with a remaining life of three years
- Sixteen sets of employee furniture groupings, one for each employee, purchased for 3,000 freeons. Dividing these 16 sets into three groups by approximate age yielded seven units with three years remaining, four units with four years remaining, and five units with five and a half years remaining.

On these 8,000 freeons of fixed assets, FEDA had an accumulated depreciation of 3,000 freeons, which the staff entered as a negative number.

pages plus the ADMIN/HEAD OFFICE page must match the total value of fixed assets as shown on the initial balance sheet.

The model divides the INITIAL PURCHASE VALUE by the TOTAL LIFE, information previously entered on the INST.CAP. page, to estimate MONTHLY DEPRECIATION. Microfin calculates depreciation using the straight-line method, and the amount may not match the value in the institution's accounting system. But any differences in depreciation amounts should not be a serious concern, for two reasons. First, depreciation is a noncash expense and so has no implications for cash flow. Second, for a microfinance institution depreciation is generally a very small percentage of total expenses, so any differences here should have little impact on the institution's overall financial picture.

CASE STUDY BOX 17

Planning FEDA's fixed asset acquisition at the program level

FEDA decided to link each fixed asset category to a key output of the model in order to automatically generate its fixed asset acquisition schedule. Returning to the INST.CAP. page, the staff estimated that a branch office needed one computer for every eight staff. They chose a "round-up" factor of 0.3, so that each time the number of staff exceeds a multiple of 8 by 2.4 (8×0.3) they would purchase another computer.

They plan to purchase one set of general office furniture for each branch office and so entered 1.0 in the column. They set round-up at 0, meaning that they would purchase a set each time a branch opens.

They linked employee furniture groupings to the number of program staff, using a ratio of one unit of furniture for each staff person. They set round-up at 0, indicating that they would purchase a set each time an employee is hired.

Returning to the PROGRAM page, they carefully reviewed the information output—number of units acquired, total number of units, cost of acquisitions, and book value and depreciation totals. They studied the ratio that Microfin automatically generated, NET FIXED ASSETS PER BRANCH/PROGRAM STAFF PERSON, and decided that the projections seemed realistic.

FIGURE 6.16

Developing a plan for fixed asset acquisition

Show/Hide Detail		Graphs		8	9	10	11	12
		Aug-98	Sep-98	Oct-98	Nov-98	Dec-98		
Acquisition of fixed assets								
1	Number of units acquired - [INPUT]							
	Computers							
	General office furniture				4			
	Employee furniture grouping							
	[not used]							
	[not used]							
	[not used]							
	[not used]							
	[not used]							
2	Number of units acquired - [OUTPUT]	Fully depreciated initial balance assets.						
	Computers	2	-	-	-	-		
	General office furniture	1	-	-	4	-		
	Employee furniture grouping	9	-	2	-	-		
	[not used]	-	-	-	-	-		
	[not used]	-	-	-	-	-		
	[not used]	-	-	-	-	-		
	[not used]	-	-	-	-	-		
	[not used]	-	-	-	-	-		
	[not used]	-	-	-	-	-		
3	Number of units needing replacement	from Initial Balances section						
4	Total number of units							
	Computers	4	4	4	4	4		
	General office furniture	2	2	2	6	6		
	Employee furniture grouping	25	25	27	27	27		
	[not used]	-	-	-	-	-		
	[not used]	-	-	-	-	-		

Next, Microfin requires the input of the QUANTITY and REMAINING LIFE for each fixed asset category, so that it can project when these fixed assets should be replaced (in the ACQUISITION OF FIXED ASSETS section). For example, if there are currently three computers with a remaining life of two years, Microfin would project the purchase of three new computers at the end of two years, when these computers are fully depreciated. Since not all units would have been purchased at the same time, Microfin allows the initial quantities to be divided into three groups by age. For example, there might be five computers, two with three years remaining, two with one and a half years remaining, and one with half a year remaining. Microfin would then project replacement purchases at three distinct corresponding intervals.

The analysis continues with the strategy for ACQUISITION OF FIXED ASSETS (figure 6.16). The top section, NUMBER OF UNITS ACQUIRED [INPUT], allows users to manually input the number of units the institution plans to purchase in each fixed asset category. These quantities are then transferred down to the NUMBER OF UNITS ACQUIRED [OUTPUT] section.

Numbers may show up in the output section when the input section has been left blank (as in the months 8 and 10 columns in figure 6.16) for two reasons. First, Microfin may be projecting the replacement of existing fixed assets because of depreciation based on the information provided in the INITIAL BALANCE INFORMATION section. The number of units needing replacement in any month may be

FIGURE 6.18

Projecting the cost and value of fixed assets

<input type="button" value="Show/Hide Detail"/> <input type="button" value="Graphs"/>		8	9	10	11	12
		Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
Cost and Value of Fixed Assets						
Cost of new acquisitions						
1	Computers	2,105	-	2,132	-	-
	General office furniture	1,066	-	-	4,365	-
	Employee furniture grouping	1,918	-	433	-	-
	[not used]	-	-	-	-	-
	[not used]	-	-	-	-	-
	[not used]	-	-	-	-	-
	[not used]	-	-	-	-	-
	[not used]	-	-	-	-	-
2	Total cost of new fixed asset acquisitions	5,089	-	2,565	4,365	-
Undepreciated book value						
3	Computers	6,105	6,105	8,237	8,237	8,237
	General office furniture	2,066	2,066	2,066	6,431	6,431
	Employee furniture grouping	4,918	4,918	5,351	5,351	5,351
	[not used]	-	-	-	-	-
	[not used]	-	-	-	-	-
	[not used]	-	-	-	-	-
	[not used]	-	-	-	-	-
	[not used]	-	-	-	-	-
	[not used]	-	-	-	-	-
4	Total gross value	13,089	13,089	15,654	20,019	20,019
5	Less: accumulated depreciation	(3,985)	(4,170)	(4,395)	(4,673)	(4,950)
6	Net value of fixed assets	9,104	8,919	11,259	15,346	15,069
7	Estimated depreciation for the period	185	185	226	278	278
8	Estimated fixed assets per branch staff person	364	357	417	568	558
9	Optional user-defined analysis ratio					

the PROGRAM-LEVEL FIXED ASSETS section to allocate administrative nonfinancial costs identified on the HEAD OFFICE page (figure 6.19), using the allocation method identified on the INST.CAP. page (see section 6.2.3). The section shows the percentage of total administrative nonfinancial expenses allocated to the branch (line 2) as well as the actual amount (line 3). The costs shown will not be accurate until the HEAD OFFICE page has been completed.

6.3.10 Branch income statement and analysis

Again when multiple branches are being modeled, each branch page includes a complete income statement for the branch, pulling together all the information on the page. Financial services income is based on activity within the branch. Investment income, from the HEAD OFFICE page, is allocated using the same dis-

FIGURE 6.19
Allocating administrative nonfinancial costs

		Initial	1	2	3	4
		Balance	Jan-98	Feb-98	Mar-98	Apr-98
Administrative Non-Financial Cost Allocation						
1 Allocation method (reference)		NOTE: Administrative cost allocation method is selected or as % of branch direct non-financial expenses				
2 % of administrative non-financial expenses			100%	100%	100%	100%
3 Amount allocated to this branch			4,058	4,067	4,076	4,086
		NOTE: This section will not show realistic costs until Head				

tribution as for financial costs (see section 6.3.2). Clicking on the VIEW GRAPH button shows a graph of branch income and expenses over time (figure 6.20).

Each branch page concludes with an analysis of the branch income statement, showing each income and expense category as an annualized percentage of the branch’s outstanding loan portfolio. In the institutional analysis these ratios are based on either average total assets or average total performing assets, depending on the mode of projections chosen on the MODEL SETUP page. But since Microfin does not generate branch-level balance sheets, outstanding portfolio is used as the denominator at the branch level. Clicking on the VIEW GRAPH button shows the cost structure of the branch as a percentage of its portfolio (figure 6.21).

6.4 Projecting the administrative budget

The institutional resources and capacity planning process continues with the preparation of the administrative (or head office) budget on the ADMIN/HEAD

FIGURE 6.20
Graphing branch income and expenses

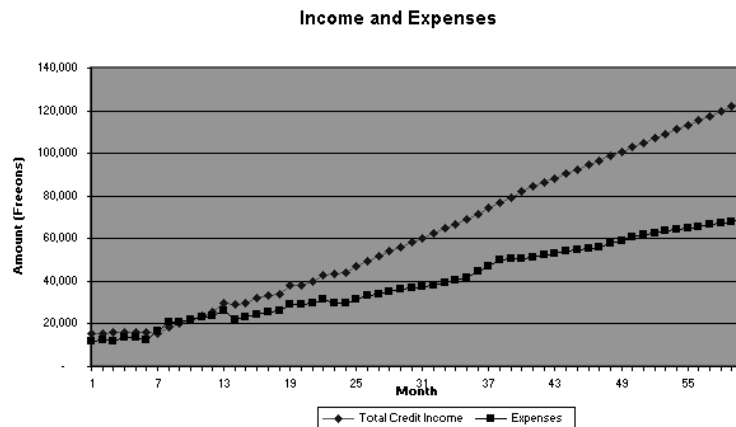
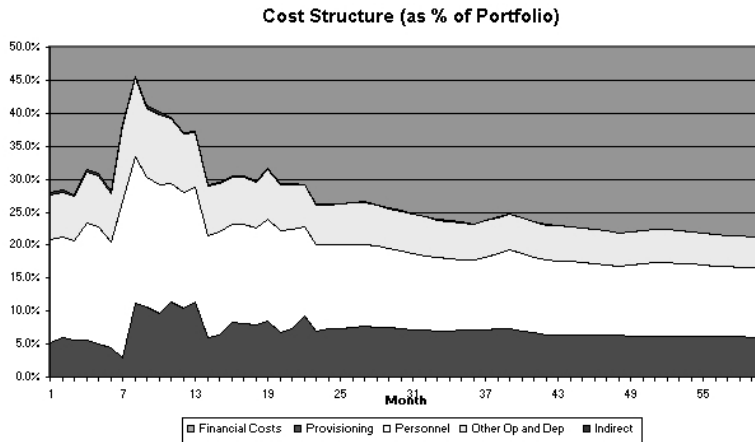


FIGURE 6.21
Graphing branch cost structure



OFFICE page. (The title of the page depends on the mode of projections chosen.)

The top of the page contains input sections for administrative expenses: staffing, other operational expenses, fixed assets, land and building analysis, other assets analysis, and in-kind subsidy analysis. The rest of the page aggregates credit, savings, income, and expense information for the institution as a whole. When consolidated modeling is being used, the aggregate information on the ADMIN page will duplicate the information on the PROGRAM page. But when multiple branches are being modeled, the HEAD OFFICE page will aggregate activity for all branch offices.

Information from the ADMIN/HEAD OFFICE page is depicted graphically on the AGGREG GRAPHS page. Many of the graphs are similar to those on the BRANCH GRAPHS page but show information for the institution as a whole.

6.4.1 Administrative-level staffing

The ADMINISTRATIVE-LEVEL STAFFING section is similar in structure to the staffing section on the PROGRAM/BRANCH page (though when expense projections are automated, there is an additional link between administrative staff and the total number of program staff). Please refer to section 6.3.6 for an explanation of how to complete the section.

6.4.2 Administrative-level other operational expenses

The ADMINISTRATIVE-LEVEL OTHER OPERATIONAL EXPENSES section also is similar in structure to the parallel section on the PROGRAM/BRANCH page. Projections of these expenses can be automated using the input boxes on the INST.CAP. page. Please refer to section 6.3.7 for an explanation of how to complete the section.

CASE STUDY BOX 18

Projecting FEDA's administrative staffing expenses

In 1997 FEDA's administrative staff consisted of an executive director, a finance manager, a secretary, and a runner. In addition, the institution plans to hire an MIS director to supervise the new management information system to be installed in year 2, a savings director in the last quarter of year 3 to prepare for the new services to be offered in year 4, and a human resources director at the beginning of year 2 to work with the growing number of staff. The staff decided to input these staffing patterns manually rather than use the automation feature of Microfin, since the positions would not be directly linked to levels of activity (that is, for example, there is one executive director for the institution, not one for every 50 staff members).

Just as for the program staff, the salaries of FEDA's administrative staff were considered about 20 percent below market rates, so they were included in the 20 percent salary increases effective January 1998. Taking into account the raise, the staff estimated monthly salary and benefit costs for administrative staff:

- Executive director: 750 freeons
- Finance manager: 540 freeons
- Secretary: 270 freeons
- Runner: 180 freeons.

They also estimated the costs for the new positions, at 1998 rates:

- Savings director: 450 freeons
- Human resources director: 400 freeons
- MIS supervisor: 450 freeons.

They entered all salaries in the MONTH 1 column, even those for staff positions not yet filled, so that the model would automatically adjust them each year for inflation.

CASE STUDY BOX 19

Projecting FEDA's other operational expenses at the administrative level

FEDA's staff prepared the following budget estimates for other operational expenses at the administrative level:

- Rent: 450 freeons per month, adjusted annually for inflation
- Utilities: 150 freeons per month, adjusted monthly for inflation
- Transportation: 675 freeons per month, adjusted monthly for inflation
- General office expenses: 100 freeons per administrative employee per month, adjusted monthly for inflation
- Repairs, maintenance, and insurance: 75 freeons per month, adjusted monthly for inflation
- Professional fees and consultants (audits, computer support, and a variety of short-term consultancies): 250 freeons per month, adjusted annually for inflation
- Board expenses: 100 freeons per month, adjusted monthly for inflation
- Staff training: 2,000 freeons in year 1, 3,000 freeons in year 2, and 4,000 freeons per year in years 3–5 (entered as the monthly equivalents)
- Miscellaneous expenses: 5 percent of total administrative operational expenses.

The staff entered all the base amounts in the other operational expenses section on the ADMIN page except for general office expenses. For this category they used the automation feature on the INST.CAP. page. They also entered inflation adjustments on the INST.CAP. page.

CASE STUDY BOX 20

Developing FEDA's fixed asset acquisition plan at the administrative level

To begin the fixed asset analysis at the administrative level, FEDA's staff entered the following information about the institution's fixed assets dedicated to administration:

- Three computers purchased for a total of 6,000 freeons, all with a remaining life of one and a half years
- Basic office furniture originally purchased at 2,000 freeons, with a remaining life of four years
- A vehicle purchased at 8,000 freeons, with a remaining life of 18 months.
- They entered -5,000 freeons as the accumulated depreciation for these assets.

FEDA's staff decided to use manual input to plan the acquisition of new fixed assets. They budgeted for the purchase of three additional computers at the beginning of year 2, when FEDA expects to purchase a new MIS, and another computer in the first quarter of year 4. They also budgeted for the purchase of an additional grouping of office furniture at the beginning of each year. These purchases would be in addition to the replacement of depreciated equipment automatically programmed by the model.

6.4.3 Administrative-level fixed assets

This section allows analysis of all fixed assets considered to be part of the institution's administrative expenses. Please refer to section 6.3.8 for an explanation of how to complete the section.

6.4.4 Land and building analysis

This section allows the analysis of any land and buildings owned by the institution (figure 6.22). Land is tracked at the value that appears on the balance sheet and is neither appreciated nor depreciated. Financing for any new land purchases will have to be reflected on the FIN.FLOWS page.

All buildings are considered on the ADMIN/HEAD OFFICE page. The depreciation costs are treated as administrative costs and then allocated back to any branch offices.⁸ Buildings are depreciated over a 10-year period.

To begin the building analysis, book value amounts are input in the INITIAL BALANCE column for each of the building categories listed. The ACCUMULATED DEPRECIATION for these items must then be entered (as a *negative* number), to determine the NET VALUE OF BUILDINGS. The AVERAGE REMAINING LIFE OF INITIAL BUILDINGS must be approximated and entered, stated in years. The net value is

CASE STUDY BOX 21

Analyzing FEDA's land and buildings

In 1997 FEDA owned no land or buildings and had no plans to do so in the next five years. So the staff left the land and building analysis sections blank.

FIGURE 6.22

Analyzing land and buildings

	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98
Land and Building Analysis	NOTE: In this section, input land and buildings for the entire institution, not just the branch.					
Land Analysis	Note: Land value appears separate from other fixed assets of the balance sheet.					
Purchase and sale of Land	-					
Total value of land	0	0	0	0	0	0
Building Analysis	Note: Input building category descriptions on the Inst.Cap. Page					
Initial Balances and Acquisitions	Note: Buildings are depreciated over a 10 year period. All building depreciation is estimated.					
[not used]	-					
[not used]	-					
[not used]	-					
[not used]	-					
[not used]	-					
Total month's acquisition		0	0	0	0	0
Undepreciated book value						
[not used]	-	-	-	-	-	-
[not used]	-	-	-	-	-	-
[not used]	-	-	-	-	-	-
[not used]	-	-	-	-	-	-
[not used]	-	-	-	-	-	-
Total gross value	-	-	-	-	-	-
Less: accumulated depreciation		0	0	0	0	0
Net value of buildings	0	0	0	0	0	0
Monthly estimated depreciation	0	-	-	-	-	-

divided by the number of months remaining to determine the MONTHLY ESTIMATED DEPRECIATION. This amount is calculated as the depreciation expense for the months of the assets' remaining life.

As new fixed assets are acquired, the purchase price must be entered in the appropriate month under INITIAL BALANCES AND ACQUISITIONS. This amount will be added to the UNDEPRECIATED BOOK VALUE for that category of assets. The purchase is also summed in the TOTAL MONTH'S ACQUISITION. All new purchases are depreciated over 10 years, so the new change is divided by 120 months (5 years) and the result is added to the MONTHLY ESTIMATED DEPRECIATION.

6.4.5 Other assets analysis

Microfin amortizes other major assets carried on the balance sheet over a five-year period and considers the amortization costs administrative expenses. The OTHER ASSETS ANALYSIS section functions like the BUILDING ANALYSIS section. Please refer to section 6.4.4 for an explanation of how to complete the section.

CASE STUDY BOX 22

Analyzing FEDA's other assets

FEDA's strategic plan identified an urgent need to upgrade the MIS, for which 50,000 freeons were budgeted in month 13. The MIS would be treated as an asset and amortized over a five-year period. FEDA's staff entered the 50,000 cost in month 13.

6.4.6 Tax calculations

Microfinance institutions are often required to pay taxes, but the basis on which the taxes are calculated varies widely from one country to another. In the `TAX CALCULATIONS` section Microfin therefore allows users to input either the projected taxes to be paid or a formula basing the calculation on an output line. For complex situations users could model tax payments on a `USER-DEFINED SHEET`, transferring the information to the tax input line through a formula (see `FAQ 2` in chapter 3 for an explanation of the use of the `USER-DEFINED SHEET`).

6.4.7 In-kind subsidy analysis

Many microfinance institutions receive support in the form of nonfinancial contributions, such as free or subsidized technical assistance, training scholarships, donated office space, and donated vehicles. To determine their ability to sustain themselves financially, they need to quantify such in-kind subsidies and consider them in any calculation of true profitability.

The `IN-KIND SUBSIDY ANALYSIS` section allows the quantification of this support (figure 6.23). In-kind subsidies that occur in a specific month—such as a training scholarship, a pro bono audit, or the donation of a vehicle—should be entered as the monthly equivalent value.

The information on in-kind subsidies does not feed into any of the main financial statements generated by Microfin. It is used only in the `ADJUSTMENTS TO INCOME STATEMENT` section of the income statement, which calculates the adjusted return on assets indicators. See section 8.5.2 for a fuller explanation.

CASE STUDY BOX 23

Analyzing FEDA's in-kind subsidies

As an affiliate of the Freedom International network, FEDA receives free technical assistance. FEDA's staff estimated the value of this support at 6,000 freeons a year for years 1 and 2. They projected that in years 3–5 it would increase to 12,000 freeons a year, as FEDA would receive additional support for its transformation to a regulated financial institution. FEDA's staff entered these figures as their monthly equivalents of 500 freeons a month for years 1 and 2 and 1,000 freeons a month starting in year 3. These would not be actual expenses for FEDA, but they would be factored into the financial sustainability calculations generated by Microfin.

FIGURE 6.23

Analyzing in-kind subsidies

	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98
In-Kind Subsidy Analysis					
Subsidies received	Note: Input subsidy category descriptions in the section to the left				
Technical Assistance visits	Note: Input monthly amounts in this section				
1		500			
-					
-					
-					
-					
Data used in calculations					
Technical Assistance visits		500	500	500	500
[not used]		-	-	-	-
[not used]		-	-	-	-
[not used]		-	-	-	-
[not used]		-	-	-	-
Total in-kind subsidies received		500	500	500	500

6.4.8 Output sections of the ADMIN/HEAD OFFICE page

The rest of the ADMIN/HEAD OFFICE page consists of output sections that sum and report on data from elsewhere in the model. Most of the sections are similar to the output sections on the PROGRAM/BRANCH page but report information for the institution as a whole.

Following are the output sections on the ADMIN/HEAD OFFICE page:

- Loan product output
- Savings projections
- Income
- Financial costs
- Loan loss provision and write-off
- Loan officer analysis
- Program-level staffing
- Administrative-level staffing
- Program-level other operational expenses
- Administrative-level other operational expenses
- Program-level fixed assets
- Administrative-level fixed assets
- Land and building analysis
- Other assets analysis
- Overhead allocation (a section that appears only in the branch or regional modeling mode)
- Tax calculations
- In-kind subsidy analysis.

6.5 Reviewing the projections on the AGGREGATE GRAPHS page

The AGGREG GRAPHS page contains the following graphs with information for the institution as a whole (see printouts in annex 2):

GRAPHS BY LOAN PRODUCT

- Income (graphed separately for each loan product)
- Disbursements and repayments (graphed separately for each loan product)

AGGREGATE CREDIT ACTIVITY

- Number of active loans, by product
- Portfolio, by product (nominal and real)
- Number of loans disbursed per month, by product
- Average overall loan size, by product (nominal and real)

SAVINGS ACTIVITY

- Number of depositors, by product
- Amount of deposits, by product (nominal and real)

INCOME AND EXPENSES

- Total credit income, by product (nominal and real)
- Staffing composition
- Caseload per loan officer
- Expenses, by category
- Cost structure (as a percentage of total assets or of performing assets, depending on the selection made on the MODEL SETUP page)

FINANCIAL ANALYSIS

- Operational and financial sustainability
- Operating cost ratio
- Asset composition
- Liability and equity composition
- Debt-equity ratio.

These financial analysis graphs are discussed in chapter 8.

Notes

1. The information on the INST.CAP. page is linked to multiple subsequent pages in Microfin. Because of the structure of the model and the way Excel works, this page of information must be presented before those pages, even though that means that the user must skip this page until the information is needed.

2. The interest paid on savings is calculated directly for each branch office based on its

savings projections and therefore does not need to be allocated back to the branch. Interest paid on loans restricted to the financing of other assets is considered an administrative expense rather than a financing cost.

3. For further discussion see CGAP, "Cost Allocation for Multi-Service Micro-Finance Institutions" (CGAP Occasional Paper 2, World Bank, Washington, D.C., 1998).

4. For further discussion see CGAP, "Cost Allocation for Multi-Service Micro-Finance Institutions" (CGAP Occasional Paper 2, World Bank, Washington, D.C., 1998).

5. Microfin assumes that write-offs have been made at the end of the fiscal year preceding month 1.

6. Under certain circumstances, such as when an institution has a declining portfolio, it is possible to have negative loan loss provisioning.

7. For detailed information on the calculation of caseloads and means for improving caseloads see Charles Waterfield and Ann Duval, *CARE Savings and Credit Sourcebook* (New York: PACT Publications, 1996, pp. 221–90).

8. This approach can lead to inaccuracies if some branch offices own buildings while others rent. Branches renting will both have rental costs and bear a percentage of the depreciation of buildings used for other branch offices. In these rare cases the error should be relatively small.

Developing a Financing Strategy

Once an institution has designed its financial products, completed its portfolio and savings projections, and established its income, expense, and asset acquisition budgets, it is ready to prepare the last piece of the operational plan—the financing strategy that will ensure that the resources it needs to finance its planned activities are available. Microfin separates the information used in developing the financing strategy between two pages. On the `FIN.SOURCES` page users identify funding sources by name and classify them by type (table 7.1). On the `FIN.FLOWS` page users specify new receipts from these funding sources and repayments of any loan principal.

7.1 Classifying financing sources

Microfin supports a variety of funding sources, each of which can be classified as either debt or equity financing (table 7.2).

The model allows users to designate financing sources as either unrestricted or restricted. Unrestricted funds can be used for any purpose, while restricted funds can be used only to finance specific activities, such as to fund the loan portfolio. Restricted funding creates challenges for cash flow planning and often constrains management control over operations. Management should therefore strive to maximize unrestricted funding, particularly for grant funding.

Microfin monitors available debt and equity funding for three restricted purposes—operations, portfolio, and other assets—in addition to a pool of unre-

TABLE 7.1

Content of the FINANCING SOURCES and FINANCING FLOWS pages

<code>FIN.SOURCES</code> page	<code>FIN.FLOWS</code> page
<ul style="list-style-type: none"> • Names of all sources of financing • Initial balances for all financing sources • Restrictions on initial cash balances • Minimum liquidity targets • Interest rates paid on borrowed funds • Market rate cost of funds • Calculation of costs for borrowed funds 	<ul style="list-style-type: none"> • Option to use default funding sources to maintain positive cash balance • Monthly inflows and outflows for all funding sources • Short- and long-term investments • Calculation of investment income • Financing flow for operations • Financing flow for portfolio • Financing flow for other assets • Financing flow for unrestricted uses • Liquidity analysis

TABLE 7.2
Financing options supported by Microfin

Debt sources	Equity sources
<i>Savings</i>	<i>Earned income</i>
Compulsory	Income earned on financial products
Voluntary	Investment income
<i>Loans</i>	<i>Grants (or donor equity)</i>
Concessional	Stock investments
Commercial	

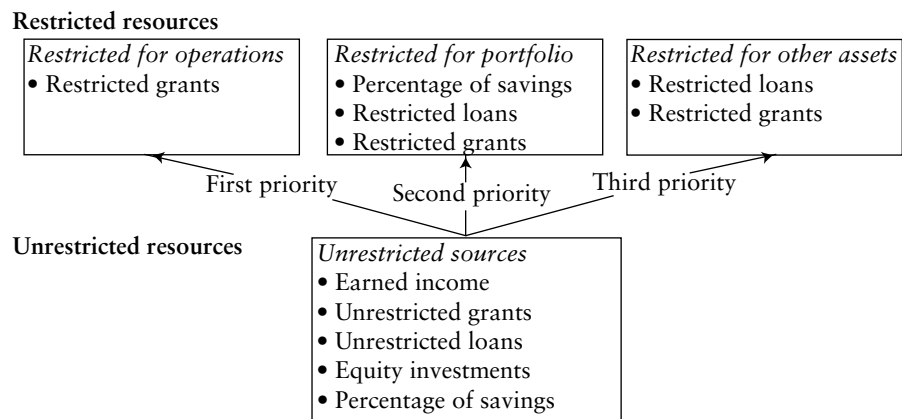
stricted resources (figure 7.1).¹ The only financing source that Microfin allows users to restrict to funding operations is restricted grants. Otherwise, it assumes that all operational costs are financed out of unrestricted sources, ideally earned income.

Both grants and loans can be restricted to portfolio financing, as can a percentage of savings. In defining compulsory and voluntary savings products users set the percentage of savings to be held in reserve (see section 4.4). The remaining savings can either be restricted to portfolio financing or considered unrestricted. This choice is made on the FIN.SOURCES page in the SOURCES OF FINANCING section (see section 7.2.1).

Restricted sources for the financing of other assets can include both grants and loans. Since this pool of funds is used to finance fixed assets, land, buildings, and other major assets, any funding designated for one or more of these purposes should be included here, such as mortgage financing to purchase a building or funds donated to invest in an MIS.

Unrestricted financing sources include all income earned by the microfinance institution (from financial services and investments), unrestricted grants, unrestricted loans, all equity investments, and savings, if defined as unrestricted.² The rules Microfin follows in prioritizing the use of resources are explained in section 7.3.1.

FIGURE 7.1
Microfin’s approach to restricted and unrestricted financing sources



7.2 FINANCING SOURCES page

The FIN.SOURCES page allows the setup of key financing information, most of which flows into the following page, FIN.FLOWS. First all financing sources are identified, by type and restrictions, together with their opening balances. Then additional information is requested on liquidity targets and interest rates charged on borrowed funds.

7.2.1 Identifying sources of financing

In the FINANCING BY SOURCE section users input the names of all financing sources that are active or are expected to be available during the five years of projections.³ In developing a financing strategy, an institution may identify financing needs for which no financing sources have been identified. In such cases users can enter UNIDENTIFIED SOURCES under one or more types of funding and make seeking these sources part of the operational plan.

The initial balances for the identified sources must be input in the INITIAL BALANCE column. For grants the initial balance is the amount already received. This amount will be carried forward as a reference balance in the financing sections so that users can ensure that approved grant amounts are not exceeded. For loans the initial balance is the balance of principal currently due on the loan. The initial balances of all loans identified in this section will need to be reconciled with the loans payable category in the institution's opening balance sheet. Similarly, if the institution has equity investments on its balance sheet, these will need to square with the initial balance information input in this section.⁴

At the end of this section users must indicate the desired TREATMENT OF SAVINGS. As mentioned in the previous section, savings deposits can be restricted to portfolio use or may be considered unrestricted resources.⁵

7.2.2 Indicating the initial allocation of available assets

The next section allows users to identify the INITIAL ALLOCATION OF AVAILABLE ASSETS. The amounts indicated here will serve as the initial cash balances in the financing sections that follow.

All cash and short- and long-term investments on the initial balance sheet of the MODEL SETUP page represent available assets that may be used as financing. But some of these assets may be restricted to a specific use. Consider an institution with 100,000 distributed among bank accounts and investments. Of this, 60,000 might be restricted for lending and 20,000 for operations (such as the remainder of a recent grant to cover expenses), while the balance of 20,000 is available for whatever purposes deemed appropriate by management.

7.2.3 Setting liquidity requirements

Microfin projects cash balances as of the end of each month. But simply project-

FAQ 33

What if the institution has more financing sources than Microfin has input lines?

Space constraints limit the number of lines Microfin can provide for sources of financing. When the sources of financing exceed the available lines, sources should be combined. In most cases major sources should be identified on separate lines, while minor sources can be grouped. But to ensure accurate calculation of financial costs, loans should be grouped by interest rate.

Modeling disbursements and repayments for multiple loans in a single line can sometimes be problematic. An alternative is to use the USER-DEFINED SHEET at the end of the Microfin workbook to create a worksheet providing the detail for each source. The net change in the loans can then be linked to the FIN.FLOWS page by creating a formula on that page referencing the net change as calculated on the USER-DEFINED SHEET. See FAQ 2 in chapter 3 for information on how to use the USER-DEFINED SHEET.

FAQ 34

How do I account for commissions charged on loans received by the institution?

Commercial banks often charge periodic fees in addition to an interest rate on their loans. For simplicity, Microfin provides only one input line for each financing source. So the effect of commissions on the financial cost of a loan must be incorporated by inputting the effective interest rate rather than the nominal interest rate. The CLIENT COST worksheet can be used to determine the effective interest rate (see annex 5).

CASE STUDY BOX 24

Identifying FEDA's sources of financing

Management put together the following summary on FEDA's financing sources. The staff entered some of the information on the FIN.SOURCES page and would enter the rest on the FIN.FLOWS page in the next step in the planning process.

FEDA had the following grant commitments:

- *Global Reach Foundation*. Of a three-year grant for portfolio financing of 200,000 freeons, FEDA had already received 120,000 freeons.
 - *Head Start Foundation*. The foundation approved 50,000 freeons for fiscal 1998 and 50,000 freeons for fiscal 1999 for program expansion. But the funds are to be restricted, half for operations and half for fixed assets.
- FEDA also had tentative commitments for grants:
- *Greenland Development Agency (GDA)*. Discussions were under way for up to 500,000 freeons for three years, starting in fiscal 1999. GDA usually gives unrestricted grants.
 - *Freedom Transformation Fund*. Freedom International has grant funds available to capitalize partners undergoing transformation to formal financial institutions. It normally provides up to 500,000 freeons in the year before the formalization process is to be completed, to be used for portfolio financing.

FEDA had the following loans outstanding:

- *International Development Corporation (IDC)*. A balance of 110,000 freeons at 3 percent interest, to be used for portfolio financing.
- *Freedonia National Bank (FNB)*. A loan of 180,000 freeons at 14 percent, to be used for portfolio financing. The relationship with FNB has gone quite well, and the bank has expressed interest in renewing and even significantly expanding the loan.

FEDA was exploring a potential loan source. The managing director of FUNDALL, an apex funding institution, had contacted FEDA to discuss a line of credit of up to 500,000 freeons at 8 percent interest, for use as portfolio financing.

Microfin had established savings reserve levels earlier, in defining the savings products. In defining the TREATMENT OF SAVINGS, the staff reflected the decision by FEDA's board to restrict the use of savings to loan portfolio financing.

For the INITIAL ALLOCATION OF AVAILABLE ASSETS the staff drew on FEDA's initial balance sheet, which showed available cash and investments of 76,400 freeons. Of this amount, 50,000 freeons were the balance from a fund restricted by the original donor for portfolio financing. The remaining balance was unrestricted in use.

Management set a minimum LIQUIDITY MARGIN FOR PORTFOLIO of 25 percent of monthly loan disbursements and a minimum LIQUIDITY MARGIN FOR OPERATIONS of 33 percent of monthly cash expenses.

The staff indicated that the MARKET RATE COST OF FUNDS was 14 percent, where it was expected to remain for the foreseeable future. FEDA considers any interest rate that is at least 90 percent of this value to be market rate.

ing positive balances for month-end is not sufficient. Planning for adequate liquidity is essential to ensure that loan disbursement or payroll is not held up by unexpected differences in timing between cash receipts and cash outlays.

The LIQUIDITY REQUIREMENTS section allows users to define minimum liquidity thresholds based on both portfolio activity and the period's operational expenses (figure 7.2). For portfolio, minimum liquidity can be defined as a percentage of either monthly loan disbursements or total portfolio (by entering a number less than 1.00) or as a fixed amount (by entering a number greater than

FIGURE 7.2

Defining liquidity requirements

	Initial	1	2	3	4
#	Balance	Jan-98	Feb-98	Mar-98	Apr-98
Liquidity Requirements					
Portfolio liquidity calculation method	as percentage of monthly portfolio disbursements ▼				
Liquidity margin for portfolio	NOTE: Numbers less than 1.00 are treated as percentages;				
User input	-	0.25			
Data used in calculations		25%	25%	25%	25%
Portfolio liquidity margin		21,100	21,293	21,514	22,718
Operations liquidity calculation method	NOTE: Liquidity is calculated as a percentage of the monthly				
Liquidity margin for operations	NOTE: Numbers less than 1.00 are treated as percentages;				
User input	-	0.33			
Data used in calculations		33%	33%	33%	33%
Operational liquidity margin		5,043	5,043	5,043	5,043

1.00). For operations, minimum liquidity can be defined as a percentage of monthly cash expenses or as a fixed amount.

For example, an institution that projects 100,000 in loan disbursements during the month might target at least one week's disbursements as its minimum liquidity threshold, to protect against instances when loan repayments come in near the end of the month and loan disbursements go out near the beginning of the month. It would enter 0.25 as its liquidity margin, and the model would verify that at least 25,000 of restricted portfolio resources or unrestricted resources are on hand at month-end.⁶

The information input in this section will be used in the LIQUIDITY ANALYSIS (see section 7.3.9).

7.2.4 Entering interest rates for borrowed funds

In the next section users indicate the INTEREST RATES FOR BORROWED FUNDS—for portfolio loans, loans for other assets, and unrestricted loans. For all loan sources previously identified on the page, an annual interest rate must be entered in the input line. Interest rates may be varied over time. All interest rates are calculated on the declining balance of the loan, as this is the approach generally used by commercial banks. If a loan has a grace period for interest payments, zero should be entered as the interest rate until the month in which interest begins to be charged. The rates entered here will be used to calculate financial costs in the next section.

The section ends by requesting the MARKET RATE COST OF FUNDS, the rate at which the institution would be able to borrow funds from a local commercial bank. This information will be used to distinguish between commercial and concessional loans and to calculate financial adjustments in certain profitability indicators (see section 8.5.2). Finally, to ensure that loans are reasonably identified as either commercial or concessional loans on the balance sheet,

Microfin requests a **THRESHOLD FOR COMMERCIAL RATE**, which should be between 70 and 100 percent. Microfin will consider loans charged at least this percentage of the market rate commercial loans, even though they have a slightly lower interest rate. For example, if the market rate is 14 percent and the threshold is 90 percent, a loan with a 13 percent interest rate would be classified as a commercial loan. This distinction is used only in classifying loans as commercial or concessional on the balance sheet. Financial adjustments made on the adjusted income statement will be calculated using the precise difference between the actual rate and the market rate regardless of the threshold value.

7.2.5 *Calculating financial costs*

The last section of the page performs a **CALCULATION OF FINANCIAL COSTS** for all borrowed funds, using the interest rates input in the previous section and the outstanding loan balances available once the **FIN.FLOWS** page is completed. Until that page is completed, the financial cost information remains incomplete.

7.3 **FINANCING FLOWS** page

The **FIN.FLOWS** page models the cash flow in each of the four funding pools—restricted resources for operations, restricted resources for portfolio, restricted resources for other assets, and unrestricted resources. The month-end balances for each of these pools of funds, as well as the total cash excess or shortfall (including minimum liquidity requirements), are displayed in a band running across the top of the page so that they can be easily monitored.

7.3.1 *Identifying financing flows by source*

The **FINANCING BY SOURCE** section provides an input line with gray cells for each funding source where users should input any committed receipts and repayments scheduled (figure 7.3). For example, if 100,000 in funds are to be received from a donor in the first quarter of each fiscal year, these receipts can be entered in the appropriate columns. Or if a loan has scheduled repayments of principal, those amounts should be entered, as negative numbers, in the appropriate columns (only principal repayments should be entered in this section, as interest payments are determined on the **FIN.FLOWS** page; see section 7.2.5). Under **EQUITY INVESTMENTS** there is an input line for projecting **PAYMENT OF DIVIDENDS**.

After any committed changes in financing are entered, recalculating the workbook with F9 will update the month-end balances in the blue band at the top of the page. Any figure displayed in red indicates a cash flow shortage that should be corrected. For example, in figure 7.3 there is a projected shortage of portfolio resources of 3,519 and a total shortfall, including liquidity requirements, of 59,412 in month 10. This portfolio shortfall exists despite the 59,810 available

FIGURE 7.3

Identifying financing flows by source

	5	6	7	8	9	10
	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98
1 Ending rest. resources, operations	0	0	0	100,000	80,266	59,810
2 Ending rest. resources, portfolio	26,340	116,833	52,166	0	0	(3,519)
3 Ending rest. resources, other assets	25,000	25,000	25,000	21,829	21,829	19,697
4 Ending unrestricted resources avail.	61,655	64,760	71,759	71,332	43,715	0
5 Excess/shortfall incl. liquidity requireme	83,678	177,099	98,827	141,084	(3,718)	(59,412)
10 Restricted loans for PORTFOLIO						
Int'l Development Corp						
Freedomia Nat'l Bank						
FUNDALL						
[PortLn4 not used]						
[PortLn5 not used]						
[PortLn6 not used]						
11 Restricted grants for PORTFOLIO						
Global Reach Foundation		80,000				
Freedom Transformation Fu						
[PortGr3 not used]						
12 Restricted grants for OTHER ASSETS						
Head Start Foundation						
[OA2 not used]						
[OA3 not used]						

from a restricted grant for operations, as restricted funding for operations cannot be used for other purposes.

These balances are determined as Microfin projects inflows and outflows for each funding pool month by month (in sections farther down the FIN.FLOWS page). When available, restricted resources are first used to cover restricted needs. If a shortfall remains, any available unrestricted resources are used to cover it. For example, the balance restricted to portfolio use, say 100,000, is used to cover any growth in the portfolio (table 7.3). But if portfolio growth of 150,000 is projected for the period, any available unrestricted resources will be used to finance the remaining 50,000 of growth.

If there are insufficient unrestricted resources to finance the growth, a negative balance (shown in red) will appear in the ENDING RESTRICTED RESOURCES, PORTFOLIO line, a zero will appear in the ENDING UNRESTRICTED RESOURCES AVAILABLE line (as these funds have been exhausted), and the total shortfall will appear in red

TABLE 7.3

Allocation of resources in Microfin, with sufficient and insufficient funding

	Sufficient funding	Insufficient funding
Balance, restricted for portfolio	100,000	100,000
Projected growth in portfolio	150,000	150,000
Balance before use of unrestricted funds	(50,000)	(50,000)
Unrestricted funds used for portfolio	50,000	30,000
Ending restricted resources, portfolio	0	(20,000)
Beginning balance, unrestricted funds	75,000	30,000
Unrestricted funds used for portfolio	50,000	30,000
Ending unrestricted resources available	25,000	0
Minimum required liquidity	15,000	15,000
Excess/shortfall including liquidity	10,000	(35,000)

in the EXCESS/SHORTFALL INCLUDING LIQUIDITY REQUIREMENTS line. Any negative ending balances indicate that cash levels would be overdrawn, as with the (20,000) portfolio figure in the right-hand column. If there is inadequate cash to meet minimum liquidity requirements, a negative number will also appear in the excess/shortfall line, as with the (35,000) figure in the right-hand column of table 7.3, representing the shortfall of 20,000 to meet portfolio needs and the shortfall of 15,000 to cover minimum liquidity requirements.

In allocating unrestricted resources among competing needs, Microfin must prioritize the needs. If unrestricted resources are insufficient to cover all projected needs for operations, portfolio, and other assets not met by restricted resources, Microfin “rations” funds. It first covers all operational expenses. If any unrestricted funds remain, the model applies them to financing growth in the portfolio, then to financing other assets. This prioritization simply reflects the logic of the model, since in an actual shortfall management would determine the use of unrestricted resources. But understanding Microfin’s rules for prioritization will help users interpret any shortfalls projected by the model before they take steps to eliminate the shortfalls.

7.3.2 Using automated default financing sources

The procedure described in the previous section can prove tedious in practice. And once completed, the modeling of financing needs will change as changes are introduced in earlier sections of the model. Therefore, to facilitate experimentation and sensitivity analysis, Microfin provides an option to automatically generate default financing sources to maintain a positive cash flow; this option frees users from having to review end balances month by month, adjusting for surpluses or deficits.

Users can enable this option by clicking on the box labeled AUTOMATED DEFAULT SOURCES at the top of the page (figure 7.4). Two default sources are generated—a default unrestricted grant and a default unrestricted loan. Lines 2 and 3 allow users to establish the percentage of funding to come from each of these sources. For example, if the projected shortfall for a month is 100,000 and a user has selected 25 percent grant funding, Microfin will inject 25,000 of new grant funding and a 75,000 loan receipt. Line 4 allows users to establish an annual interest rate for the default loan balance.

Lines 3–5 of the FINANCING BY SOURCE section summarize the financing requirements. Any changes in financing from identified sources input in this section will be incorporated, with the default sources used only to make up any shortfalls in

FIGURE 7.4
Automating default financing

1	Automated default sources	<input checked="" type="checkbox"/>	Use default sources to maintain positive cash balance						
		NOTE: Default sources require additional recalculation time. You should disable this option when developing scenarios.							
	Control variables for default funding								
2	Percentage from unrestricted grants		25%						
3	Percentage from unrestricted loans		75%	Note: The percentages from Lines 2 and 3 will add up to 100% after workbook is recalculated.					
4	Annual interest rate for unidentified loan		12.0%						

funding. If the model projects a cash surplus and there is a balance from the default loan source, Microfin will make an automatic repayment on the loan.

Using default financing slows recalculation time considerably. So users should enable this option only when they have nearly completed the projections and are performing sensitivity analysis.

7.3.3 Developing an investment strategy

The INVESTMENT STRATEGY section allows users to project the investment of any substantial amounts of excess funds (figure 7.5). It shows the total balance of cash and investments and also breaks it down by funding pool for reference. It then shows running balances for short-term investments, long-term investments, and cash. Microfin calculates the cash balance as the amount remaining that is not in the short- or long-term investments. Users can move money into or out of short- and long-term investments to maximize the institution’s investment income. Microfin automatically moves any cash balances in excess of minimum liquidity requirements to short-term investments. Because of the potential for circular references in Excel formulas, it cannot do the same for long-term investments; these must be manually input.

Care must be taken not to run negative cash balances; they will not show up in the ending balance lines in the summary band at the top of the page, because all cash and investments are considered available for use in the financing flows.

FIGURE 7.5
Modeling the investment strategy

	Initial	1	2	3	4
#	Balance	Jan-98	Feb-98	Mar-98	Apr-98
1 Ending rest. resources, operations	0	0	0	25,000	9,818
2 Ending rest. resources, portfolio	50,000	36,862	27,470	21,926	17,055
3 Ending rest. resources, other assets	0	0	0	25,000	25,000
4 Ending unrestricted resources avail.	26,400	26,955	28,278	30,086	47,926
5 Excess/shortfall incl liquidity requirements		37,934	29,639	75,676	72,413
Investment Strategy					
NOTE: This section allows the investment of excess cash					
1 Cash and Investments Balances	76,400	63,816	55,748	102,012	99,800
2 Operational	0	0	0	25,000	9,818
3 Portfolio	50,000	36,862	27,470	21,926	17,055
4 Other Asset Financing	0	0	0	25,000	25,000
5 Unrestricted	26,400	26,955	28,278	30,086	47,926
6 Minimum liquidity level		25,882	26,108	26,337	27,387
7 Balance in excess of minimum liquidity		37,934	29,639	75,676	72,413
Short-term Investments					
NOTE: Any balance in excess of minimum liquidity is assumed					
8 Proposed Balance		37,934	29,639	75,676	72,413
9 Manual override	-				
10 Balance used	25,000	37,934	29,639	75,676	72,413
	Data okay				
Long-term Investments					
NOTE: Any long-term investments must be manually input					
11 Balance, user input	-				
12 Balance used	0	0	0	0	0
13 Amount of cash deposits	51,400	25,882	26,108	26,337	27,387

An error message will appear after line 10 if long-term investments exceed excess liquidity at any point during the five years.

7.3.4 Calculating income on investments

The INCOME ON INVESTMENTS section allows users to define annualized interest rates earned on different investments—cash deposits, short-term investments, savings reserves, and long-term investments (figure 7.6). The model determines the SAVINGS RESERVES balance from the total savings balance (from the balance sheet) and the PERCENT TO BE HELD IN RESERVE established on the PRODUCTS page, and draws the balances for the other three categories from the INVESTMENT STRATEGY section.

7.3.5 Projecting the financing flow for operations

If the balance before use of unrestricted resources is negative (line 6), all available restricted resources have been used up (figure 7.7). The model applies available unrestricted resources to cover the shortfall. It first applies the month's income (line 7), showing any excess income in the UNRESTRICTED FINANCING section below. If a shortfall still remains, it applies other available unrestricted funds (line 8). The result is the BALANCE AFTER USE OF UNRESTRICTED (line 9). New receipts of restricted grants, from the FINANCING BY SOURCE section at the top of the page, are summarized in line 10. (Detail on the receipts and balances for each source can be viewed by clicking on the SHOW/HIDE DETAIL button.) The end result is shown in line 11, ENDING RESTRICTED RESOURCES, OPERATIONS, and carried forward as the beginning balance for the next period.

FIGURE 7.6

Modeling income on investments

Income on Investments		This section allows input of interest rates and calculates income				
Cash Deposits		51,400	36,401	25,755	34,354	30,166
Interest rate earned - input	-	0.0%				
Interest rate earned		0.0%	0.0%	0.0%	0.0%	0.0%
Income from liquidity deposits			0	0	0	0
Short-term investments		25,000	25,000	25,000	60,000	60,000
Interest rate earned - input	-	8.0%				
Interest rate earned		8.0%	8.0%	8.0%	8.0%	8.0%
Income from short-term investments			167	167	167	400
Savings reserves						
		NOTE: Savings reserves are derived from the total savings at				
Interest rate earned - input	-	8.0%				
Interest rate earned		8.0%	8.0%	8.0%	8.0%	8.0%
Income from investments of reserves			0	0	0	0
Long-term investments		0	0	0	0	0
Interest rate earned - input	-	12.0%				
Interest rate earned		12.0%	12.0%	12.0%	12.0%	12.0%
Income from long-term investments			0	0	0	0
Total income on investments			167	167	167	400

FIGURE 7.7

Modeling the financing flow for operations

Operational Financing		This section shows the financing of cash operational expenses.					
1	Beginning restricted resources	-	-	-	25,000	9,332	-
2	Less Operational Expenses	Note that loan loss provisions are excluded as they are not a cash expense					
	Financial Costs	2,375	2,375	2,375	2,375	2,375	2,375
	Program Operating Costs	9,556	9,562	9,568	9,574	9,581	9,434
	Administrative Operating Costs	4,058	4,067	4,076	4,086	4,095	4,105
	Amount of taxes paid	-	-	-	-	-	-
3	Plus non-cash operating expenses						
	Depreciation and Amortization	367	367	367	367	367	367
	+/- change in accrued expenses	-	-	-	-	-	-
		NOTE: The following two lines are for manual adjustments of these two lines					
4	Less net incr. in other current assets						
5	Plus net incr. in other current liabilities						
6	Balance before use of unrestricted	(15,622)	(15,637)	(15,653)	9,332	(6,352)	(15,546)
7	Month's income used for operations	15,346	15,637	15,653	-	6,352	15,546
8	Unrestricted funds used for operations	277	-	-	-	-	-
9	Balance after use of unrestricted	-	-	-	9,332	-	-
10	New restricted grants for operations	-	-	25,000	-	-	-
11	Ending rest. resources, operations	0	0	0	25,000	9,332	0

7.3.6 Projecting the financing flow for portfolio

The PORTFOLIO FINANCING section follows a flow similar to that of the OPERATIONAL FINANCING section (figure 7.8). Projected loan repayments are added to the beginning balance, and loan disbursements are subtracted, resulting in the BALANCE BEFORE CHANGES IN RESTRICTED FUNDING (line 3). Changes in restricted funding sources, both debt and equity, are shown next (lines 4–8). If the balance before use of unrestricted resources (line 9) is negative, the model allocates available unrestricted funds to cover the shortfall (line 10). The ending balance (line 11) then becomes the beginning balance for the next period. Clicking on the SHOW/HIDE DETAIL button will display monthly changes in each source as well as ending balances.

FIGURE 7.8

Modeling the financing flow for portfolio

Portfolio Financing								
1	Beginning restricted resources	16,470	20,603	29,221	159,681	102,010	54,444	0
2	Change in portfolio							
	Plus loan repayments	95,386	100,913	108,241	119,433	131,916	144,673	157,779
	Minus loan disbursements	(91,253)	(92,295)	(169,782)	(177,103)	(179,482)	(210,139)	(213,076)
3	Bal. before changes in rest. funding	20,603	29,221	(32,319)	102,010	54,444	(11,082)	(55,297)
	Debt Financing of Portfolio							
4	Change in available savings	0	0	0	0	0	0	0
5	Change in Portfolio Loans	0	0	192,000	0	0	0	0
6	TOTAL CHANGE IN DEBT FINANC	0	0	192,000	0	0	0	0
	Equity Financing of Portfolio							
7	New restricted grants for portfolio	0	0	0	0	0	0	0
8	TOTAL CHANGE IN EQUITY FINAN	0	0	0	0	0	0	0
9	Balance before use of unrestricted	20,603	29,221	159,681	102,010	54,444	(11,082)	(55,297)
10	Unrestricted funds used for portfolio	-	-	-	-	-	11,082	55,297
11	Ending rest. resources, portfolio	20,603	29,221	159,681	102,010	54,444	0	0

7.3.7 Projecting the financing flow for other assets

The FINANCING OF OTHER ASSETS section summarizes any purchases of fixed assets, land, buildings, or other assets in the CHANGE IN OTHER ASSETS line (figure 7.9). Any new loans or restricted grants are shown in the NEW FINANCING FOR OTHER ASSETS section. If the balance before use of unrestricted resources is negative, the model allocates any available unrestricted funds to cover the deficit.

7.3.8 Projecting the financing flow for unrestricted uses

The last financing flow section tracks unrestricted financing. This section is preceded by a short section, SUMMARY OF FINANCING BEFORE UNRESTRICTED, that repeats the ending balances before the use of unrestricted resources from each of the three restricted financing sections. This information will be used in allocating the unrestricted financing.

To project the financing flow for unrestricted uses, the model starts with the beginning balance and adds any changes in unrestricted financing sources—earned income, unrestricted loans and grants, savings, and equity investments—to estimate the TOTAL AVAILABLE UNRESTRICTED RESOURCES (figure 7.10). It compares this total with the amounts in the SUMMARY OF FINANCING BEFORE UNRESTRICTED section and covers any shortfalls, such as the 21,974 for operations in month 9. As explained, if unrestricted resources are insufficient to cover all financing needs, funds are applied first to operational needs, then to portfolio, and finally to other assets. In the example in the figure unrestricted funds are adequate to cover all needs, but not to meet liquidity requirements in months 12–14.

FIGURE 7.9

Modeling the financing flow for other assets

Financing of Other Assets						
Beginning restricted resources	19,500	19,500	19,500	0	0	25,000
Change in other assets	0	0	23,500	0	0	0
Bal. before changes in rest. funding	19,500	19,500	(4,000)	0	0	25,000
New Financing for Other Assets						
Change in Loans for other assets	-	-	-	-	-	-
New restricted grants	-	-	-	-	25,000	-
Change in other long-term liabilities						
Balance of other long-term liabilities	-	-	-	-	-	-
Balance before use of unrestricted	19,500	19,500	(4,000)	-	25,000	25,000
Unrest. funds used for other assets	-	-	4,000	-	-	-
Ending rest. resources, other assets	19,500	19,500	0	0	25,000	25,000

FIGURE 7.10

Modeling the financing flow for unrestricted uses

	9	10	11	12	13	14
	Sep-98	Oct-98	Nov-98	Dec-98	Jan-99	Feb-99
1 Ending rest. resources, operation	0	0	0	0	0	0
2 Ending rest. resources, portfolio	102,010	54,444	0	0	0	0
3 Ending rest. resources, other ass	19,500	19,500	19,500	19,500	0	0
4 Ending unrestricted resources av	71,015	74,056	68,385	19,674	59,230	48,493
5 Excess/shortfall incl liquidity requ	140,997	95,640	27,832	(41,112)	(24,092)	(12,066)
Summary of financing before unrestricted						
1 Operational Financing	(21,974)	(22,695)	(22,737)	(22,779)	(26,334)	(27,603)
2 Portfolio Financing	102,010	54,444	(11,082)	(55,297)	(127,333)	(16,751)
3 Other Asset Financing	19,500	19,500	19,500	19,500	(41,000)	0
Unrestricted Financing						
1 Beginning balance of unrestricted	68,642	71,015	74,056	68,385	19,674	59,230
2 Earned income	24,347	25,736	28,148	29,365	34,224	33,617
3 New Unrestricted Loans	-	-	-	-	-	-
4 New Unrestricted Grants	-	-	-	-	200,000	-
5 Change in available savings	-	-	-	-	-	-
6 New equity investments	-	-	-	-	-	-
7 Total available unrestricted resou	92,989	96,751	102,204	97,750	253,898	92,848
Uses of unrestricted resources						
8 Operational Financing	21,974	22,695	22,737	22,779	26,334	27,603
9 Portfolio Financing	0	0	11,082	55,297	127,333	16,751
10 Other Asset Financing	0	0	0	0	41,000	0
11 Ending unrestricted resources av	71,015	74,056	68,385	19,674	59,230	48,493

7.3.9 Performing a liquidity analysis

The last section on the FIN.FLOWS page determines whether sufficient funds will be on hand to cover the minimum liquidity targets set on the FIN.SOURCES page (see section 7.2.3). In the LIQUIDITY ANALYSIS the model compares the minimum liquidity requirements with the ending restricted balances for both portfolio and operations (figure 7.11). If restricted resources are inadequate to cover the liquidity requirements, it shows the shortfall, which must be covered with unrestricted resources. If the total shortfall exceeds the unrestricted resources, a negative balance shows up as the liquidity shortfall.

In the example in the figure there are no restricted portfolio resources in month 10 (as shown by the zero in line 2 in the blue band at the top). Management needs 44,871 to cover the minimum liquidity threshold in line 1 of the LIQUIDITY ANALYSIS section, and operations needs 6,750 of liquidity (line 2), bringing the total liquidity needs to 51,621. But there are only 20,586 in unrestricted resources (line 4), resulting in a liquidity shortfall of 31,035 (shown in line 5 at the bottom of the section and in the blue band at the top of the page).

In month 11 all unrestricted resources are depleted, and the liquidity analysis shows a shortfall of 59,314. In addition, there is a shortfall of 37,927 for meeting projected portfolio demand (shown in line 2 of the blue band). Thus the total

shortfall that needs to be met by new resources is 97,241, the sum of the portfolio and the liquidity shortfalls shown in line 5 of the blue band.

FIGURE 7.11

Modeling the liquidity analysis

	7	8	9	10	11
	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98
1 Ending rest. resources, operations	0	0	0	0	0
2 Ending rest. resources, portfolio	109,221	47,681	0	0	(37,927)
3 Ending rest. resources, other assets	25,000	19,500	19,500	19,500	19,500
4 Ending unrestricted resources avail.	67,389	69,712	63,595	20,586	0
5 Excess/shortfall incl liquidity requirement	173,549	87,947	32,307	(31,035)	(97,241)
Liquidity Analysis					
	cover liquidity.				
	adequate restricted and unrestricted resources to cover them.				
Calculation of liquidity shortfalls					
1 Portfolio liquidity shortfall	-	-	44,276	44,871	52,550
2 Operational liquidity shortfall	4,986	6,499	6,512	6,750	6,764
3 Liquidity shortfalls needing coverage	4,986	6,499	50,788	51,621	59,314
4 Ending unrestricted resources avail.	67,389	69,712	63,595	20,586	0
5 Liquidity shortfall	-	-	-	(31,035)	(59,314)

CASE STUDY BOX 25

Projecting FEDA's financing flows

FEDA's staff continued modeling the institution's financing strategy by entering all confirmed financing receipts and repayments.

- *International Development Corporation (IDC)*. Principal repayment is to start in June 2000, with semiannual payments of 15,000 freeons over the next three and a half years (and a final payment of 20,000 freeons in the second quarter of year 6). No new funds are expected from IDC.
- *Global Reach Foundation*. FEDA was scheduled to receive its final disbursement of 80,000 freeons in June 1998.
- *Head Start Foundation*. Disbursements of 25,000 freeons for operations and 25,000 freeons for fixed assets were scheduled for March 1998 and March 1999.
- *Greenland Development Agency (GDA)*. FEDA's staff thought that they could negotiate disbursements of 200,000 freeons at the beginning of years 2 and 3 and 100,000 freeons at the beginning of year 4.
- *Freedonia National Bank (FNB)*. The staff expected that they could convert FEDA's current loan into a line of credit of up to 300,000 freeons starting in August 1998. They entered a new disbursement of 192,000 freeons in that month to bring the balance up to 300,000 freeons.
- *FUNDALL*. After recalculating the model, the staff determined that there would be shortfalls beginning in April 1999. They planned to begin use of the FUNDALL line of credit, requesting 200,000 freeons to cover FEDA's needs in April, another 100,000 freeons in July 1999, and the last 200,000 freeons in October 1999.
- *Freedom Transformation Fund*. The staff saw that beginning in year 3 FEDA would urgently need the 500,000 freeons that would be available through Freedom International. They planned to request 250,000 freeons in the first quarter of year 3 and the remaining 250,000 in the third quarter.

(Box continues on next page)

CASE STUDY BOX 25

Projecting FEDA's financing flows (continued)

After entering all the expected financing, the staff recalculated the model and saw that there would be a remaining shortfall of more than 300,000 freeons in year 5. They moved to the **GRAPHS** page to review income and expense graphs and realized that the institution would be only marginally profitable. Since FEDA was charging less interest than other microfinance institutions, they decided to increase the interest rate from 30 percent to 36 percent in January 1998, at the same time that they launched the redesigned loan product. The revised graphs showed that the higher interest rate would move FEDA to full financial sustainability by the middle of year 3 and 120 percent of sustainability by year 5. In addition, the increased income would more than cover FEDA's shortfall in funding and even allow it to pay back some of its line of credit to FNB starting in year 3.

The staff reviewed FEDA's investment strategy. They saw that Microfin was automatically shifting excess funds to short-term investments. They decided that since FEDA has several lines of credit, they would not choose any long-term investments. FEDA does not earn interest on cash deposits. But it earns 8 percent on short-term investments and savings reserves and would earn 12 percent on long-term investments if it had any. After entering these interest rates, the staff recalculated the model and saw that FEDA would generate approximately 100,000 freeons in investment income over the five years.

Notes

1. The restrictions on donor financing can vary in degree. While Microfin can model basic restrictions—limiting the use of a donor's funds to one of the three restricted pools—it cannot apply more complex restrictions, such as limiting funds to financing loans in a particular branch office or to financing loans below a particular amount. The implications of such restrictions for cash flow would need to be carefully projected in a supplemental analysis.

2. A note of warning on the modeling of unrestricted loans and savings: Microfin groups unrestricted loans with restricted portfolio loans on the balance sheet and treats interest expense on these loans as a financial cost, including it in **INTEREST AND FEES ON BORROWED FUNDS** on the income statement. It also treats interest paid on savings deposits—whether they are deemed restricted or unrestricted—as a financial cost. But it includes restricted loans for other assets (such as a mortgage on a building) in **OTHER LONG-TERM LIABILITIES** on the balance sheet, and includes the cost of these loans in the **ADMINISTRATIVE-LEVEL OTHER OPERATIONAL EXPENSES** section of the **ADMIN/HEAD OFFICE** page rather than treating it as a financial cost. This is done to more accurately determine the **GROSS FINANCIAL MARGIN** on the income statement. For an institution that uses unrestricted loans or savings to fund “other assets,” the balance sheet categories (for the loans) and the interest allocations (for the loans and savings) will be inaccurate. A recommended solution is to designate the portion of any unrestricted loans that is used for other assets as a “restricted loan for other assets.”

3. An active source is an approved grant under which some funds are still due the institution, or a loan that has a balance due.

4. The total amount received from loans and grants must be input for reference purposes even if these funds have been spent or loaned out. The amount currently available for future loans or expenses is identified in the next section of the *FIN.SOURCES* page.

5. Although savings can be deemed unrestricted, microfinance institutions must be vigilant in safeguarding savings mobilized from clients and other sources.

6. As is explained in section 7.3.1, a large balance in restricted operational funding could not be used to cover liquidity shortfalls in portfolio financing.

Analyzing Financial Projections and Indicators

The financial information developed in operational planning is summarized in reports that highlight the most significant elements and relationships. These reports help a microfinance institution's staff analyze the information and apply it in management decisions.¹ The model generates the three basic financial statements—the income statement, balance sheet, and cash flow statement—and an adjusted income statement showing profitability after subsidies and inflation are taken into account. The model also generates performance indicators that distill information from the financial statements and portfolio reports and thus help management focus on key operating and financial relationships. This chapter describes the financial statements and performance indicators that the model generates and highlights aspects that warrant close attention.

After reviewing the projected financial statements and indicators, an institution's management might choose to revise the portfolio or budget projections. By changing certain assumptions (such as loan size, client retention rate, or interest rate)—that is, performing sensitivity analysis—management can determine which variables have the greatest effect on the institution's performance and profitability.

8.1 Summary output report

Microfin generates a summary output report that presents a concise summary of the model's major outputs (see the sample in annex 2). Sections summarize annual balance sheets, income statements, cash flow projections, financing sources, and financial ratios. Each of these sections is broken down in much greater detail on the pages of the model that follow.

8.2 Income statement

The format of the income statement in Microfin highlights the key relationships and margins for a financial institution (see the sample in annex 2). Income from the credit and savings program and from any investments is summed to arrive at total financial income. The financial costs of borrowed funds and of savings deposits are then deducted from financial income to arrive at the gross financial margin. This margin reflects the spread earned by the institution—the difference between how much it earns on its financial services and how much it pays for its debt financing.

The loan loss provision for the period is then deducted from the gross financial margin to arrive at the net financial margin. This is the amount available to cover the institution's operating expenses, which are summarized next. Program, or branch-level, expenses relate to program activities that generate income and deliver services to clients. Administrative, or head office, costs relate to the activities that support program operations. (For many microfinance institutions it is important to track the trend in program, or direct, costs relative to administrative, or indirect, costs. Over time, direct expenses should be both higher and growing faster than indirect expenses; otherwise the institution is spending too great a share of its income on nonproductive activities.)

Total operating costs are subtracted from the net financial margin to arrive at the net income from operations, or operating margin. This figure shows whether operations will result in a surplus or deficit. A net income of zero indicates operational self-sufficiency, when earned income covers all expenses.

To complete the conventional income statement, grant revenues are added to the net income from operations to arrive at the total excess of income over expenses.

8.2.1 *Adjustments to the income statement*

Before the institution's true "bottom line" can be ascertained, its income statement needs to be adjusted for subsidies and inflation. These adjustments indicate whether the institution could operate on a commercial basis and must be made for analytical purposes even if the factors adjusted for are not included in its audited financial statements.²

Three adjustments should be made:

- An adjustment for any subsidized cost of funds, which factors in any subsidy resulting from concessional-rate debt
- An adjustment for inflation, which factors in the effect of inflation on the institution's equity base
- An adjustment for in-kind subsidies, which factors in operating subsidies enjoyed by the institution if it obtains any services at less than full cost.

The subsidy gained from concessional financing conceals the cost that a microfinance institution would incur if it had to finance its portfolio with funds borrowed at a market rate from local commercial sources. The value of the subsidy can be expressed as:

$$\begin{aligned} & (\text{Market rate cost of funds} \times \text{average funding liabilities for the period}) \\ & \quad - \text{actual financial costs} \end{aligned}$$

Inflation erodes the value of a microfinance institution's equity. This effect can be expressed as:³

$$\text{Inflation rate} \times (\text{average equity} - \text{average net fixed assets})$$

The last adjustment is for the costs that would have to be incurred if all in-kind subsidies enjoyed by the institution were not available, such as discounted office space or donated labor. Once all three adjustments have been made to the operating margin, the institution can analyze its adjusted return from operations to see whether it will be able to cover its adjusted operating and financial costs from its earned income.

8.2.2 *Income statement analysis*

To facilitate analysis of the information in the income statement, Microfin presents ratios at the end of the `INC.STATEMENT` page that compare the institution's income and expenses to its performing assets or its total assets (depending on the selection made on the `MODEL SETUP` page). For a detailed discussion of ratios see section 8.5.

8.3 Balance sheet

In reviewing the balance sheet, users should begin by looking at the `INITIAL BALANCE VERIFICATION` column. This column verifies whether the initial balances entered throughout the model correspond to the information entered on the `MODEL SETUP` page. If there are any discrepancies, an error message will appear at the top of the page. If this occurs, users should review the column to find the asset, liability, or equity category where the data are inconsistent, then find and correct the data entry error.

The balance sheet presents assets, then liabilities, then equity (see the sample in annex 2). Assets and liabilities are listed in the order of their liquidity (from greatest to least) and broken down between current and long term. Borrowed funds are also broken down between commercial and concessional sources.

The equity, or net worth, section is separated into three broad categories:

- Donated equity—the cumulative total of all grants received
- Shareholder equity and dividend payments—the amounts received from and paid to shareholders
- Cumulative surplus (or deficit) of earned income over expenses—the amount of internally generated retained earnings.

This structure allows the institution to track the share of its equity that has been contributed relative to the share that has been earned. Donated equity and internal retained earnings are shown for both previous and current periods.

When analyzing projected balance sheets, a microfinance institution should ask such questions as these:

- Is there a sufficient cash reserve to cover unanticipated expenses, but not excess idle cash?

TABLE 8.1

Performance indicators*Portfolio quality*

Portfolio at risk

Loan loss reserve ratio

Loan write-off ratio

*Profitability*Adjusted return on
performing assetsAdjusted return on total
assets*Solvency*

Equity multiplier

Efficiency and productivity

Yield on portfolio

Operating cost ratio

Borrowers per loan officer

Portfolio per loan officer

Growth and outreach

Portfolio

Value of ending portfolio

Percentage growth in
portfolio

Number of active loans

Percentage growth in
borrowers

Dropout rate

Voluntary savings

Value of ending savings
depositsPercentage growth in savings
deposits

Number of depositors

Percentage growth in
depositors

- Is the portfolio growing at a rate that brings the institution closer to sustainability but does not strain institutional capacity?
- Is the investment in fixed assets sufficient to meet the needs of the institution but not so high as to divert funds from income-generating assets?
- Is the mix between liability and equity funding appropriate for the institution, given its economic context and stage of development?

8.4 Cash flow projections

Microfin derives the cash flow projections from the income statement and balance sheet (see the sample projections in annex 2). It begins with the net income from operations from the income statement, then adds back noncash expenses—such as depreciation, amortization, and the loan loss provision—to derive the cash flow from operations. Then it adds and subtracts other sources and uses of funds—derived from changes in the balance sheet accounts—and incorporates increases and decreases in equity. Finally, it factors in grant revenues, to arrive at the net cash flow for the period. It adds this to the beginning cash balance, to derive the ending cash balance. This figure should correspond to the cash amount on the balance sheet; if it does not, the discrepancy will appear on the COMPARISON TO BALANCE SHEET CASH line. Any discrepancies should be investigated and corrected.⁴

By analyzing the projected cash flow, users can identify which items account for significant inflows and outflows of funds, and in which time periods. Receipts or disbursements that seem too high or too low can be adjusted by changing the related figures previously input into the model.

8.5 Performance indicators and ratio analysis

To ensure that the portfolio projections and projected financial statements aid analysis and decisionmaking, it is important to distill from them the information that is most meaningful for managers and to present it in a concise form. The most useful form for financial and portfolio information is performance indicators, ratios representing key financial relationships. Viewed both over time and in conjunction with one another, financial ratios can help management hone the projections and finalize the projected budget. Projected financial ratios can also serve as benchmarks to gauge performance over time (see chapter 9).⁵

There are many ways to group performance indicators, and a nearly infinite number of indicators that could be monitored. An institution should choose which indicators to project and track on the basis of its own operations and capital structure, which determine what kind of information is most relevant.

The ratios discussed in this section are organized in five groups: portfolio quality, profitability, solvency, efficiency and productivity, and growth and outreach (table 8.1). To illustrate the variety of indicators that microfinance institu-

tions monitor, additional ratios are included on the RATIO ANALYSIS page in Microfin.⁶

8.5.1 Portfolio quality indicators

The quality of the loan portfolio determines the institution's overall financial health. The portfolio is generally a microfinance institution's largest asset and its primary source of earned income. And most program expenses typically are related to disbursing and collecting loans. So prudent management of the loan portfolio lies at the heart of a microfinance institution's operations. Three key indicators of portfolio quality are portfolio at risk, the loan loss reserve ratio, and the loan write-off ratio.

PORTFOLIO AT RISK

Portfolio at risk can be considered the most important indicator of portfolio quality. This ratio measures the outstanding amount of all loans with a portion in arrears, expressed as a percentage of the outstanding portfolio. Thus it shows what share of the portfolio would have to be written off if all loans in arrears prove uncollectable. The earlier in the repayment cycle that loans fall into arrears, the greater the percentage of the portfolio that is at risk. Portfolio at risk is reported as of a certain number of days (for example, 1, 30, or 60) after the scheduled repayment date.

PORTFOLIO AT RISK

$$\frac{\text{Outstanding balance of overdue loans}}{\text{Gross portfolio outstanding}}$$

LOAN LOSS RESERVE RATIO

The loan loss reserve ratio shows the relationship between two balance sheet accounts: the loan loss reserve divided by the gross portfolio outstanding. It reveals what proportion of outstanding loans the institution expects will never be repaid. The ratio should be based on the historical default rate and take into account any significant changes in external circumstances or internal capabilities (such as an increasingly stable economy or improved training for loan officers).⁷ Prudent financial management and full disclosure both mandate that the ratio should reflect the maximum level of potentially unrecoverable loans.

LOAN LOSS RESERVE RATIO

$$\frac{\text{Loan loss reserve}}{\text{Gross portfolio outstanding}}$$

LOAN WRITE-OFF RATIO

The loan write-off ratio measures the loans written off during the period as a percentage of the average outstanding portfolio—the share of the portfolio lost to bad loans. This ratio depends largely on the microfinance institution's write-off policy—which loans are written off and how frequently write-offs are charged. Loan write-offs reflect a prudent approach to financial management, not a legal acknowledgment that borrowers in default are no longer in debt to the institution. Collection efforts on defaulted loans may continue even after write-offs have been declared.

LOAN WRITE-OFF RATIO

$$\frac{\text{Amount of loans written off}}{\text{Average outstanding portfolio}}$$

Microfin uses the percentages entered for the portfolio at risk and loan write-off ratio in calculating the loan loss reserve for the balance sheet and the loan loss provision for the income statement.

8.5.2 Profitability indicators

Operating subsidies—in the form of grants or in-kind contributions—may be available to a microfinance institution only in limited amounts and for a limited period. So to ensure that it can continue to serve its clients, the institution must be able to cover an increasing share of its costs, through the income earned from its financial services and investments, and ultimately reach full financial self-sufficiency.

From a financial perspective, a microfinance institution invests in its assets (such as the portfolio, investments, and equipment) in order to generate a financial return. It is therefore important to gauge how well it manages its assets, or how much income it is generating after all expenses—including subsidies—are deducted. One indicator for doing so is the adjusted return on assets, which correlates the adjusted net income with the asset base of the institution. There are two common ways of calculating the relevant asset base—average performing assets and average total assets.⁸

ADJUSTED RETURN ON PERFORMING ASSETS

$$\frac{\text{Adjusted net income}}{\text{Average performing assets}}$$

ADJUSTED RETURN ON PERFORMING ASSETS

Performing assets generally consist of cash and bank deposits, any other interest-bearing deposits, the gross loan portfolio outstanding, and any long-term investments. They can be understood as the items over which management has control in its efforts to maximize profitability. Management must continually shift available funds among these items to maximize returns while minimizing risks. So

the adjusted return on average performing assets is an important gauge of management's operating performance.

ADJUSTED RETURN ON TOTAL ASSETS

$$\frac{\text{Adjusted net income}}{\text{Average total assets}}$$

ADJUSTED RETURN ON TOTAL ASSETS

A return ratio with average total assets as the denominator gauges management's performance in deploying funds among all assets. So it says more about the institution's long-term strategy for managing assets and liabilities than about operating performance.

EQUITY MULTIPLIER

$$\frac{\text{Total assets}}{\text{Total equity}}$$

8.5.3 A solvency indicator—the equity multiplier

Solvency refers to the financial soundness and capital structure of an institution as reflected on its balance sheet. A common indicator of solvency is the equity multiplier, which measures the degree to which the institution's assets are financed through debt, or the institution's "leverage." If the institution has no debt, the equity multi-

plier would be 1.0. But if its balance sheet includes savings, commercial or concessional loans, or other forms of debt, the institution has leveraged its equity base by using debt financing to increase the level of investment in its asset base. For a microfinance institution higher investment in assets generally means a larger portfolio. So by leveraging debt, an institution can increase its scale of operations and its income-generating activities.

8.5.4 Efficiency and productivity indicators

Efficiency and productivity ratios gauge how well an institution uses its limited resources. Efficient use of resources allows a microfinance institution to provide services at the lowest possible cost to its clients. The higher the productivity of an institution, the more output (earned income, loans) it generates for each unit of input (operating expenses, loan officers).

YIELD ON PORTFOLIO

The yield on portfolio measures how much income is generated by the portfolio. For a microfinance institution with a highly productive portfolio, income as a percentage of average loans outstanding would be equal to the effective interest rate charged. In practice the yield is generally lower, because arrears and defaults on loan principal usually correlate with late payment or nonpayment of interest.

YIELD ON PORTFOLIO

$$\frac{\text{Credit program income}}{\text{Average portfolio outstanding}}$$

OPERATING COST RATIO

The operating cost ratio measures operating expenses (not including the cost of funds or the loan loss provision) as a percentage of the average portfolio. Thus it shows the costs incurred by the institution relative to its lending activity. A range of 15–25 percent is considered reasonable.

OPERATING COST RATIO

$$\frac{\text{Operating expenses}}{\text{Average portfolio outstanding}}$$

BORROWERS PER LOAN OFFICER

The ratio of borrowers to loan officers reflects the caseload of credit staff and is a gauge of their productivity. The higher the caseload per officer, the more clients will be served. But the optimal caseload depends on many factors, including the lending methodology, the average loan size, the number of repeat clients, and the maturity of the program. Exceeding the optimal caseload will result in poor review and follow-up of loans, and thus likely lead to increased delinquency and defaults.

BORROWERS PER LOAN OFFICER

$$\frac{\text{Average number of borrowers}}{\text{Average number of loan officers}}$$

PORTFOLIO PER LOAN OFFICER

Like caseload, portfolio per loan officer gauges the productivity of credit staff.⁹ Since the portfolio is the main income-generating asset of a microfinance institution, it is important to measure the average amount of the portfolio managed by a loan officer.

PORTFOLIO PER LOAN OFFICER

$$\frac{\text{Average portfolio outstanding}}{\text{Average number of loan officers}}$$

If the projected number of clients or the average portfolio per loan officer falls below management's expectations, credit operations should be evaluated to see whether productivity and efficiency can be improved. Better training for loan officers or a more efficient process for reviewing, approving, and disbursing loans might increase staff productivity.

8.5.5 Growth and outreach indicators

Growth and outreach indicators cover both lending and voluntary savings programs.

<p>VALUE OF ENDING PORTFOLIO</p> <p>Gross portfolio at end of period</p>	<p>VALUE OF ENDING PORTFOLIO</p> <p>The value of the portfolio at the end of each period is an important gauge of program outreach.</p>
<p>PERCENTAGE GROWTH IN PORTFOLIO</p> $\frac{(\text{Gross portfolio at end of period} - \text{gross portfolio at beginning of period})}{\text{Gross portfolio at beginning of period}}$	<p>PERCENTAGE GROWTH IN PORTFOLIO</p> <p>As noted earlier, the projected rate of growth in the lending program should be ambitious enough to move the microfinance institution steadily toward increased client outreach and institutional profitability, yet not place too great a strain on institutional capacity. The historical growth rate, adjusted for changes the institution is implementing to increase operating efficiency, provides a good basis for comparison.</p>
<p>NUMBER OF ACTIVE LOANS</p> <p>Active loans at end of period</p>	<p>NUMBER OF ACTIVE LOANS</p> <p>Like the value of loans, the projected number of active loans outstanding at the end of each period gives the institution a sense of the expected reach of its credit operations.¹⁰</p>
<p>PERCENTAGE GROWTH IN BORROWERS</p> $\frac{[\text{First-time borrowers} - (\text{active borrowers at end of period} - \text{active clients at beginning of period})]}{\text{Active clients at beginning of period}}$	<p>PERCENTAGE GROWTH IN BORROWERS</p> <p>The growth in the number of borrowers reflects how quickly the institution is increasing outreach in its lending program.</p>
<p>DROPOUT RATE</p> $1 - \frac{\text{Number of follow-up loans issued during period}}{\text{Number of loans paid off during period}}$	<p>DROPOUT RATE</p> <p>As noted earlier, retaining a high percentage of clients is key to a microfinance institution's capacity to expand. Loans to repeat clients involve lower credit risk, are larger, and require less staff time than loans to new clients. So a high dropout rate means high costs to maintain the projected portfolio, since staff must invest time in locating, screening, and overseeing many first-time borrowers.</p>
<p>VALUE OF ENDING SAVINGS DEPOSITS</p> <p>Amount of savings deposits at end of period</p>	<p>VALUE OF ENDING SAVINGS DEPOSITS</p> <p>Like the value of the portfolio at the end of each year, the amount of voluntary savings on deposit is an important gauge of outreach.</p>

PERCENTAGE GROWTH IN SAVINGS DEPOSITS

The growth in the savings mobilized is another gauge of how quickly the institution is increasing outreach in its savings program.

NUMBER OF DEPOSITORS

The number of depositors is a further measure of the institution's outreach.

PERCENTAGE GROWTH IN DEPOSITORS

The growth in the number of savings depositors is another gauge of how quickly the institution is increasing its outreach.

PERCENTAGE GROWTH IN SAVINGS DEPOSITS

$$\frac{(\text{Amount of deposits at end of period} \\ - \text{amount of deposits at beginning of period})}{\text{Amount of deposits at beginning of period}}$$

NUMBER OF DEPOSITORS

Depositors at end of period

PERCENTAGE GROWTH IN DEPOSITORS

$$\frac{(\text{Depositors at end of period} \\ - \text{depositors at beginning of period})}{\text{Depositors at beginning of period}}$$

8.6 Sensitivity analysis

As managers review the financial projections and performance indicators, they may find that certain elements need more work. For example, the projected income and expenses may not yield the institution's profitability target, or the projected rate of growth in lending may exceed the institution's capacity to implement the expanded program.

To refine the projections, managers can perform sensitivity analysis, that is, see how changing key variables would affect outcomes. Refining the projections is an iterative process, requiring key staff to undertake successive rounds of:

- Evaluating the numbers to determine whether they are consistent with institutional and program objectives
- Deciding what changes to seek in the results
- Selecting the input variables to modify.

In choosing the variables to modify, management might ask such questions as these:

- Can client retention rates be increased?
- Should effective loan terms be shortened?
- Can effective interest rates be raised without losing clients?
- Can the institution scale up more quickly—by increasing either the number or the average size of loans—without straining institutional capacity?
- Can the long-term loan default rate be reduced?
- Can loan officers' caseload be increased?
- Can operating costs be lowered without sacrificing quality in operations?

Adjusting key variables can reveal which inputs have the greatest effect on projected performance and thus help a microfinance institution arrive at an optimal scenario. Once management, staff, and board are satisfied with the projected scenario, a final budget can be adopted. This budget, and the associated performance indicators, serve as benchmarks for ongoing monitoring and evaluation of the institution's performance, as discussed in chapter 9.

Notes

1. The discussion here on analysis of financial statements and ratios is brief and assumes a basic understanding of financial concepts. For further reading see Women's World Banking, "Principles and Practices of Financial Management" (New York, 1994), SEEP Network, *Financial Ratio Analysis of Micro-Finance Institutions* (New York: PACT Publications, 1995), and Joanna Ledgerwood and Kerri Moloney, *Financial Management Training for Micro-Finance Organizations—Accounting: Study Guide* (Toronto: Calmeadow, 1996, available through PACT Publications, New York). Although the discussion here relates to the analysis of projected financial statements and ratios, the same logic applies to analysis of historical figures.

2. Financial regulations in many countries, especially in Latin America, do require that adjustments for the effect of inflation be included in the audited financial statements (including a revaluation of fixed assets).

3. The formula reflects the fact that funds invested in fixed assets are not eroded by inflation. See CGAP, "Microcredit Interest Rates" (CGAP Occasional Paper 1, World Bank, Washington, D.C., 1996) for an explanation of the formula.

4. See Women's World Banking, "Principles and Practices of Financial Management" (New York, 1994, pp. 14–23) for a detailed discussion of how the cash flow is derived from the income statement and balance sheet.

5. For fuller discussion of performance indicators and ratio analysis see SEEP Network, *Financial Ratio Analysis of Micro-Finance Institutions* (New York: PACT Publications, 1995), CGAP, *Management Information Systems for Microfinance Institutions: A Handbook* (New York: PACT Publications, 1998, chapter 4), and Women's World Banking, "Principles and Practices of Financial Management" (New York, 1994, chapter 5).

6. For fuller discussion of these ratios see CGAP, *Management Information Systems for Microfinance Institutions: A Handbook* (New York: PACT Publications, 1998, chapter 4).

7. Microfin calculates the loan loss reserve ratio by adding the period's loan loss provision from the income statement to the previous period's loan loss reserve from the balance sheet. For detailed discussions of this topic see Women's World Banking, "Principles and Practices of Financial Management" (New York, 1994, pp. 71–72) and Joanna Ledgerwood and Kerri Moloney, *Financial Management Training for Micro-Finance Organizations—Accounting: Study Guide* (Toronto: Calmeadow, 1996, available through PACT Publications, New York).

8. In Microfin annual ratios are based on averages for the year, while monthly ratios are based on data only for the month.

9. The number of clients and the amount of loans disbursed per loan officer can also be tracked to gauge the efficiency of each credit officer, both over time and relative to others. One credit officer might make many small loans to new clients, while another might make fewer but larger loans to repeat clients. Thus loan officers' performance should be evaluated on the basis of both the number of clients reached and the total amount disbursed.

10. The amount and number of loans disbursed over the course of a year are also useful measures of program growth and outreach.

Using Business Planning as an Ongoing Management Tool

The value of the business planning process does not end with the operational plan that results. The business plan and the underlying financial projections serve as ongoing tools for management.

9.1 Variance analysis

The financial projections can be used as targets, or benchmarks, against which to measure actual performance. As management monitors the institution's financial performance by comparing actual results with projected benchmarks, it can assess the institution's progress toward the quantitative goals outlined in the plan.

If actual results are at significant variance with the projections, management is faced with two possible explanations, each of which would call for a different course of action. First, the proposed strategy might turn out to be unrealistic. For example, growth projections might have proved too ambitious given institutional capacity, or expected financing might have proved unavailable. In this case management would need to revise its projected objectives and activities to devise a plan that it judges to be achievable.

Second, the strategy may still be considered realistic, but there might be problems in implementing it, such as failure to review, disburse, or follow up on loans promptly or to offer training programs to strengthen loan officers' performance. In this case management would need to refocus institutional efforts on the key objectives and activities articulated in the plan, so that implementation improves. In both cases the plan serves as an important reference point.

The business plan can also be used to gauge how well the institution is doing in achieving its broader goals and objectives. Management could compare progress against the objectives articulated in the plan in such areas as:

- Outreach (number of clients, amount of disbursements)
- Resource mobilization (commercial and concessional debt, grant funds, savings deposits)
- Staffing levels (number of loan officers, caseload per loan officer)
- Institutional development activities (implementation of an MIS, number of loan officers trained).

9.2 Annual planning

In addition to benchmarks for ongoing variance analysis, the business planning and financial modeling process can provide the foundation for a microfinance institution's annual planning cycle. Management can review the strategic analysis, updating it to take into account any significant changes, such as new competitors, new market opportunities, or changes in staff composition. Management can then revise the strategy as needed and update the objectives and activities for the coming year. Financial projections can then also be revised to take into account changes in the strategic plan.

Installing and Starting Microfin

Software and hardware issues

The model has been developed to run on Excel 5 (Windows 3.1), Excel 95, or Excel 97. All features of the model perform reliably on all three versions, but recalculation is much faster in Excel 97.

Known problem with Excel 97

Both the original release of Excel 97 and the U.S. version of Service Release 1 have a serious recalculation bug that can cause Microfin to generate erroneous calculations. *A patch available from Microsoft to correct this bug must be installed in order for Microfin to function reliably.*

To find out whether this patch, the Excel 97 Auto Recalculation Patch, is needed, start Excel 97 and click on **HELP** and then on **ABOUT MICROSOFT EXCEL** to display the version information. If the version is simply Excel 97, Microsoft's Service Release 1 patch for Office 97 needs to be installed. The update file, SR1OFF97.EXE, is available on the Internet at www.microsoft.com, as well as on CD-ROM from authorized Microsoft dealers. Running this patch will modify Excel and change the version number to Excel 97 SR-1.

If the version is already Excel 97 SR-1, another small patch may still have to be installed, because Microsoft corrected the recalculation bug after the U.S. version of SR-1 was released.¹ In this case there are two options:

- Installing a small patch file, XL8P3.EXE, available at www.microsoft.com/excel/recalc.htm. (A copy of this patch is included on the Microfin distribution disk. Check for a file of this name in the c:\microfin subdirectory of the hard drive.) Double-clicking on this file will install the patch and display a message indicating that Excel has been successfully patched.
- Installing the Service Release 2 patch, available at www.microsoft.com. Once it is installed, the version will be Excel 97 SR-2.

Once the necessary patch has been installed, start Excel and open the file `microfin.exe`. While holding down both the **CTRL** and the **ALT** key, hit the **F9** key. This will correctly calculate the spreadsheet. Thereafter the model can be recalculated by simply hitting the **F9** key. Save the spreadsheet back onto the disk.

Minimum hardware and software requirements

- 486 computer
- 24 megabytes of RAM (minimum)
- 8 megabytes hard disk space
- Excel 5, 95, or 97

Recommended hardware

Microfin requires at least a 486 computer with 24 megabytes of RAM to run adequately. But the worksheet is large, and recalculation times dramatically improve when it is run on a Pentium or Pentium II computer.

When Microfin is used to project activity for individual branch offices, even more RAM will be required—about 6 megabytes more for every additional branch office (see section 3.4.1 for more information). But buying additional RAM has become quite affordable (generally less than \$50 for 32 megabytes for a desktop computer).

There are many ways to find out how much RAM is on your system. An easy way is to start up Excel, click on HELP, then click on ABOUT MICROSOFT EXCEL, and finally click on SYSTEM INFO. This will bring up a list of technical information, including total physical memory. If the number of kilobytes is more than 24,000, then you have more than 24 megabytes of RAM.

FAQ 35

Microfin runs extremely slowly on my computer. Why?

There are three possible reasons. If the computer continually accesses the hard drive, this indicates that either there is inadequate RAM installed or that other applications are running, using the available RAM. Exit all other applications. If the problem persists, more RAM should be added to the system.

A third possibility is that auto-recalculation is enabled, so that Microfin is recalculating the entire spreadsheet with every new input. When Microfin starts up, it runs a macro that changes recalculation to manual, but if the user has disabled all macros, this change will not have taken place.

Installing Microfin

Microfin.xls is 7 megabytes, so the file must be compressed in order to be distributed on floppy disks. It is distributed as a self-extracting zip file that must be installed on your hard drive before it can be used. The installation procedure is the same for all versions of the file, whether distributed on a diskette, downloaded from the Internet, or received as an email attachment. Follow these steps to use the model:

1. Start Windows Explorer (if using Windows 95 or 97) or File Manager (if using Windows 3.1).
2. Locate the file called mfininst.exe (short for “microfin install”). This file will be on your floppy drive (if installing from a diskette) or in your download directory (if received from the Internet or by e-mail).
3. Double-click on the file named mfininst.exe (you may not see the .exe extension, depending on the configuration of Windows Explorer).
4. The installation process will begin automatically. A message box will appear with the following text:

You are currently installing the Microfin projection model and help system onto your hard drive. The installation program will suggest these files be installed in the subdirectory “c:\microfin” on drive “c.” You may choose a different drive and directory on the next screen if you wish. The installation process requires 8 megabytes free disk space. Should you have problems with the installation, refer to the user’s handbook or to the CGAP website.

5. Click on ok and an installation screen will appear, allowing you to change the subdirectory if you wish. Click on the unzip box when you are ready to proceed.
6. When installation is complete, you should see the message “files installed successfully.” Click on ok. The Microfin help system should then load a screen with

the message “Installation is complete.” You can explore the help system if you wish. To close the help system when you’re finished, click on the exit button.

7. The file is now ready to use.

Starting up Microfin

To begin using Microfin, first start up Excel. Then use the File/Open command, locate the subdirectory where Microfin.xls is installed, and click on the file to open it. Microfin will initially run through a series of automated procedures to prepare itself for use. (If a macro error appears, refer to FAQ 36.)

Once the file is open, it is advisable to use the File/Save As command to save the model under a new name (such as FEDA1.xls). Doing so preserves the original file as a backup or for use in developing another set of projections. When the model is run in Excel 97, a message will appear indicating that the workbook was created in an earlier version of Excel and asking whether to save the version in Excel 97 format. No information is lost or changed if the file is updated to the Excel 97 format, but the file can no longer be used with earlier versions of Excel.

Microfin is a highly sophisticated model, and every effort has been made to ensure its accuracy and reliability. Nevertheless, neither CGAP nor the model’s developers can be held responsible for any problems caused by flaws in the model or by errors in its use.

Box A1.1

Methods for transferring Microfin to other computers

The Microfin.xls file is too large to fit on a single floppy diskette. To transfer Microfin to another computer, use one of these options:

1. If both computers are equipped with a compatible removable storage device such as a ZipDrive, use this device to transfer the files.
2. The next simplest approach is to use a cable connection and software such as LapLink to transfer the file. Staff in the MIS department should be able to help.
3. Another option is to use the built-in backup utility program available in all versions of Windows. In Windows 95 and 97 the program can be found under Start/Program/Accessories/System Tools/Backup. The backup program varies with each version of Windows and the versions are not compatible, so both computers must have the same version of Windows. Once the backup program is open, select the file you want to back up (c:\microfin\microfin.xls) and indicate that you want to back it up onto diskettes (you will need two to three). Once the file has been transferred to the diskettes, start the backup utility on the second computer. Select the Restore option and insert the diskettes when prompted, and the file will be transferred to the hard disk of the second computer.
4. A compression utility that supports disk spanning will allow you to compress the file onto more than one floppy disk. Consult the software documentation or your MIS department for guidance. Many compression utilities are available as shareware and may be downloaded from the Internet. Pkzip does support disk spanning, but the shareware version of WinZip 6.3 does not.

FAQ 36

Excel displays a message about macros. What’s happening?

When Microfin starts, it runs through a series of macro procedures to prepare the model for use. On some systems the macros may display a message such as “Can’t find project or library” or “Macro Error: Run Time Error.” If this occurs, click the END button.

Macro errors can result if Excel was not fully installed. Microfin may or may not be usable, depending on where in the Microfin File Open process the error occurred. If Microfin cannot be easily used, reinstall Excel from the original disks or try the model on another computer.

Excel 97 will sometimes request that the user enable the macros when the workbook is first opened. *You must enable the macros for Microfin to function.* Excel 97 provides this option to avoid potential macro viruses. But the original Microfin file contains no viruses, so the macros can be enabled without any danger.

Note

1. The Excel 97 Auto Recalculation Patch is included in international versions of the SR-1 patch. So if you have installed an international version of the Office 97 SR-1 Patch, you do not need to install the Excel 97 Auto Recalculation Patch.

Printouts from Microfin

This annex contains printouts of all the major elements of the Excel workbook. These printouts should be used in conjunction with the model to see how the pieces of the model fit together. They can often provide a clearer picture than the small portion of the model that can be viewed on a computer monitor.

Information on the screen can differ substantially from the content of these printouts because of the configuration options in Microfin, however. For example, large sections of the model are hidden for unused loan and savings products, the choice of projection mode (consolidated, branch-level, or regional) affects the nomenclature and structure of the pages, and selecting detailed analysis of cash flow will display several sections that are normally hidden.

The printouts are divided into sections by major topic; each section is preceded by a page describing the information it contains. The sections are as follows (with the page numbers in parentheses):


- Overview and introductory material (p. 159)
- Products and services (p. 167)
- Program or branch office analysis (p. 171)
- Administrative or head office analysis (p. 185)
- Financing (p. 201)
- Financial statements and analysis (p. 207).

Overview and introductory material

This section contains:

- The introductory screen (INTRO page)
- Flowchart of the Microfin model (MODEL STRUCTURE page)
- The income statement flow of the Microfin model (INC.STAT.FLOW page)
- The MODEL SETUP page, which contains basic information used throughout the model, including financial statements from the previous two years.

Language: English Español Français User-defined



CGAP
Consultative Group to Assist the Poorest

Microfin.xls
An Operational Planning Model for Microfinance Institutions

Presenting financial projections for the years 1998-2002 for
FEDA

Developed through contracts with CGAP and Women's World Banking by:
Chuck Waterfield
Tony Sheldon

Version 1.99 beta
Release date: 30 August 1998
Excel version: 8.0a

Please contact CGAP at cproject@worldbank.org for comments on this model.
For a printed handbook contact PACT Publications at books@pactpub.org

YOU MUST READ AND AGREE TO THE FOLLOWING BEFORE USING THIS MODEL!

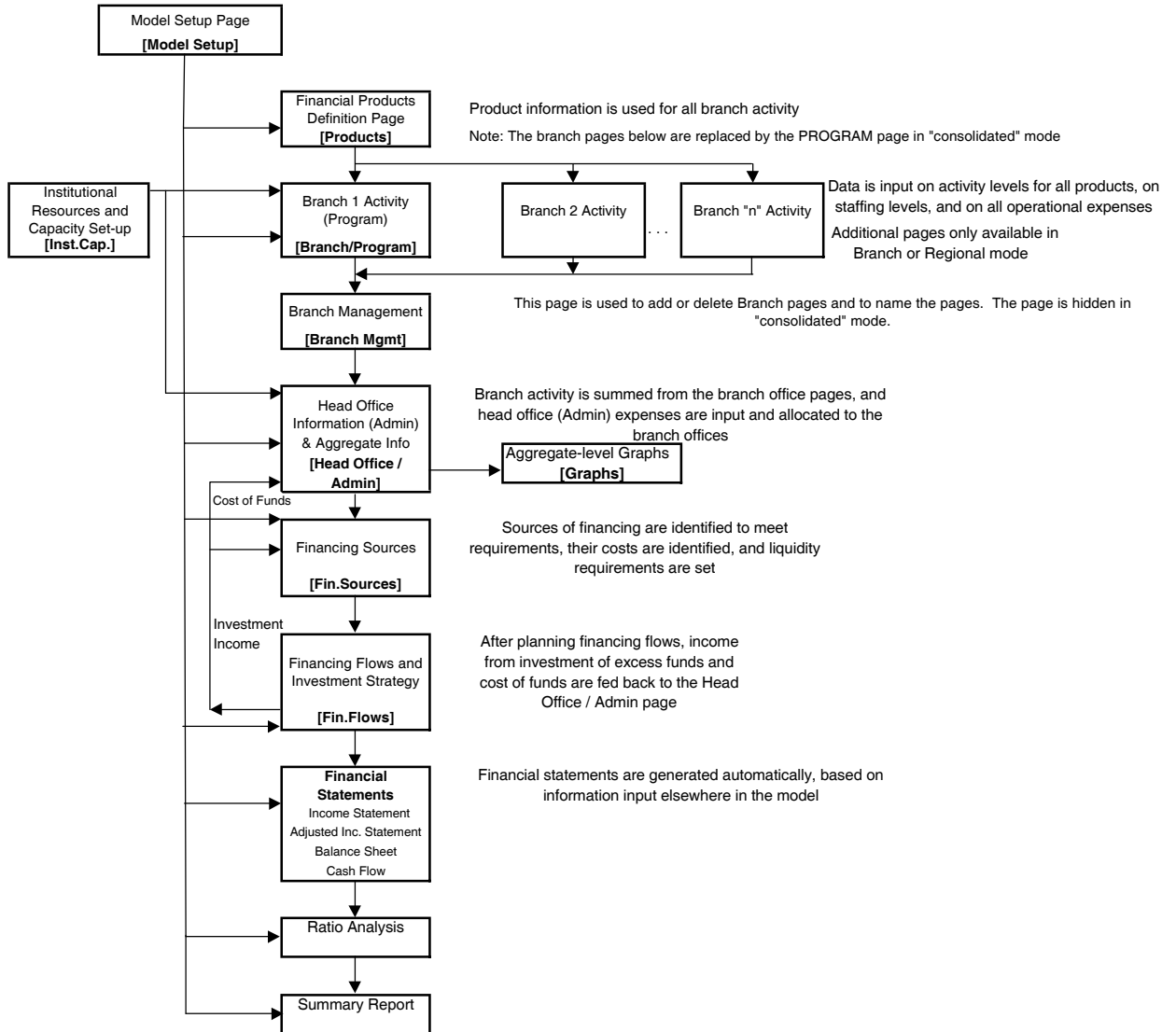
* You may use this model for your own use.
* The pages of the model are password protected because of the complexity of the model and the danger that modification may unintentionally introduce errors in the model.
* You may distribute unaltered copies of this model, but you may not sell the model or modifications of the model to others.
* If you make modifications, you may not distribute copies of the modified version outside of your organization.

DISCLAIMER:
This is a highly sophisticated model and every effort has been made to ensure its accuracy and reliability. Nevertheless, neither CGAP, WWB, or the model's developers can be held responsible for any problems caused either by flaws in the model or by errors in its use.

Modifications by version number
2.0 This is the original release of microfin.

Flowchart of Microfin.xls Model

This page describes the overall flow of information in the Microfin model. Use File Print to print this page for reference purposes.



"Income Statement" Flow to Microfin.xls Model

This page summarizes the logical flow of financial information in the model. Use the File Print command to print this page for reference. The following numbers are example numbers only, to demonstrate the way in which income statement numbers can be converted to facilitate analysis. The Income Statement, the Program/Branch page and the Admin / Head Office page of this model follow the same logic.

		Avg Perf. Assets	Avg. Total Assets
		1,000,000	1,200,000
Portfolio Projections uses: Product Definitions and Branch Activity Projections	→ Financial Income	520,000	43.3%
Financing Sources Savings (from Program Page) Concessional Loans (from Fin.Sources Page) Commercial Loans (from Fin.Sources Page)	→ - Financial Costs	120,000	10.0%
	= Gross Financial Margin	400,000	33.3%
Loan Loss Provisioning rate from Program Page Portfolio activity from Program Page	→ - Provision for Loan Loss	35,000	2.9%
	= Net Financial Margin	365,000	30.4%
Program Operational Expenses Caseload determination Loan Officer analysis Staffing Composition Salaries and Benefits Other Operational Expenses Program Fixed Asset Analysis	→ - Program Operating Costs	180,000	15.0%
Administrative Operational Exp. Admin Staffing Admin Other Operational Expenses Admin Office Fixed Asset Analysis Admin Other Asset Analysis	→ - Admin. Operating Costs	60,000	5.0%
	= Net Income from Operations (Return on Assets)	125,000	10.4%
Donor Equity Operations Portfolio Other Assets Unrestricted	→ + Donations and Grants	55,000	4.6%
	= Excess of Income over Exp.	180,000	15.0%
	Net Income from Operations (Return on Assets)	125,000	10.4%
Adjustments Subsidized Cost of Funds Adjustment Inflation adjustment of equity In-Kind Donation Adjustment	→ - Adjustments	90,000	7.5%
	= Net Margin (Adjusted Return on Assets)	35,000	2.9%

Microfin.xls – An Operational Projection Model developed for Microfinance Institutions
 This model was developed under contracts with CGAP and Women's World Banking
 Version 1.99 beta

Model Setup Page

Modeling of individual branches

Explanation: Microfin can be set up to allow modeling of individual branch activity on separate sheets of the model. However, doing so takes large amounts of RAM and requires more time to complete the projections. Choosing to model all activity on a single worksheet will disable this feature and changes references from "Branch / Head Office" to "Program / Admin". See handbook or Help file for additional explanation.

Consolidated or multi-branch approach

Institutional

Name of Institution
 Name of local currency (plural form)
 Starting Year for projections
 Starting Month of fiscal year, e.g., 1
 Indicate the starting Fiscal Year

FEDA
 Freeons
 NOTE: Projections must be prepared in local currency. Summary data will be converted to a selected external currency. See help file for an explanation of why local currency must be used.
 1998
 1
 NOTE: Projections are assumed to be in line with the fiscal year
 NOTE: This will be the first month of the projections
 1998 This will appear as FY98

Inflation Data

Inflation rate

Input changes on this line
 Inflation rate used in calculations
 Monthly/Quarterly equivalent
 Inflation index
 Avg monthly inflation since Month 1

#	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98	11 Nov-98	12 Dec-98
	NOTE: Input the ANNUALIZED inflation rate												
		10.0%											
		10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
		0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
	100.00	100.80	101.60	102.41	103.23	104.05	104.88	105.72	106.56	107.41	108.27	109.13	110.00
		0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%

Product indexing rate

Input changes on this line
 Indexing rate used in calculations
 Monthly/Quarterly equivalent
 Index value
 Projected exchange rate (used as reference only)

NOTE: This section is only used for loan or savings products that are indexed to an external measure.

		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Historical Financial Statements

Explanation: This information is used in trend analysis and for verification of initial balances input elsewhere in the model. Information for the older fiscal year is not essential for the functioning of the projection model; the grey cells are used only for generation of trend data.

Financial Statements from Previous Two Fiscal Years

All figures are in Freeons

Data validation

Loan loss reserve entry
 Accumulated depreciation entry
 Dividend payments entry
 Balance sheet balances for FY97
 Balance sheet balances for FY96

NOTE: Any potential errors in the financial statements are noted in the section below
 Data ok
 Data ok
 Data ok
 Data ok
 Data ok

Income Statement

	FY97			FY96		
	Fin.Services	NFS	TOTAL	in.Services	NFS	TOTAL
Financial Income						
Income on financial services	166,320			136,200		
Income on Investments	3,000			9,000		
Total Financial Income	169,320		169,320	145,200		145,200
Non-Financial Services Income			0			0
Financial Costs						
Interest and fees on borrowed funds	22,200			21,000		
Interest paid on savings deposits						
Total Financial Costs	22,200		22,200	21,000		21,000
Gross Financial Margin	147,120			124,200		
Provision for loan losses	20,000		20,000	18,000		18,000
Net Financial Margin	127,120			106,200		
Operating Costs						
Program	80,100		80,100	72,600		72,600
Administration	48,600		48,600	43,500		43,500
Total Operating Costs	128,700	0	128,700	116,100	0	116,100
Net Income from Operations (before taxes)	(1,580)	0	(1,580)	(9,900)	0	(9,900)
Amount of taxes paid			0			0
Net income from operations (after taxes)	(1,580)	0	(1,580)	(9,900)	0	(9,900)
Income from grants	42,600		42,600	5,700		5,700
Excess of income over Expenses	41,020	0	41,020	(4,200)	0	(4,200)

NOTE: This data is used only for calculation of the ratios below. It is not used elsewhere in the model.

NOTE: See handbook for an explanation of program and administration expense distinctions

Balance Sheet	FY97			FY96			Financing Section	NOTE: Financing Section information is relevant to the Fin.Flows. Page of the model
	Fin.Services	NFS	TOTAL	Fin.Services	NFS	TOTAL		
ASSETS								
Current Assets								
Cash in Bank and Near Cash	51,400		51,400	56,380		56,380	Allocated *	** "Allocated" means that these funds may have some restrictions, identified on the Fin.Soi
Gross Portfolio Outstanding (Less: Loan Loss Reserve)	504,000		504,000	420,000		420,000	Portfolio Non-cash **	** "Non-cash" means this account does not enter in the financing flows
Net Portfolio Outstanding	484,000		484,000	404,000		404,000	---	Data ok
Short-term Investments	11,000		11,000	52,000		52,000	Allocated *	
Savings reserves			0			0	Investments Operations	Note: Reserves are the amount of savings not available for lending
Other Current Assets	400		400	9,400		9,400	---	Note: Changes to this line item are tracked in the "operational finances" section
Sub-total, Current Assets	546,800	0	546,800	521,780	0	521,780	---	
Fixed Assets								
Land			0			0	Other Assets	
Buildings (gross)			0			0	Other Assets	
Furniture and Equipment (gross)	24,000		24,000	24,000		24,000	Other Assets	
(Accumulated Depreciation)	(8,000)		(8,000)	(4,000)		(4,000)	Non-cash **	Data ok
Net Fixed Assets	16,000	0	16,000	20,000	0	20,000	---	
Other Long-Term Assets								
Long-term Investments			0			0	Allocated *	
Other long-term assets (net)			0			0	Other Assets	Note: Included here are MIS and other major purchases which are amortized over their useful life
Sub-total, Long-term Assets	16,000	0	16,000	20,000	0	20,000	---	
TOTAL ASSETS	562,800	0	562,800	541,780	0	541,780	---	
LIABILITIES								
Current Liabilities								
Accrued expenses			0			0	Operations	
Savings deposits			0			0	Various	NOTE: Only enter savings that are held by the MFI itself
Short-term Loans	108,000		108,000	20,000		20,000	Various Operations	
Other Current Liabilities			0			0	---	
Sub-total, Current Liabilities	108,000	0	108,000	20,000	0	20,000	---	
Long-term Liabilities								
Long-term Loans	182,000		182,000	290,000		290,000	Various	
Other long-term Liabilities			0			0	Other Assets	NOTE: Changes to this line item are input in the "other assets" financing section
Sub-total, Long-term liabilities	182,000	0	182,000	290,000	0	290,000	---	
TOTAL LIABILITIES	290,000	0	290,000	310,000	0	310,000	---	
EQUITY								
Accum. Donated equity, prev. periods	297,400		297,400	291,700		291,700	---	NOTE: The right-hand number is derived from the other data input, to ensure consistent da
Donated equity, current period	42,600		42,600	5,700		5,700	Various	The current period amount will recalculate once the previous period amount is entered
Shareholder equity			0			0	Unrestricted	NOTE: Grant income comes from the information input in the Balance Sheet
Dividend payments			0			0	Unrestricted	Data ok
Accum. Net Surplus (Deficit), previous periods	(65,620)		(65,620)	(55,720)		(55,720)	---	NOTE: The right-hand number is derived from the other data input, to ensure consistent da
Net Surplus (Deficit), current period	(1,580)		(1,580)	(9,900)		(9,900)	Unrestricted	
TOTAL EQUITY	272,800	0	272,800	231,780	0	231,780	---	
TOTAL LIABILITIES AND EQUITY	562,800	0	562,800	541,780	0	541,780	---	
Verification: If A = L + NW, this will be 0	0	0	0	0	0	0	Data ok	

Portfolio Information	FY97	FY96
Number of active borrowers (end-period)	3,600	
Number of days for at risk calculations	30	
Payments in arrears > 30 days (end-per)	14,000	
Portfolio at risk > 30 days (end-per)	30,240	
Value of loans written off during period	16,000	
Average initial loan size	300	

NOTE: This information is only used to calculate the ratios below.
 NOTE: If the right-hand column is filled in, a second year of ratios will be generated for trend analysis e.g., 7, 14, or 30
 Enter outstanding balance of loans at risk
 NOTE: This value is derived from information in the Balance Sheet and Income Statement

Financial Ratio Analysis

Selection of preferred denominator Calculate ratios based on TOTAL ASSETS

Information used in Ratio Calculation	FY97	FY96	FY95
Total Assets	562,800	541,780	
Average Total Assets	552,290	#N/A	
Gross Portfolio Outstanding	504,000	420,000	
Average Gross Portfolio Outstanding	462,000	#N/A	
Loans Payable	290,000	310,000	
Average loans payable	300,000	#N/A	
Equity	272,800	231,780	
Average Equity	252,290	#N/A	
Net Fixed Assets	16,000	20,000	
Average Net Fixed Assets	18,000	#N/A	
Savings deposits	0	0	
Inflation Rate	10.0%		
Market Rate for borrowing	14.0%		
Subsidized cost of funds adjustment	19,800	#N/A	
Inflation adjustment of liquid equity	23,429	#N/A	
In-kind subsidies	3,000		
Avg number of Loan Officers during period	12		
Avg number of total staff during period	18		

NOTE: If the right-hand column is filled in, a second year of ratios will be generated for trend analysis

NOTE: The symbol #N/A indicates that insufficient data exists to calculate the ratio

Note: This is the difference between the market rate for borrowing and the interest actually paid on debt

Note: This is the devaluation of avg. equity, less avg. net fixed assets, due to inflation

Financial Ratios	FY97	FY96
Income Statement Analysis		
Return on Total Assets	30.7%	#N/A
Financial Cost Ratio	4.0%	#N/A
Gross Financial Margin	26.6%	#N/A
Loan Loss Provision Ratio	3.6%	#N/A
Net Financial Margin	23.0%	#N/A
Operating Cost Ratio	23.3%	#N/A
Operating Margin (ROA)	-0.3%	#N/A
Donations and Grants Ratio	7.7%	#N/A
Net Result	7.4%	#N/A
Operating Margin (ROA)		
Adjustments to Operating Margin	8.4%	#N/A
Net Margin (Adjusted ROA)	-8.7%	#N/A
Profitability		
Operational Sustainability	99%	94%
Financial Sustainability	78%	#N/A
Return on Equity	-0.6%	#N/A
Adjusted Return on Equity	-19.0%	#N/A
Solvency		
Equity Multiplier	2.1	2.3
Quick Ratio	5.1	26.1
Efficiency and Productivity		
Yield on portfolio	36.0%	#N/A
Borrowers per Loan Officer	300	#N/A
Loan Portfolio per Loan Officer	40,333	#N/A
Average cost of debt	7.4%	#N/A
Overhead percentage	37.8%	37.5%
Loan Officers as percent of total staff	67%	#N/A
Portfolio Quality Ratios		
Portfolio in Arrears > 30 days	2.8%	#N/A
Portfolio at Risk > 30 days	6.0%	#N/A
Loan Write-off Ratio	3.5%	#N/A
Reserve Ratio	4.0%	3.8%
Growth and Outreach		
Percentage growth in portfolio	20.0%	#N/A
Percentage growth in savings deposits	0.0%	#N/A

NOTE: The symbol #N/A indicates that insufficient data exists to calculate the ratio

These are adjustments for inflation, subsidized loans, and in-kind contributions

Note: Yield is based on both interest and fee income from credit operations

End of information on this page

Products and services

This section contains printouts from the PRODUCTS page, which contains sections on:

- Number and names of products
- Product definition summary
- Loan product definition
- Savings product definition.

	Initial	1	2	3	4	5	6	7	8	9	10	11	12
#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98

Product Definition Page

This page is used to define the number of active financial products and the parameters of those products. Use the buttons on the top row to move to the relevant product.

Number and Names of Products

This model allows up to 4 different loan products and 4 different savings products. Use the dropdown lists to select the number of products. Unused products will be hidden from the model. Finally, enter distinctive names for each product used in this model in the space below.

Number of loan products in use:

	Enter Name here	Names used
Loan Product 1:	Solidarity Group Loan	Solidarity Group Loan
Loan Product 2:		[Lnprod 2 not in use]
Loan Product 3:		[Lnprod 3 not in use]
Loan Product 4:		[Lnprod 4 not in use]

Number of savings products in use:

	Enter Name here	Names used
Savings Product 1:	Passbook Savings	Passbook Savings
Savings Product 2:	Term Deposits	Term Deposits
Savings Product 3:		[savprod 3 not in use]
Savings Product 4:		[savprod 4 not in use]

Product Definition Summary

Results of the product definitions are shown below. Use this information for comparison of products and for verification of data entry.

LOAN PRODUCTS	Product 1	Product 2	Product 3	Product 4	
Step 1: Average loan amount					
First cycle loan size, Month 1	100	0	0	0	
Month 60	160	0	0	0	
Sixth cycle loan size, Month 1	550	0	0	0	
Month 60	998	0	0	0	
Loan size linked to inflation?	Monthly	Monthly	Yearly	Yearly	
Step 2: Repayment Conditions					
Repayment frequency	Monthly	Monthly	Monthly	Weekly	
First cycle loan term, Month 1	6	1	1	1	
Month 60	6	3	3	3	
Sixth cycle loan term, Month 1	12	1	1	1	
Month 60	12	3	3	3	
Grace period?	No	No	No	No	
Step 3: Compulsory Savings	Product 1	Product 2	Product 3	Product 4	
Upfront savings amount	10%	0%	0%	0%	
Upfront savings method	% latest	% latest	% latest	% latest	
Ongoing savings amount	0%	0%	0%	0%	
Elimination of compulsory savings	Yes	No	No	No	
Step 4: Pricing Structure					
Interest rate method	Declining	Declining	Declining	Flat	
Interest rate, Month 1	30.0%	0.0%	0.0%	0.0%	
Month 60	30.0%	0.0%	0.0%	0.0%	
Upfront fee, Month 1	3.0%	0.0%	0.0%	0.0%	
Month 60	3.0%	0.0%	0.0%	0.0%	
Ongoing fee, Month 1	0.0%	0.0%	0.0%	0.0%	
Month 60	0.0%	0.0%	0.0%	0.0%	
Index loans to external value?	No	No	No	No	
Real eff. yield, First cycle, Month 1	28.4%	-9.1%	-9.1%	-9.1%	
Real eff. yield, Sixth cycle, Month 1	23.9%	-9.1%	-9.1%	-9.1%	
SAVINGS PRODUCTS	Compulsory	Product 1	Product 2	Product 3	Product 4
Interest rate paid, Month 1	8.0%	10.0%	15.0%	0.0%	0.0%
Month 60	8.0%	10.0%	15.0%	0.0%	0.0%
Percent held in reserve, Month 1	100.0%	40.0%	25.0%	0.0%	0.0%
Percent held in reserve, Month 60	100.0%	40.0%	25.0%	0.0%	0.0%
Value indexed to an external value?	No	Yes	No	No	No

#	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98	11 Nov-98	12 Dec-98
Loan Product 1: Solidarity Group Loan													
Step 1: Average loan amount Step 1: Set average loan amount for Solidarity Group Loan													
(1) Average amounts by cycle													
NOTE: In the Initial Balances column describe the current loan product definition; postpone any redesign of the product until Month 1 or later.													
1	Input changes in this section												
	First cycle	100											
	Second cycle	200											
	Third cycle	300											
	Fourth cycle	400											
	Fifth cycle	400	500										
	Sixth and subsequent cycles	400	550										
2	Data used in calculations												
	First cycle	100	100	101	102	102	103	104	105	106	107	107	108
	Second cycle	200	200	202	203	205	206	208	210	211	213	215	217
	Third cycle	300	300	302	305	307	310	312	315	317	320	322	325
	Fourth cycle	400	400	403	406	410	413	416	420	423	426	430	433
	Fifth cycle	400	500	504	508	512	516	520	524	529	533	537	541
	Sixth and subsequent cycles	400	550	554	559	563	568	572	577	581	586	591	595
3	(2) Link loan amounts to inflation	Index average loan size to inflation each month											
Step 2: Repayment Conditions Step 2: Define repayment conditions for Solidarity Group Loan													
4	(1) Repayment frequency	Monthly payments											
(2) Effective Loan Term													
NOTE: In the Initial Balances column describe the current loan product definition; postpone any redesign of the product until Month 1 or later.													
Enter term in months, regardless of repayment frequency, using months to complete repayment including delinquency and any grace period													
Note: After Month 24, minimum loan term is 3 months.													
5	Input changes in this section												
	First cycle	13	6										
	Second cycle	13	6										
	Third cycle	13	6										
	Fourth cycle	13	9										
	Fifth cycle	13	9										
	Sixth and subsequent cycles	13	12										
6	Data used in calculations												
	First cycle	13	6	6	6	6	6	6	6	6	6	6	6
	Second cycle	13	6	6	6	6	6	6	6	6	6	6	6
	Third cycle	13	6	6	6	6	6	6	6	6	6	6	6
	Fourth cycle	13	9	9	9	9	9	9	9	9	9	9	9
	Fifth cycle	13	9	9	9	9	9	9	9	9	9	9	9
	Sixth and subsequent cycles	13	12	12	12	12	12	12	12	12	12	12	12
7	(3) Grace period (in months)	Note: The grace period in any month must be less than the minimum loan term of any cycle.											
	Input changes on this line	0											
	Grace period used in calcs	0	0	0	0	0	0	0	0	0	0	0	0
8	Input validation												
Step 3: Compulsory Savings Step 3: Identify any Compulsory Savings for Solidarity Group Loan													
9	(1) "Upfront" savings	Note: Compulsory savings percentages cannot be altered from month-to-month, but the savings requirement can be eliminated using option (3). 10% Based on: Percentage of requested loan amount											
10	(2) "Ongoing" savings	Deposits are calculated as this percentage of monthly principal repayments											
11	(3) Elimination of compulsory savin	37 If compulsory savings is eliminated at some point in the future, input the month number here. All compulsory savings accounts will be closed from this month forward.											
Step 4: Pricing Structure Step 4: Set pricing structure for Solidarity Group Loan													
12	(1) Interest rate method	Charged on declining balance NOTE: The method cannot vary for this loan product. It will apply to the "initial balance" portfolio as well as to any future loans.											
13	(2) Interest rate charged	NOTE: State the annualized equivalent of the interest rate 30.0% This rate is applied to any initial balances in the loan product portfolio											
14	Interest rate for existing portfolio												
	Interest rate for new loans	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
15	(3) Fees and Commissions	Numbers less than 1.00 are treated as a percent of loan amount; numbers greater than 1.00 are a fixed amount per loan											
	"Upfront" fee or commission	0.03											
	Input changes on this line												
	Value used in calculations	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
16	"Ongoing" fee or commission	Numbers less than 1.00 are treated as a percent of loan payment; numbers greater than 1.00 are a fixed amount per month											
	Input changes on this line												
	Value used in calculations	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
17	(4) Indexing of loans receivable	<input type="checkbox"/> Value of outstanding loan principal is indexed to an external value											
Step 5: Analysis Step 5: Analyze product definition for Solidarity Group Loan													
18	A) Review summary analysis table	The following table analyzes this loan product, using values from "Month 1" columns											
		Percent Increase	Contract Term	vg. Month Payment	Cumulative Time (months)	Effective Interest (years)	Cost incl. (Unadj.)	Comp.Sav (Real)					
	First cycle	100	6	18	6	0.5	41.2%	28.4%	48.2%				
	Second cycle	200	100%	6	36	1.0	41.2%	28.4%	48.2%				
	Third cycle	300	50%	6	54	1.5	41.2%	28.4%	48.2%				
	Fourth cycle	400	33%	9	50	2.3	38.1%	25.5%	44.7%				
	Fifth cycle	500	25%	9	62	3.0	38.1%	25.5%	44.7%				
	Sixth and subsequent cycles	550	10%	12	53	4.0	36.3%	23.9%	42.7%				
19	B) Analyze product in more detail	Use the Cost to Client spreadsheet to analyze the product in more detail, considering: * more precise specification of loan conditions * transaction costs to the client due to methodology * financial implications of any peer lending guarantees											

#	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98	11 Nov-98	12 Dec-98
Savings Input													
Compulsory Savings Parameters													
NOTE: The following parameters are used for compulsory savings for all four loan products.													
(1) Control of compulsory savings	<input type="checkbox"/> Show this savings on the MFI's balance sheet NOTE: If savings are held by a community group or an independent commercial bank, do not check this box NOTE: The above choice also determines if MFI pays interest cost.												
(2) Interest rate paid Input changes on this line Value used in calculations	NOTE: Input the annualized rate paid on the savings balance; input the rate even if the MFI doesn't pay the interest 8.0% 8.0% 8.0% 8.0% 8.0% 8.0% 8.0% 8.0% 8.0% 8.0% 8.0% 8.0% 8.0% 8.0%												
(3) Percent to be held in reserve Input changes on this line Value used in calculations	Data okay 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100% 100%												
(4) Indexing of savings	<input type="checkbox"/> Value of savings is indexed to an external value												
Savings Product 1													
Savings Product 1: Passbook Savings													
(1) Interest rate paid Input changes on this line Value used in calculations	NOTE: Input the annualized rate paid on the savings balance 10.0% 10.0% 10.0% 10.0% 10.0% 10.0% 10.0% 10.0% 10.0% 10.0% 10.0% 10.0% 10.0% 10.0%												
(2) Percent to be held in reserve Input changes on this line Value used in calculations	40% 40% 40% 40% 40% 40% 40% 40% 40% 40% 40% 40% 40% 40%												
(3) Indexing of savings	<input checked="" type="checkbox"/> Value of savings is indexed to an external value												
Savings Product 2													
Savings Product 2: Term Deposits													
(1) Interest rate paid Input changes on this line Value used in calculations	NOTE: Input the annualized rate paid on the savings balance 15.0% 15.0% 15.0% 15.0% 15.0% 15.0% 15.0% 15.0% 15.0% 15.0% 15.0% 15.0% 15.0% 15.0%												
(2) Percent to be held in reserve Input changes on this line Value used in calculations	25% 25% 25% 25% 25% 25% 25% 25% 25% 25% 25% 25% 25% 25%												
(3) Indexing of savings	<input type="checkbox"/> Value of savings is indexed to an external value NOTE: This feature is not yet implemented in the beta version.												
Savings Product 3													
Savings Product 3: [savprod 3 not in use]													
(1) Interest rate paid Input changes on this line Value used in calculations	NOTE: Input the annualized rate paid on the savings balance 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%												
(2) Percent to be held in reserve Input changes on this line Value used in calculations	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%												
(3) Indexing of savings	<input type="checkbox"/> Value of savings is indexed to an external value												
Savings Product 4													
Savings Product 4: [savprod 4 not in use]													
(1) Interest rate paid Input changes on this line Value used in calculations	NOTE: Input the annualized rate paid on the savings balance 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%												
(2) Percent to be held in reserve Input changes on this line Value used in calculations	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%												
(3) Indexing of savings	<input type="checkbox"/> Value of savings is indexed to an external value												
End of information on this page													

Program or branch office analysis

This section contains printouts from the INSTITUTIONAL RESOURCES AND CAPACITY, or INST.CAP., page and the PROGRAM/BRANCH page. In the parts of the model listed here references may be to *branch* or *region* rather than *program*, depending on the configuration of the model.

The INST.CAP. page includes sections on:

- Cost allocation methods
- Staffing information
- Other operational expenses
- Fixed asset categories.

The PROGRAM/BRANCH page contains sections on:

- Loan projection inputs
- Loan product outputs
- Compulsory savings projections
- Voluntary savings calculations
- Income projections
- Financial costs
- Loan loss provision and write-off
- Loan officer analysis
- Number of branches
- Program-level staffing
- Program-level other operational expenses
- Program-level fixed assets
- Administrative nonfinancial cost allocation (appears only when multiple branches are being modeled)
- Branch income statement (appears only when multiple branches are being modeled)
- Branch income statement analysis (appears only when multiple branches are being modeled).

This section also contains a printout of a program- or branch-level graph, which can be viewed along with other graphs showing program or branch activity by clicking on the GRAPHS button on the PROGRAM/BRANCH page. Samples of similar graphs showing aggregate information appear in the next section of this annex.

In addition, the section contains a printout of the BRANCH MANAGEMENT page, which appears only in the branch and regional modeling modes. This page allows users to add or delete branch (or regional) pages and to name those pages.

Institutional Resources and Capacity

Explanation: This page provides "set-up" information for proceeding with the operational plan for the MFJ's Institutional Resources and Capacity. This page should be completed AFTER having done the loan and savings projections on the Branch/Program page.

Adjustments to Cash Flow Analysis: Microfin allows the option to differentiate between accrued expenses and cash expenses. This feature should be used only when very detailed cashflow projections are needed. This feature can be enabled at a later time, once the projections are complete.

"Check" here to use the detailed adjustments to cash flow sections

Loan provisioning and write-off policies

Loan write-off frequency: NOTE: Write-off frequency is used only for Years 1-2. Write-off is done quarterly in Years 3-5.

The loan loss reserve and the gross loan portfolio will be reduced by an estimate of the uncollectable loans at the frequency indicated above. The loan loss percentage is entered on the Branch/Program page.

Loan loss provisioning rates

From	To	Prov %	Distribution of middle aging brackets		
			Default	Override	% used
0	30	0%	60%		60%
31	60	25%			25%
61	90	50%	25%		25%
91	180	75%	15%		15%
		100%			

Enter the distribution percentages for the middle three aging brackets

Cost Allocation Methods

Branch modeling is disabled. This section does not apply.

Allocation of financial costs:

Allocation of administrative non-financial costs:

Staffing Information

NOTE: If there are more staff positions than input lines, combine staff by approximate salary levels. This will ensure that staffing expenses can be accurately projected

Loan Officer Titles
 Job title for "loan officer"
 Short title to use for "loan officer"

Note: Enter the title used to refer to staff that work directly with clients monitoring loans, e.g., "Loan Officer"

Loan Officer	Make singular, less than 15 characters
Officer	Make singular, less than 7 characters

NOTE: Loan Officers are already included in the listing. Do not repeat this entry!

Program-level Staffing

	Names used	Link to none or any combination of the following				
		Officers	Borrowers	Depositors	Branches	Round up
Loan Officer	Loan Officer					
Credit Supervisor	Credit Supervisor	12.0			1.0	0.3
Bookkeeper	Bookkeeper				1.0	
Op Manager/Branch Manager	Op Manager/Branch Manager					
Teller	Teller		4,000	6,000		0.2
Security Guard	Security Guard				0.5	
	[not used]					
	[not used]					
	[not used]					
	[not used]					

Admin-level Staffing

	Names used	Officers	Borrowers	Depositors	Branches	Prog Staff	Round up
Executive Director	Executive Director						
Finance Manager	Finance Manager						
Secretary	Secretary						
Runner	Runner						
MIS Supervisor	MIS Supervisor						
Human Resources Director	Human Resources Director						
Savings Director	Savings Director						
	[not used]						
	[not used]						
	[not used]						

Salary & Benefit Adjustments Adjust salaries for inflation at beginning of each fiscal year
 Additional adjustment to be automatically included (enter negative number if salaries increase less than inflation)

Institutional Resources and Capacity

Other Operational Expenses

NOTE: Depreciation and cost of funds are calculated elsewhere. Do not repeat their entry here.
 NOTE: There is already a line for calculation of miscellaneous on the Program/Branch page

Program-level Other Op. Exp.	Names used	Link to inflation		Link to none or any combination of the following				
		Monthly	Annually	Officers	Prog Staff	Borrowers	Depositors	Branches
Rent	Rent		100%					450.00
Utilities	Utilities		100%					150.00
Transportation	Transportation		80%	100.00				
General office expenses	General office expenses	100%			40.00			
Repairs, maintenance, insurance	Repairs, maintenance, insurance	100%						50.00
	[not used]							
	[not used]							
	[not used]							
	[not used]							
	[not used]							

Admin-level Other Op. Exp.

NOTE: Depreciation and cost of funds are calculated elsewhere. Do not repeat their entry here.
 NOTE: There is already a line for calculation of miscellaneous on the Program/Branch page

Admin-level Other Op. Exp.	Names used	Link to inflation		Link to none or any combination of the following				
		Monthly	Annually	Officers	Admin staff	Borrowers	Depositors	Branches
Rent	Rent		100%					
Utilities	Utilities	100%						
Transportation	Transportation	100%						
General office expenses	General office expenses	100%						
Repairs, maintenance, insurance	Repairs, maintenance, insurance	100%						
Professional fees and consultants	Professional fees and consultants		100%					
Board expenses	Board expenses	100%						
Staff training	Staff training							
	[not used]							
	[not used]							
	[not used]							

Fixed Asset Categories

WARNING: Exclude land and buildings from first two sections
 They will be included in a separate section below

Program-level Fixed Assets

Program-level Fixed Assets	Names used	Cost per unit		Life (yrs)		Link to none or any combination of the following				
		Base	% inflation	Input	Used	Officers	Non-Officers	Prog Staff	Branches	Round up
Computers	Computers	2,000	80%		5.0			8.0		0.3
Assorted office furniture	Assorted office furniture	1,000	100%	7.0	7.0				1.0	
Employee furniture groupings	Employee furniture groupings	200	100%	7.0	7.0			1.0		
	[not used]				5.0					
	[not used]				5.0					
	[not used]				5.0					
	[not used]				5.0					
	[not used]				5.0					
	[not used]				5.0					

Admin-level Fixed Assets

Admin-level Fixed Assets	Names used	Cost per unit		Life (yrs)		Link to none or any combination of the following				
		Base	% inflation	Input	Used	Prog Staff	Admin staff	Total staff	Branches	Round up
Computers	Computers	2,000	80%		5.0					
Assorted office furniture	Assorted office furniture	1,500	100%	7.0	7.0					
Vehicles	Vehicles	20,000	100%	6.0	6.0					
	[not used]				5.0					
	[not used]				5.0					
	[not used]				5.0					
	[not used]				5.0					
	[not used]				5.0					
	[not used]				5.0					

Building Categories

Names used
[not used]
[not used]
[not used]
[not used]
[not used]

Other Assets Categories

Names used
MIS
[not used]
[not used]
[not used]

Note: Included here are MIS and other major purchases which are amortized over their useful life

End of information on this page

	Initial	1	2	3	4	5	6	7	8	9	10	11	12
#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98

Loan Projection Input Section
 Review the four steps outlined to the right for each loan product you are using

- STEP 1: Input initial balances for this loan product
- STEP 2: Project number of active loans for this product
- STEP 3: Input client retention rates for this loan product
- STEP 4: Review graphs for the loan product

Loan Product 1: Solidarity Group Loan

Step 1: Initial Balances
 Initial number of active loans
 Total number of active loans

STEP 1: Input initial balances for Solidarity Group Loan

# active	%	Effec.Term	Amount
3,600	100%	13	100
1,188	33%	13	200
1,188	33%	13	300
720	20%	13	400
288	8%	13	400
144	4%	13	400
72	2%	13	400

NOTE: Term and amount data come from the product definition page

If this product already is in use, you must input (1) your best estimate of the number of active loans by cycle for the beginning month of the projection, and (2) the total outstanding balance for this product. An estimated repayments flow will be automatically calculated. If you have access to more precise projected repayment information, you may input it on

Initial balance and repayment stream
 Initial gross outstanding balance
 Auto-generated repayments
 Manually-entered repayments
 Repayments used in calculations

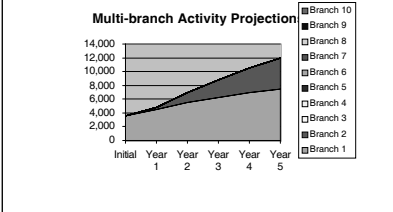
504,000	Data Ok												
504,000		72,000	66,462	60,923	55,385	49,846	44,308	38,769	33,231	27,692	22,154	16,615	11,077
504,000		72,000	66,462	60,923	55,385	49,846	44,308	38,769	33,231	27,692	22,154	16,615	11,077
	Data Ok												

Step 2: Number active loans
 Branch consolidation estimate

STEP 2: Project number of active loans for Solidarity Group Loan
 NOTE: If using a group methodology, you may need to interpret this as "borrowers" rather than "loans". See HELP for more information on keeping consistent definitions throughout the model.
 Since you are modeling multi-branch activity on a single page, it may be difficult to project the aggregate growth rate for a product as multiple branches expand at different rates. The spreadsheet and graph below can be used as a worksheet to estimate annualized growth rates. If branches open at times other than the beginning of a FY, the growth estimates will need to be adjusted somewhat.

Annual targets by Branch

Branch	Initial Balance	Year 1 FY98	Year 2 FY99	Year 3 FY00	Year 4 FY01	Year 5 FY02
Branch 1	3,600	4,500	5,500	6,250	7,000	7,500
Branch 2	0	300	1,500	2,500	3,500	4,500
Branch 3						
Branch 4						
Branch 5						
Branch 6						
Branch 7						
Branch 8						
Branch 9						
Branch 10						
TOTAL ACTIVE LOANS	3,600	4,800	7,000	8,750	10,500	12,000
Avg monthly linear growth		100	183	146	146	125
Avg monthly % growth		2.4%	3.2%	1.9%	1.5%	1.1%



Number of active loans for this product
 Growth rate from estimate above
 Input (% or actual monthly growth)
 Monthly growth used in calculations
 Total number of active loans *

NOTE: The avg monthly % growth numbers above have been transferred below; they may be overridden by entering numbers into Line 12

	2.4%												
	0.032												0.032
	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	3.2%	3.2%	3.2%	3.2%
	3,600	3,672	3,745	3,820	3,897	3,975	4,054	4,135	4,218	4,353	4,492	4,636	4,784

Step 3: Retention rates
 Analysis of client retention rates

STEP 3: Input client retention rates for Solidarity Group Loan

Term	Analysis of data from Initial Balances			Experimentation Worksheet		
	Retention	% clients	rs as client	Retention	% clients	rs as client
13		100%	1.1	6	100%	0.5
13	70%	70%	2.2	6	90%	1.0
13	70%	49%	3.3	6	90%	1.5
13	70%	34%	4.3	9	90%	2.3
13	50%	17%	5.4	9	80%	3.0
13	50%	9%	6.5	12	70%	4.0
13	50%	4%	7.6	12	70%	5.0
13	50%	2%	8.7	12	70%	6.0

EXPLANATION: Use these tables to determine the length of time clients continue borrowing before dropping out. Note that the loan term and the retention rate work closely together. Short term loans need to have very high retention rates per cycle. Look for the 50th percentile; this will indicate the amount of time the average client continues to borrow. Use the rightmost table as a worksheet to experiment with different loan terms and retention rates.

Client retention rate
 Second cycle
 Third cycle
 Fourth cycle
 Fifth cycle
 Sixth and subsequent cycles

2													
2		80%				90%							
2		85%				90%							
2		85%				90%							
2		70%				80%							
2		70%				70%							
Second cycle	70%	80%	80%	80%	90%	90%	90%	90%	90%	90%	90%	90%	90%
Third cycle	70%	85%	85%	85%	90%	90%	90%	90%	90%	90%	90%	90%	90%
Fourth cycle	70%	85%	85%	85%	90%	90%	90%	90%	90%	90%	90%	90%	90%
Fifth cycle	50%	70%	70%	70%	80%	80%	80%	80%	80%	80%	80%	80%	80%
Sixth and subsequent cycles	50%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%

18 Number of active clients, Year 5 (end)
 19 No. of new clients in 5 years
 20 No. of clients leaving during 5 years

NOTE: These figures are drawn from the Loan Output projection sections below
 The number of "first cycle" loans is the number of clients that must be drawn in at some point during the five years
 Compare these numbers to the market estimates. If they are too high, look for ways to improve client retention.

Step 4: Review graphs

STEP 4: Review the graphs for Solidarity Group Loan
 Graphical information for this loan product is split into two areas:
Graphs specific to this loan product
 * Number of active loans by cycle
 * Income for this product (split between income, commission, and indexing)
 * Monthly disbursements and repayments
Graphs for all loan products
 * Number of active loans by product
 * Outstanding Portfolio by product (nominal and real)
 * Number of loans disbursed per month by product
 * Average overall loan size by product (nominal and real)
 * Average overall loan term by product
 *** Click the Graph button on the top row to view the graphs ***
 Review the graphical information and revise your projections until you are comfortable.

	Initial #	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98	11 Nov-98	12 Dec-98
Loan Product Output Section													
Aggregate Loan Activity Note: When "demand" is projected as falling in the input section above, actual numbers of borrowers may exceed input numbers until outstanding loans have been repaid.													
Number of active loans *	3,600	3,672	3,745	3,821	3,896	3,975	4,054	4,135	4,218	4,353	4,492	4,636	4,784
Product 1: Solidarity Group Loan *	3,600	3,672	3,745	3,821	3,896	3,975	4,054	4,135	4,218	4,353	4,492	4,636	4,784
Product 2: [Lnprod 2 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 3: [Lnprod 3 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 4: [Lnprod 4 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall growth in borrowers		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	3.2%	3.2%	3.2%	3.2%
Total Loan Portfolio *	504,000	517,138	524,936	527,274	527,311	521,362	500,069	557,502	606,845	653,227	718,824	775,744	808,799
Product 1: Solidarity Group Loan *	504,000	517,138	524,936	527,274	527,311	521,362	500,069	557,502	606,845	653,227	718,824	775,744	808,799
Product 2: [Lnprod 2 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 3: [Lnprod 3 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 4: [Lnprod 4 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall growth in portfolio		2.6%	1.5%	0.4%	0.0%	-1.1%	-4.1%	11.5%	8.9%	7.6%	10.0%	7.9%	4.3%
Total portfolio activity													
Total disbursements, all products		83,600	84,468	85,345	89,508	90,531	91,253	168,334	170,205	177,529	208,107	210,849	213,076
Total repayments, all products		70,462	76,671	83,007	89,471	96,480	103,640	110,901	120,862	131,147	142,510	153,928	165,615
Total number of loans disbursed *		348	350	352	352	355	355	631	634	688	751	758	763
First loans as % of active loans		33%	33%	34%	33%	33%	33%	31%	28%	27%	26%	26%	26%
Product 1: Solidarity Group Loan													
Number of loans													
Number of loans disbursed *		348	350	352	352	355	355	631	634	688	751	758	763
First cycle		122	124	126	108	111	111	141	142	194	214	218	223
Follow-up cycles		226	226	226	244	244	244	490	492	494	537	540	540
Number of active loans *	3,600	3,672	3,745	3,821	3,896	3,975	4,054	4,135	4,218	4,353	4,492	4,636	4,784
First loans as % of active loans		33%	33%	34%	33%	33%	33%	31%	28%	27%	26%	26%	26%
Portfolio Activity													
Loan Disbursements *		83,600	84,468	85,345	89,508	90,531	91,253	168,334	170,205	177,529	208,107	210,849	213,076
Total Monthly Repayments *		70,462	76,671	83,007	89,471	96,480	103,640	110,901	120,862	131,147	142,510	153,928	165,615
Indexing income		0	0	0	0	0	0	0	0	0	0	0	0
Less write-off		0	0	0	0	0	(8,907)	0	0	0	0	0	(14,406)
Gross Outstanding Portfolio	504,000	517,138	524,936	527,274	527,311	521,362	500,069	557,502	606,845	653,227	718,824	775,744	808,799
Average outstanding loan balance	140	141	140	138	135	131	123	135	144	150	160	167	169
Average loan disb. size *		240	241	242	254	255	257	267	268	258	277	278	279
Average loan disb. size (real) *		238	238	237	246	245	245	252	252	240	256	255	254
Outstanding Portfolio (real) *	504,000	513,047	516,663	514,859	510,822	501,063	476,797	527,352	569,485	608,163	663,939	710,845	735,271

	Initial	1	2	3	4	5	6	7	8	9	10	11	12
#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
Loan Product Output Section													
Aggregate Loan Activity Note: When "demand" is projected as falling in the input section above, actual numbers of borrowers may exceed input numbers until outstanding loans have been repaid.													
Number of active loans *	3,600	3,672	3,745	3,821	3,896	3,975	4,054	4,135	4,218	4,353	4,492	4,636	4,784
Product 1: Solidarity Group Loan *	3,600	3,672	3,745	3,821	3,896	3,975	4,054	4,135	4,218	4,353	4,492	4,636	4,784
Product 2: [Lnprod 2 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 3: [Lnprod 3 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 4: [Lnprod 4 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall growth in borrowers		2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	3.2%	3.2%	3.2%	3.2%
Total Loan Portfolio *	504,000	517,138	524,936	527,274	527,311	521,362	500,069	557,502	606,845	653,227	718,824	775,744	808,799
Product 1: Solidarity Group Loan *	504,000	517,138	524,936	527,274	527,311	521,362	500,069	557,502	606,845	653,227	718,824	775,744	808,799
Product 2: [Lnprod 2 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 3: [Lnprod 3 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 4: [Lnprod 4 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall growth in portfolio		2.6%	1.5%	0.4%	0.0%	-1.1%	-4.1%	11.5%	8.9%	7.6%	10.0%	7.9%	4.3%
Total portfolio activity													
Total disbursements, all products		83,600	84,468	85,345	89,508	90,531	91,253	168,334	170,205	177,529	208,107	210,849	213,076
Total repayments, all products		70,462	76,671	83,007	89,471	96,480	103,640	110,901	120,862	131,147	142,510	153,928	165,615
Total number of loans disbursed *		348	350	352	352	355	355	631	634	688	751	758	763
First loans as % of active loans		33%	33%	34%	33%	33%	33%	31%	28%	27%	26%	26%	26%
Product 1: Solidarity Group Loan													
Number of loans													
Number of loans maturing		277	277	277	277	277	277	550	552	554	612	615	615
First cycle		91	91	91	91	91	91	213	215	217	199	202	202
Second cycle		91	91	91	91	91	91	164	164	164	173	173	173
Third cycle		55	55	55	55	55	55	133	133	133	137	137	137
Fourth cycle		22	22	22	22	22	22	22	22	22	69	69	69
Fifth cycle		11	11	11	11	11	11	11	11	11	27	27	27
Sixth and subsequent cycles		6	6	6	6	6	6	6	6	6	6	6	6
Number of loans disbursed *		348	350	352	352	355	355	631	634	688	751	758	763
First cycle		122	124	126	108	111	111	141	142	194	214	218	223
Follow-up cycles		226	226	226	244	244	244	490	492	494	537	540	540
Second cycle		73	73	73	82	82	82	192	194	196	179	182	182
Third cycle		78	78	78	82	82	82	148	148	148	156	156	156
Fourth cycle		47	47	47	50	50	50	120	120	120	124	124	124
Fifth cycle		16	16	16	18	18	18	18	18	18	55	55	55
Sixth and subsequent cycles		12	12	12	12	12	12	12	12	12	23	23	23
Number of active loans *	3,600	3,672	3,745	3,821	3,896	3,975	4,054	4,135	4,218	4,353	4,492	4,636	4,784
First cycle *	1,188	1,219	1,251	1,286	1,302	1,322	1,342	1,269	1,196	1,173	1,187	1,203	1,223
Second cycle *	1,188	1,170	1,152	1,134	1,125	1,116	1,107	1,135	1,165	1,197	1,203	1,212	1,221
Third cycle *	720	743	766	789	816	843	870	885	900	915	934	953	972
Fourth cycle *	288	313	338	363	391	419	447	545	643	741	796	851	906
Fifth cycle *	144	149	154	159	166	173	180	187	194	201	229	257	285
Sixth and subsequent cycles *	72	78	84	90	96	102	108	114	120	126	143	160	177
First loans as % of active loans		33%	33%	34%	33%	33%	33%	31%	28%	27%	26%	26%	26%
Portfolio Activity													
Loan Disbursements *		83,600	84,468	85,345	89,508	90,531	91,253	168,334	170,205	177,529	208,107	210,849	213,076
First cycle		12,200	12,499	12,802	11,060	11,458	11,550	14,788	15,012	20,673	22,986	23,602	24,336
Second cycle		14,600	14,716	14,834	16,795	16,929	17,064	40,274	41,018	41,772	38,453	39,409	39,723
Third cycle		23,400	23,587	23,775	25,193	25,394	25,597	46,567	46,938	47,313	50,268	50,669	51,073
Fourth cycle		18,800	18,950	19,101	20,482	20,646	20,810	50,343	50,744	51,149	53,275	53,700	54,128
Fifth cycle		8,000	8,064	8,128	9,217	9,291	9,365	9,439	9,515	9,590	29,538	29,773	30,011
Sixth and subsequent cycles		6,600	6,653	6,706	6,759	6,813	6,867	6,922	6,977	7,033	13,587	13,696	13,805
Total Monthly Repayments *		70,462	76,671	83,007	89,471	96,480	103,640	110,901	120,862	131,147	142,510	153,928	165,615
Initial portfolio repayments		72,000	66,462	60,923	55,385	49,846	44,308	38,769	33,231	27,692	22,154	16,615	11,077
First cycle		0	2,033	4,116	6,250	8,094	10,003	11,928	12,360	12,778	14,090	16,078	18,102
Second cycle		0	2,433	4,886	7,358	10,158	12,979	15,823	20,102	24,486	28,976	32,585	36,332
Third cycle		0	3,900	7,831	11,794	15,992	20,225	24,491	28,352	32,244	36,167	40,346	44,559
Fourth cycle		0	2,089	4,194	6,317	8,593	10,887	13,199	18,792	24,431	30,114	33,944	37,806
Fifth cycle		0	889	1,785	2,688	3,712	4,744	5,785	6,834	7,891	8,956	11,350	13,762
Sixth and subsequent cycles		0	550	1,104	1,663	2,226	2,794	3,366	3,943	4,525	5,111	6,243	7,384
Less long-term loan loss		(1,538)	(1,685)	(1,834)	(1,984)	(2,141)	(2,300)	(2,461)	(2,752)	(2,900)	(3,057)	(3,233)	(3,405)
Indexing income		0	0	0	0	0	0	0	0	0	0	0	0
Less write-off		0	0	0	0	0	(8,907)	0	0	0	0	0	(14,406)
Gross Outstanding Portfolio	504,000	517,138	524,936	527,274	527,311	521,362	500,069	557,502	606,845	653,227	718,824	775,744	808,799
Average outstanding loan balance	140	141	140	138	135	131	123	135	144	150	160	167	169
Average loan disb. size *	240	241	242	254	255	257	267	268	268	277	278	278	279
Average loan disb. size (real) *	238	238	237	246	245	245	252	252	252	240	256	255	254
Outstanding Portfolio (real) *	504,000	513,047	516,663	514,859	510,822	501,063	476,797	527,352	569,485	608,163	663,939	710,845	735,271

	Initial	1	2	3	4	5	6	7	8	9	10	11	12
#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
Income Section													
Total income, all products	15,272	15,560	15,713	15,868	15,824	15,505	18,270	19,660	21,077	23,394	25,008	26,199	
Total income, Solidarity Group Loan *	15,272	15,560	15,713	15,868	15,824	15,505	18,270	19,660	21,077	23,394	25,008	26,199	
Interest income	12,764	13,026	13,153	13,182	13,108	12,768	13,220	14,554	15,751	17,151	18,682	19,807	
Commission income	2,508	2,534	2,560	2,685	2,716	2,738	5,050	5,106	5,326	6,243	6,325	6,392	
Loan indexing income	0	0	0	0	0	0	0	0	0	0	0	0	
Penalty income (manual input)	-	-	-	-	-	-	-	-	-	-	-	-	
Monthly yield on portfolio (incl. Fees)		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.5%	3.4%	3.3%	3.4%	3.3%	
Total income, [Lnprod 2 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	
Total income, [Lnprod 3 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	
Total income, [Lnprod 4 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	
Financial Costs													
Interest paid on deposits NOTE: The MFI does not control compulsory savings; therefore those financial costs do not appear as a cost to the MFI.													
1 Total interest paid on deposits	0	0	0	0	0	0	0	0	0	0	0	0	
Compulsory Savings	0	0	0	0	0	0	0	0	0	0	0	0	
Savings Prod 1: Passbook Savings	0	0	0	0	0	0	0	0	0	0	0	0	
Savings Prod 2: Term Deposits	0	0	0	0	0	0	0	0	0	0	0	0	
Savings Prod 3: [savprod 3 not in use]	0	0	0	0	0	0	0	0	0	0	0	0	
Savings Prod 4: [savprod 4 not in use]	0	0	0	0	0	0	0	0	0	0	0	0	
Indexing expense on deposits NOTE: The MFI does not control compulsory savings; therefore those financial costs do not appear as a cost to the MFI.													
2 Total indexing expense on deposits	0	0	0	0	0	0	0	0	0	0	0	0	
Compulsory Savings	0	0	0	0	0	0	0	0	0	0	0	0	
Savings Prod 1: Passbook Savings	0	0	0	0	0	0	0	0	0	0	0	0	
Savings Prod 2: Term Deposits	0	0	0	0	0	0	0	0	0	0	0	0	
Savings Prod 3: [savprod 3 not in use]	0	0	0	0	0	0	0	0	0	0	0	0	
Savings Prod 4: [savprod 4 not in use]	0	0	0	0	0	0	0	0	0	0	0	0	
5 Cost of borrowed funds	2,375	2,375	2,375	2,375	2,375	2,375	2,375	3,495	4,615	4,615	4,615	4,615	
6 Total financial costs *	2,375	2,375	2,375	2,375	2,375	2,375	2,375	3,495	4,615	4,615	4,615	4,615	
Loan Loss Provision and Write-off													
NOTE: Portfolio at risk measure must be for the point in time AFTER write-offs have been made													
NOTE: Portfolio at risk must always be greater than loan loss rate													
NOTE: Loan loss is calculated as an ANNUALIZED percent of the ending OUTSTANDING PORTFOLIO.													
Portfolio quality targets													
Product 1: Solidarity Group Loan													
Input: Portfolio at risk > 30 days													
1 Portfolio at risk > 30 days	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	
Input: Annual Loan Write-off Ratio													
2 Loan write-off ratio	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	
8 Loan Loss Provision *	1,547	1,856	1,642	1,540	1,221	824	3,506	3,826	3,973	5,212	5,132	4,932	
9 Provisioning as % of disbursements	1.9%	2.2%	1.9%	1.7%	1.3%	0.9%	2.1%	2.2%	2.2%	2.5%	2.4%	2.3%	
10 Loan Write-off	0	0	0	0	0	8,907	0	0	0	0	0	14,406	
11 Write-off as % of portfolio	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%	
Note: Enter reserve as a positive number													
12 Ending Loan Loss Reserve	20,000	21,547	23,403	25,046	26,585	27,806	19,723	23,229	27,055	31,028	36,241	41,373	
13 Loan Loss Reserve Ratio	4.0%	4.2%	4.5%	4.8%	5.0%	5.3%	3.9%	4.2%	4.5%	4.7%	5.0%	5.3%	
Loan Officer													
Control variables													
1 Entry level	50%	6	months until entry-to-intermediate promotion										
2 Intermediate level	75%	6	months until intermediate-to-senior promotion										
3 Senior level	100%												
4 Average longevity (in years)	5.0	Length of time the average Loan Officer works before leaving or promotion											
5 Minimum hiring size	3	Hire in groups of this size or greater to minimize hiring frequency and train new hires in groups											
6 Months to hire in advance of need	2	The "targeted" number of staff on Line 9 is determined by looking forward this number of months											
For Solidarity Group Loan													
NOTE: This should be the caseload figure that experienced senior staff reach with a single product, not the "average" caseload of all staff													
7 Optimal Loan Officer caseload	350												
8 User input	350	350	350	350	350	350	350	350	350	350	350	350	
9 Data used in calculations	10.5	10.7	10.9	11.1	11.4	11.6	11.8	12.1	12.4	12.8	13.2	13.7	
10 FTE Senior Loan Officers (targeted)	10.9	11.1	11.4	11.6	11.8	12.1	12.4	12.8	13.2	13.7	14.1	14.6	
Total targeted staffing													
11 FTE Senior Loan Officers (targeted)	10.9	11.1	11.4	11.6	11.8	12.1	12.4	12.8	13.2	13.7	14.1	14.6	
New hiring and transfers in HINT: Put 0s in months where you don't want to hire -- This will cluster hiring into the months you choose (but watch the undercapacity analysis!)													
12 Suggested hiring of entry level * Officers	-	-	-	-	-	-	-	3	8	-	3	-	
13 Override on entry level hiring	2	-	-	-	-	-	-	0	10	-	-	-	
14 Entry level	-	-	-	-	-	-	-	-	10	-	3	-	
15 Intermediate level	5	-	-	-	-	-	-	-	-	-	-	-	
16 Senior level	0	-	-	-	-	-	-	-	-	-	-	-	
Layoffs and Transfers out													
17 Entry level	-	-	-	-	-	-	-	-	-	-	-	-	
18 Intermediate level	-	-	-	-	-	-	-	-	-	-	-	-	
19 Senior level	1	-	-	-	-	-	-	3	-	1	-	-	
Loan Officer attrition													
20 Promotions	-	-	-	-	-	-	-	-	-	-	-	-	
21 Entry level to intermediate level	-	-	-	-	-	-	-	-	-	-	-	-	
22 Intermediate level to senior level	-	-	-	-	-	-	-	-	-	-	-	-	
Staffing levels by category													
23 Entry level	-	-	-	-	-	-	-	10	10	13	13	13	
24 Intermediate level	5	5	5	5	5	5	-	-	-	-	-	-	
25 Senior level	8	8	8	8	8	8	12	12	9	9	8	8	
26 Number of Loan Officers *	13	13	13	13	13	13	12	12	19	19	21	21	
Analysis													
27 FTE Loan Officers (calculated)	11.8	11.8	11.8	11.8	11.8	11.8	12.0	12.0	14.0	14.0	14.5	14.5	
28 FTE (targeted -- from calculation above)	10.9	11.1	11.4	11.6	11.8	12.1	12.4	12.8	13.2	13.7	14.1	14.6	
29 Shortfall or excess	0.8	0.6	0.4	0.2	(0.1)	(0.1)	(0.4)	1.2	0.8	0.8	0.4	(0.1)	
Capacity analysis													
30 Caseload per Loan Officer *	277	282	288	294	300	306	338	345	222	229	214	228	
31 Portfolio per Officer	38,769	39,780	40,380	40,560	40,562	40,105	41,672	46,458	31,939	34,380	34,230	36,940	
32 Loans disbursed per Officer per month		27	27	27	27	27	30	53	33	36	36	36	

Branch Management Page

Click on the desired macro button:

Add New Branch Office

Delete last branch added

NOTE: Modeling activity by individual branch requires large amounts of RAM. File size increases as does recalculation time. See the on-line help system for advice on different strategies for modeling branch office activity.

This spreadsheet is currently using the following amount of RAM memory:

13,166,724

In addition, the Windows operating system and other open software applications occupy additional memory.

Procedure:

- 1) **IMPORTANT!!!** Save your work before adding the new branch/region page
- 2) Click on the above button to add the branch
(if this process takes longer than 5 minutes, you have exceeded RAM limitations and may need to reboot your computer)
- 3) Test the recalculation time for the model (hit F9). If calculation takes unreasonably long and the computer is continuously accessing the hard drive, then you have exceeded RAM limitations
- 4) If you decide not to continue with the new branch, close the spreadsheet **WITHOUT SAVING**.
Open the previous version that you saved to disk to continue working.

Branch Page Names

Name	Name used
Branch 1	Branch 1
Branch 2	Branch 2
Branch 3	Branch 3
Branch 4	Branch 4
Branch 5	Branch 5
Branch 6	Branch 6
Branch 7	Branch 7
Branch 8	Branch 8
Branch 9	Branch 9
Branch 10	Branch 10

Branch page names must be **SHORT** (less than 10 characters) and cannot contain any characters except A-Z, 0-9, and "."

These names will be used once you click the macro button below

Rename branch pages

Administrative or head office analysis

This section contains printouts from the ADMIN/HEAD OFFICE page and the AGGREG GRAPHS page. In the parts of the model listed here references may be to *head office* rather than *administrative*, depending on the configuration of the model.

The ADMIN/HEAD OFFICE page contains input sections on:

- Administrative-level staffing
- Administrative-level other operational expenses
- Administrative-level fixed assets
- Land and building analysis
- Other assets analysis
- Tax calculations
- In-kind subsidy analysis.

The ADMIN/HEAD OFFICE page also includes the following output sections:

- Loan product output
- Compulsory and voluntary savings projections
- Income projections
- Financial costs
- Loan loss provision and write-off
- Loan officer analysis
- Aggregate program-level and administrative-level staffing
- Program-level and administrative-level operational expenses
- Program-level and administrative-level fixed assets
- Land and building analysis
- Other assets analysis
- Tax calculations
- In-kind subsidy analysis.

The AGGREG GRAPHS page contains the following institutional-level graphs:

PRODUCT-SPECIFIC GRAPHS

- Income
- Disbursements and repayments

GRAPHS REFERRING TO ALL LOAN PRODUCTS

- Number of active loans
- Portfolio

- Number of loans disbursed per month by product
- Average overall loan size by product

GRAPHS FOR SAVINGS PRODUCTS

- Number of depositors by product
- Amount of deposits by product

INCOME AND EXPENSE GRAPHS

- Total income by product
- Staffing composition
- Caseload per loan officer
- Expenses
- Cost structure (as a percentage of total assets)
- Operational and financial sustainability
- Operating cost ratio
- Asset composition
- Liability and equity composition
- Debt-equity ratio.

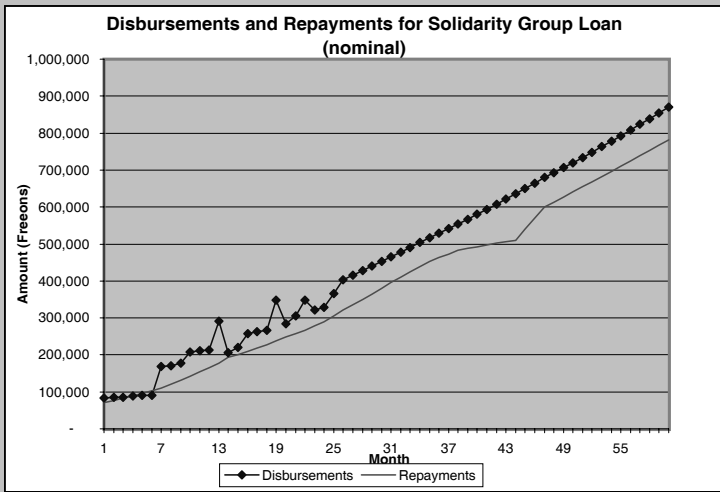
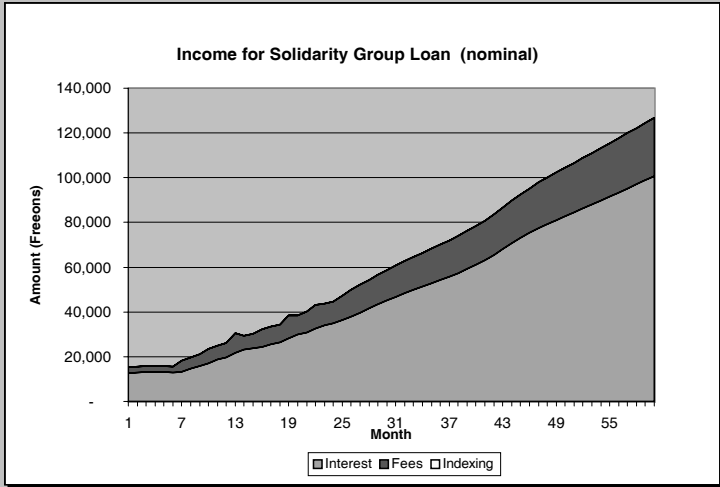
	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98	11 Nov-98	12 Dec-98
Admin Costs and Aggregate Activity Page													
This page contains information for the Administrative (or Head Office) Level depending upon the selection made on Model Setup. It also aggregates all portfolio, income, and expenses for the institution as a whole. All input for this page is in the top sections of this page.													
Admin-level Staffing													
Step 1: Enter staff position titles on the Inst.Cap. Page													
Step 2: Enter initial staffing composition in "initial balances" column													
Step 3: Enter any monthly changes in staffing in the "job description and number" section													
Job description and number [INPUT]													
Executive Director	-	1.0											
Finance Manager	-	1.0											
Secretary	-	1.0											
Runner	-	1.0											
MIS Supervisor	1												
Human Resources Director	1												
Savings Director	1												
[not used]	-												
[not used]	-												
[not used]	-												
Job desc. and number [OUTPUT]													
Executive Director	Man.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Finance Manager	Man.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Secretary	Man.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Runner	Man.	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
MIS Supervisor	Man.	-	-	-	-	-	-	-	-	-	-	-	-
Human Resources Director	Man.	-	-	-	-	-	-	-	-	-	-	-	-
Savings Director	Man.	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	Man.	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	Man.	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	Man.	-	-	-	-	-	-	-	-	-	-	-	-
Total number of head office employees		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Analysis													
Head office staff as % of total staff		20%	20%	20%	20%	20%	20%	21%	21%	14%	14%	13%	13%
NOTE: Salaries are automatically linked to inflation at the beginning of each fiscal year													
Monthly salary and benefits [INPUT]													
Executive Director	-	750											
Finance Manager	-	540											
Secretary	-	270											
Runner	-	180											
MIS Supervisor	-	450											
Human Resources Director	-	400											
Savings Director	-	450											
[not used]	-												
[not used]	-												
[not used]	-												
Monthly salary and benefits [OUTPUT]													
Executive Director		750	750	750	750	750	750	750	750	750	750	750	750
Finance Manager		540	540	540	540	540	540	540	540	540	540	540	540
Secretary		270	270	270	270	270	270	270	270	270	270	270	270
Runner		180	180	180	180	180	180	180	180	180	180	180	180
MIS Supervisor		450	450	450	450	450	450	450	450	450	450	450	450
Human Resources Director		400	400	400	400	400	400	400	400	400	400	400	400
Savings Director		450	450	450	450	450	450	450	450	450	450	450	450
[not used]		-	-	-	-	-	-	-	-	-	-	-	-
[not used]		-	-	-	-	-	-	-	-	-	-	-	-
[not used]		-	-	-	-	-	-	-	-	-	-	-	-
Total salary and expenses		750	750	750	750	750	750	750	750	750	750	750	750
Executive Director	Man.	750	750	750	750	750	750	750	750	750	750	750	750
Finance Manager	Man.	540	540	540	540	540	540	540	540	540	540	540	540
Secretary	Man.	270	270	270	270	270	270	270	270	270	270	270	270
Runner	Man.	180	180	180	180	180	180	180	180	180	180	180	180
MIS Supervisor	Man.	0	0	0	0	0	0	0	0	0	0	0	0
Human Resources Director	Man.	0	0	0	0	0	0	0	0	0	0	0	0
Savings Director	Man.	0	0	0	0	0	0	0	0	0	0	0	0
[not used]	Man.	0	0	0	0	0	0	0	0	0	0	0	0
[not used]	Man.	0	0	0	0	0	0	0	0	0	0	0	0
[not used]	Man.	0	0	0	0	0	0	0	0	0	0	0	0
Total salary and benefits		1,740	1,740	1,740	1,740	1,740	1,740	1,740	1,740	1,740	1,740	1,740	1,740
Admin-level Other Op. Exp.													
Note: Input expense category descriptions on the Inst.Cap. Page													
Note: Input monthly amounts in this section													
Admin-level Other Op. Exp. [Input]													
Rent	- Manual	450											
Utilities	- Manual	150											
Transportation	- Manual	675											
General office expenses	- Manual	100											
Repairs, maintenance, insurance	- Manual	75											
Professional fees and consultants	- Manual	250											
Board expenses	- Manual	100											
Staff training	1 Manual	167											
[not used]	- Manual												
[not used]	- Manual												
[not used]	- Manual												
Miscellaneous expenses (% or absol		0.05											
Miscellaneous expenses (% or absolute)		5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Admin-level Other Op. Exp. [Output]													
Rent	Manual	450	450	450	450	450	450	450	450	450	450	450	450
Utilities	Manual	150	151	152	154	155	156	157	159	160	161	162	164
Transportation	Manual	675	680	686	691	697	702	708	714	719	725	731	737
General office expenses	Manual	100	101	102	102	103	104	105	106	107	107	108	109
Repairs, maintenance, insurance	Manual	75	76	76	77	77	78	79	79	80	81	81	82
Professional fees and consultants	Manual	250	250	250	250	250	250	250	250	250	250	250	250
Board expenses	Manual	100	101	102	102	103	104	105	106	107	107	108	109
Staff training	Manual	167	167	167	167	167	167	167	167	167	167	167	167
[not used]	Manual	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	Manual	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	Manual	-	-	-	-	-	-	-	-	-	-	-	-
Int. expense, loans for other assets		0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous expenses		98	99	99	100	100	101	101	101	102	102	103	103
Total admin-level other op. expenses		2,065	2,074	2,083	2,093	2,102	2,112	2,121	2,131	2,141	2,151	2,160	2,170
admin-level Other Op Exp / Portfolio		4.8%	4.7%	4.7%	4.8%	4.8%	5.1%	4.6%	4.2%	3.9%	3.6%	3.3%	3.2%
NOTE: Interest expense for loans for other assets comes from the Financing Sources page													

	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98	11 Nov-98	12 Dec-98
Loan Product Output Section													
Note: When "demand" is projected as falling in the input section above, actual numbers of borrowers may exceed input numbers until outstanding loans have been repaid.													
Number of active loans *	3,600	3,672	3,745	3,821	3,896	3,975	4,054	4,135	4,218	4,353	4,492	4,636	4,784
Product 1: Solidarity Group Loan *	3,600	3,672	3,745	3,821	3,896	3,975	4,054	4,135	4,218	4,353	4,492	4,636	4,784
Product 2: [Lnprod 2 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 3: [Lnprod 3 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 4: [Lnprod 4 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall growth in borrowers		2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%
Total Loan Portfolio *	504,000	517,138	524,936	527,274	527,311	521,362	500,069	557,502	606,845	653,227	718,824	775,744	808,799
Product 1: Solidarity Group Loan *	504,000	517,138	524,936	527,274	527,311	521,362	500,069	557,502	606,845	653,227	718,824	775,744	808,799
Product 2: [Lnprod 2 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 3: [Lnprod 3 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 4: [Lnprod 4 not in use] *	0	0	0	0	0	0	0	0	0	0	0	0	0
Overall growth in portfolio		3%	2%	0%	0%	-1%	-4%	11%	9%	8%	10%	8%	4%
Total portfolio activity													
Total disbursements, all products		83,600	84,468	85,345	89,508	90,531	91,253	168,334	170,205	177,529	208,107	210,849	213,076
Total repayments, all products		70,462	76,671	83,007	89,471	96,480	103,640	110,901	120,862	131,147	142,510	153,928	165,615
Total number of loans disbursed *		348	350	352	352	355	355	631	634	688	751	758	763
First loans as % of active loans	33%	33%	33%	34%	33%	33%	33%	31%	28%	27%	26%	26%	26%
Client dropout rate		18%	18%	18%	12%	12%	12%	11%	11%	11%	12%	12%	12%
Product 1: Solidarity Group Loan													
Number of loans													
Number of loans disbursed *		348	350	352	352	355	355	631	634	688	751	758	763
Number of active loans *	3,600	3,672	3,745	3,821	3,896	3,975	4,054	4,135	4,218	4,353	4,492	4,636	4,784
First loans as % of active loans	33%	33%	33%	34%	33%	33%	33%	31%	28%	27%	26%	26%	26%
Portfolio Activity													
Loan Disbursements *		83,600	84,468	85,345	89,508	90,531	91,253	168,334	170,205	177,529	208,107	210,849	213,076
Total Monthly Repayments *		70,462	76,671	83,007	89,471	96,480	103,640	110,901	120,862	131,147	142,510	153,928	165,615
Indexing income		0	0	0	0	0	0	0	0	0	0	0	0
Less write-off		0	0	0	0	0	(8,907)	0	0	0	0	0	(14,406)
Gross Outstanding Portfolio	504,000	517,138	524,936	527,274	527,311	521,362	500,069	557,502	606,845	653,227	718,824	775,744	808,799
Average outstanding loan balance	140	141	140	138	135	131	123	135	144	150	160	167	169
Average loan disb. size *		240	241	242	254	255	257	267	268	258	277	278	279
Average loan disb. size (real) *		238	238	237	246	245	245	252	252	240	256	255	254
Outstanding Portfolio (real) *	504,000	513,047	516,663	514,859	510,822	501,063	476,797	527,352	569,485	608,163	663,939	710,845	735,271
Product 2: [Lnprod 2 not in use]													
Product 3: [Lnprod 3 not in use]													
Product 4: [Lnprod 4 not in use]													
Savings Projection Section													
NOTE: These savings deposits are not controlled by the institution and do not appear on the balance sheet.													
Total Compulsory Savings *	70,000	72,547	75,134	77,762	80,760	83,812	86,889	92,607	98,404	104,823	111,409	118,124	124,947
Loan Prod 1: Solidarity Group Loan	70,000	72,547	75,134	77,762	80,760	83,812	86,889	92,607	98,404	104,823	111,409	118,124	124,947
As percentage of loan portfolio	14%	14%	14%	15%	15%	16%	17%	17%	16%	16%	15%	15%	15%
Average balance per borrower *	19	20	20	20	21	21	21	22	23	24	25	25	26
Number of voluntary depositors *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 1: Passbook Savings	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 2: Term Deposits	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 3: [savprod 3 not in use]	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 4: [savprod 4 not in use]	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent change in depositors		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total Voluntary Savings Deposits *	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 1: Passbook Savings	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 2: Term Deposits	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 3: [savprod 3 not in use]	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 4: [savprod 4 not in use]	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent change in savings deposits		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Average savings per saver													
Product 1: Passbook Savings	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 2: Term Deposits	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 3: [savprod 3 not in use]	0	0	0	0	0	0	0	0	0	0	0	0	0
Product 4: [savprod 4 not in use]	0	0	0	0	0	0	0	0	0	0	0	0	0
Income Section													
Total Income, all products		15,272	15,560	15,713	15,868	15,824	15,505	18,270	19,660	21,077	23,394	25,008	26,199
Total income, Solidarity Group Loan *		15,272	15,560	15,713	15,868	15,824	15,505	18,270	19,660	21,077	23,394	25,008	26,199
Interest income		12,764	13,026	13,153	13,182	13,108	12,768	13,220	14,554	15,751	17,151	18,682	19,807
Commissions and fees incl. penalties		2,508	2,534	2,560	2,685	2,716	2,738	5,050	5,106	5,326	6,243	6,325	6,392
Loan indexing income		0	0	0	0	0	0	0	0	0	0	0	0
Financial Costs													
Total interest paid on deposits		0	0	0	0	0	0	0	0	0	0	0	0
Compulsory Savings		-	-	-	-	-	-	-	-	-	-	-	-
Savings Prod 1: Passbook Savings		-	-	-	-	-	-	-	-	-	-	-	-
Savings Prod 2: Term Deposits		-	-	-	-	-	-	-	-	-	-	-	-
Savings Prod 3: [savprod 3 not in use]		-	-	-	-	-	-	-	-	-	-	-	-
Savings Prod 4: [savprod 4 not in use]		-	-	-	-	-	-	-	-	-	-	-	-
Total indexing expense on deposits		0	-	-	-	-	-	-	-	-	-	-	-
NOTE: Cost of loans for other assets is incorporated in Operational Expenses section													
Total cost of borrowed funds		2,375	2,375	2,375	2,375	2,375	2,375	2,375	3,495	4,615	4,615	4,615	4,615
Financial cost of portfolio loans		2,375	2,375	2,375	2,375	2,375	2,375	2,375	3,495	4,615	4,615	4,615	4,615
Financial cost of unrestricted loans		-	-	-	-	-	-	-	-	-	-	-	-
Total Financial Costs		2,375	2,375	2,375	2,375	2,375	2,375	2,375	3,495	4,615	4,615	4,615	4,615

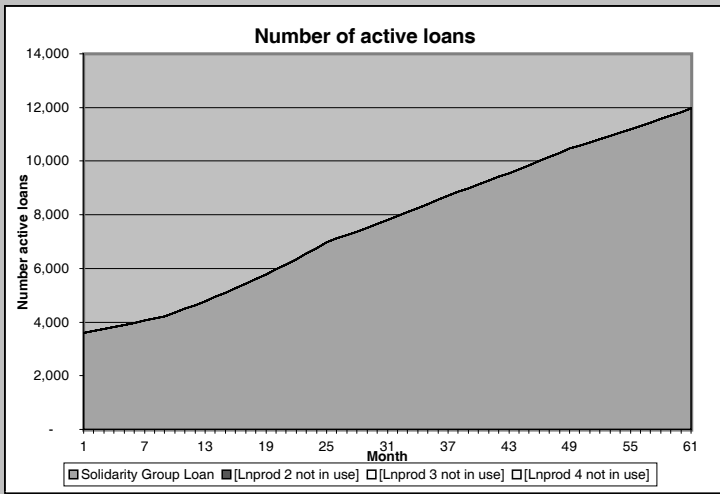
	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98	11 Nov-98	12 Dec-98
Program-level Other Op. Exp.													
Rent		450	450	450	450	450	450	450	900	900	900	900	900
Utilities		150	150	150	150	150	150	150	300	300	300	300	300
Transportation		1,300	1,300	1,300	1,300	1,300	1,200	1,200	1,900	1,900	2,100	2,100	2,100
General office expenses		640	645	650	655	661	624	629	1,057	1,066	1,160	1,169	1,179
Repairs, maintenance, insurance		50	50	51	51	52	52	52	106	107	107	108	109
[not used]		-	-	-	-	-	-	-	-	-	-	-	-
[not used]		-	-	-	-	-	-	-	-	-	-	-	-
[not used]		-	-	-	-	-	-	-	-	-	-	-	-
[not used]		-	-	-	-	-	-	-	-	-	-	-	-
[not used]		-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous expenses		207	208	208	209	209	198	199	341	342	365	366	367
Total program operational expenses *		2,797	2,803	2,809	2,815	2,821	2,674	2,680	4,604	4,614	4,933	4,944	4,955
Program Other Op Costs / Portfolio		6.5%	6.4%	6.4%	6.4%	6.5%	6.4%	5.8%	9.1%	8.5%	8.2%	7.6%	7.4%
Admin-level Other Op. Exp.													
Rent		450	450	450	450	450	450	450	450	450	450	450	450
Utilities		150	151	152	154	155	156	157	159	160	161	162	164
Transportation		675	680	686	691	697	702	708	714	719	725	731	737
General office expenses		100	101	102	102	103	104	105	106	107	107	108	109
Repairs, maintenance, insurance		75	76	76	77	77	78	79	79	80	81	81	82
Professional fees and consultants		250	250	250	250	250	250	250	250	250	250	250	250
Board expenses		100	101	102	102	103	104	105	106	107	107	108	109
Staff training		167	167	167	167	167	167	167	167	167	167	167	167
[not used]		-	-	-	-	-	-	-	-	-	-	-	-
[not used]		-	-	-	-	-	-	-	-	-	-	-	-
[not used]		-	-	-	-	-	-	-	-	-	-	-	-
Int. expense, loans for other assets		-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous expenses		98	99	99	100	100	101	101	101	102	102	103	103
Total admin-level other op. expenses		2,065	2,074	2,083	2,093	2,102	2,112	2,121	2,131	2,141	2,151	2,160	2,170
Admin-level Other Op Exp / Portfolio		4.8%	4.7%	4.7%	4.8%	4.8%	5.1%	4.6%	4.2%	3.9%	3.6%	3.3%	3.2%
Program-level Fixed Assets													
Total cost of new fixed asset acquisitions		0	0	0	0	0	0	0	5,089	0	2,565	0	0
Undepreciated book value													
Computers	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	6,105	6,105	8,237	8,237	8,237
Assorted office furniture	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	2,066	2,066	2,066	2,066	2,066
Employee furniture groupings	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	4,918	4,918	5,351	5,351	5,351
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
Total gross value	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	13,089	13,089	15,654	15,654	15,654
Less: accumulated depreciation	(3,000)	(3,114)	(3,229)	(3,343)	(3,457)	(3,571)	(3,686)	(3,800)	(3,985)	(4,170)	(4,395)	(4,621)	(4,847)
Net value of fixed assets	5,000	4,886	4,771	4,657	4,543	4,429	4,314	4,200	9,104	8,919	11,259	11,033	10,807
Estimated depreciation for the period *	114	114	114	114	114	114	114	114	185	185	226	226	226
Net FA per branch/program staff person	313	305	298	291	284	277	288	280	364	357	417	409	400
Admin-level Fixed Assets													
Total cost of new fixed asset acquisitions		1,512	0	0	0	0	0	0	0	0	0	0	0
Undepreciated book value													
Computers	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Assorted office furniture	2,000	3,512	3,512	3,512	3,512	3,512	3,512	3,512	3,512	3,512	3,512	3,512	3,512
Vehicles	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
Total gross value	16,000	17,512	17,512	17,512	17,512	17,512	17,512	17,512	17,512	17,512	17,512	17,512	17,512
Less: accumulated depreciation	(5,000)	(5,253)	(5,506)	(5,759)	(6,012)	(6,265)	(6,518)	(6,770)	(7,023)	(7,276)	(7,529)	(7,782)	(8,035)
Net value of fixed assets	11,000	12,259	12,006	11,753	11,500	11,247	10,994	10,742	10,489	10,236	9,983	9,730	9,477
Estimated depreciation for the period *	235	253	253	253	253	253	253	253	253	253	253	253	253
Net fixed assets / Admin staff	2,750	3,065	3,002	2,938	2,875	2,812	2,749	2,685	2,622	2,559	2,496	2,432	2,369

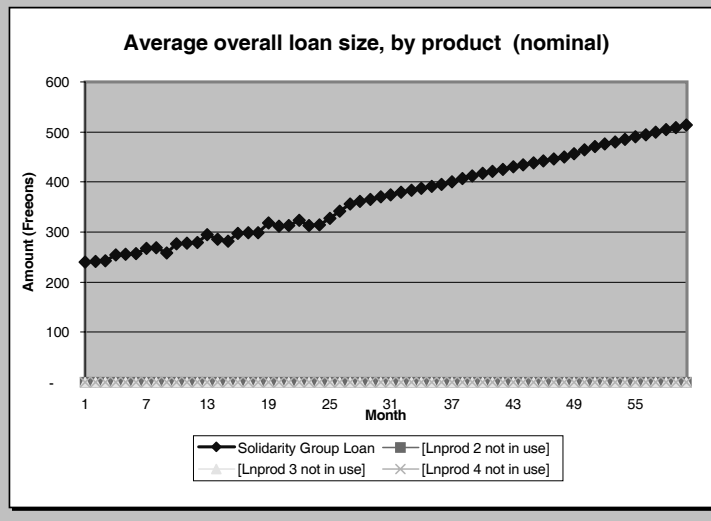
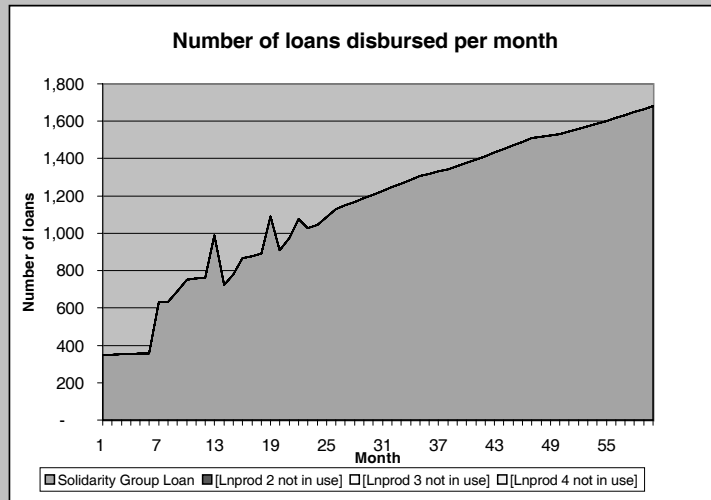
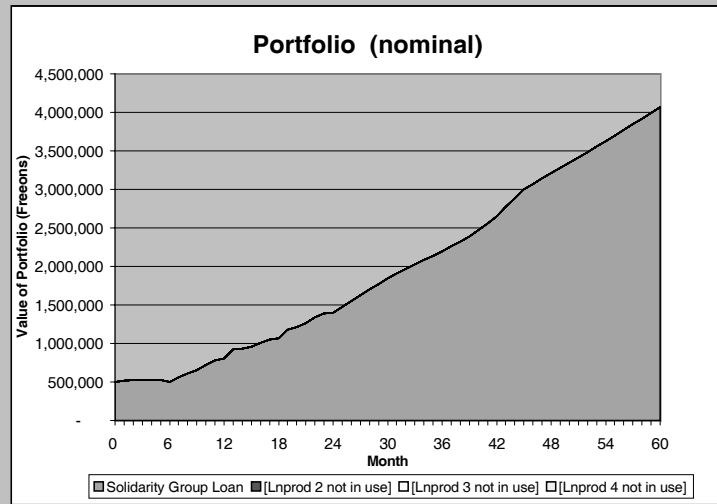
	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98	11 Nov-98	12 Dec-98
Land and Building Analysis													
Land Analysis													
Purchase and sale of Land		0	0	0	0	0	0	0	0	0	0	0	0
Total value of land	0	0	0	0	0	0	0	0	0	0	0	0	0
Note: Sale of buildings is not incorporated in the model. See Help.													
Building Analysis													
Total month's acquisition		0	0	0	0	0	0	0	0	0	0	0	0
Undepreciated book value													
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
Total gross value	0	0	0	0	0	0	0	0	0	0	0	0	0
Less: accumulated depreciation	0	0	0	0	0	0	0	0	0	0	0	0	0
Net value of buildings	0	0	0	0	0	0	0	0	0	0	0	0	0
Monthly estimated depreciation	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Assets Analysis													
Total month's acquisition		0	0	0	0	0	0	0	0	0	0	0	0
Unamortized book value													
MIS	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
Total gross value	0	0	0	0	0	0	0	0	0	0	0	0	0
Less: accumulated amortization	0	0	0	0	0	0	0	0	0	0	0	0	0
Net value of other long-term assets	0	0	0	0	0	0	0	0	0	0	0	0	0
Monthly estimated amortization	0	0	0	0	0	0	0	0	0	0	0	0	0
Tax Calculations													
Amount of taxes paid		0	0	0	0	0	0	0	0	0	0	0	0
In-Kind Subsidy Analysis													
TA from Freedom, Int'l	-	500	500	500	500	500	500	500	500	500	500	500	500
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
[not used]	-	-	-	-	-	-	-	-	-	-	-	-	-
Total in-kind subsidies received	0	500	500	500	500	500	500	500	500	500	500	500	500
End of information on this page													

Graphs for Loan Product 1: Solidarity Group Loan

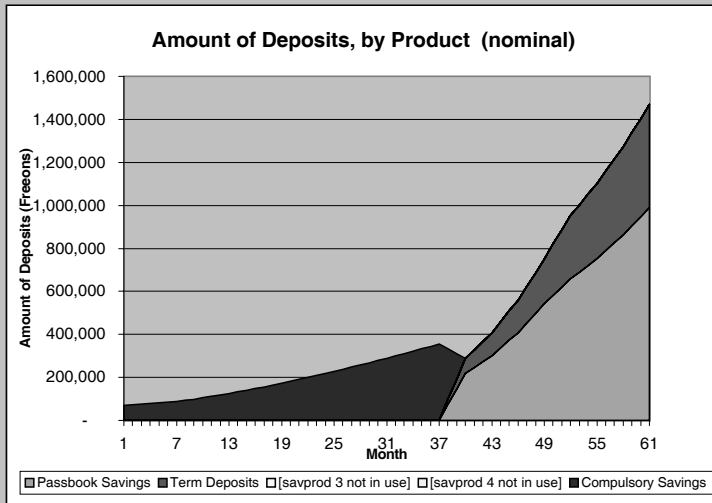
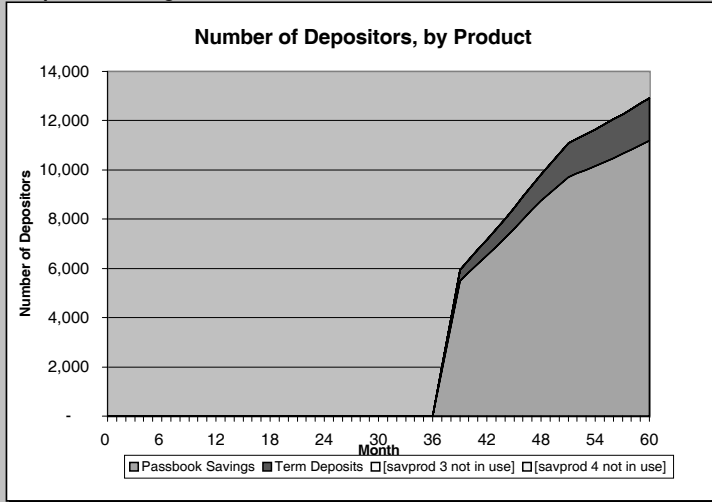


Graphs for all loan product activity in the institution

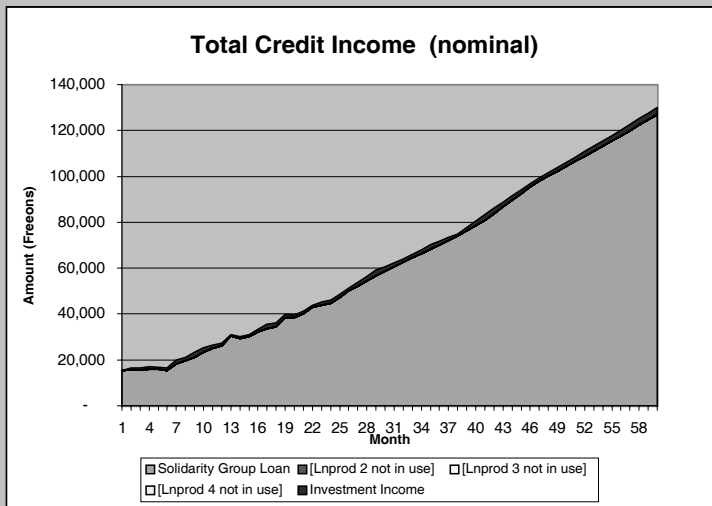


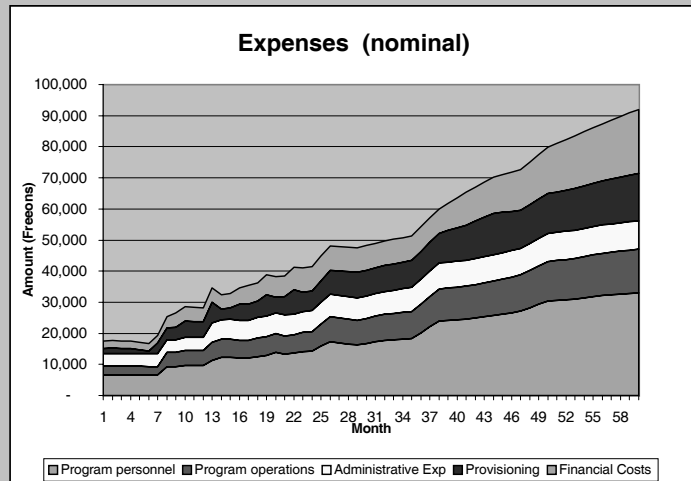
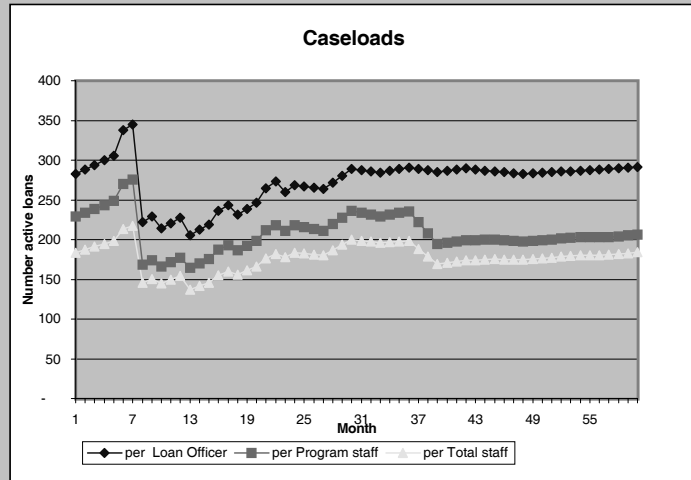
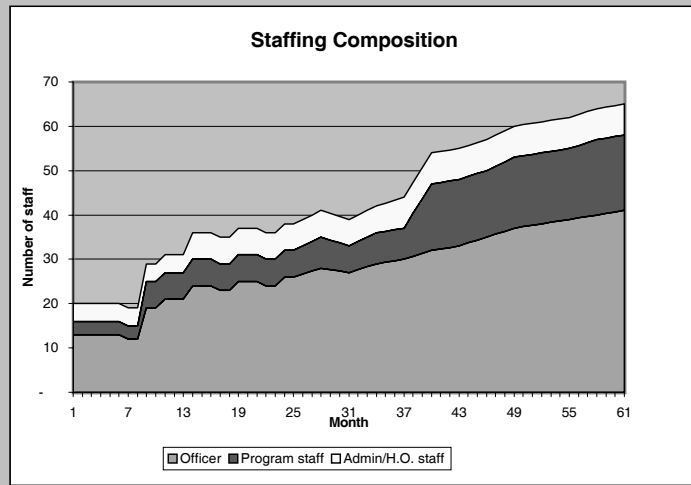


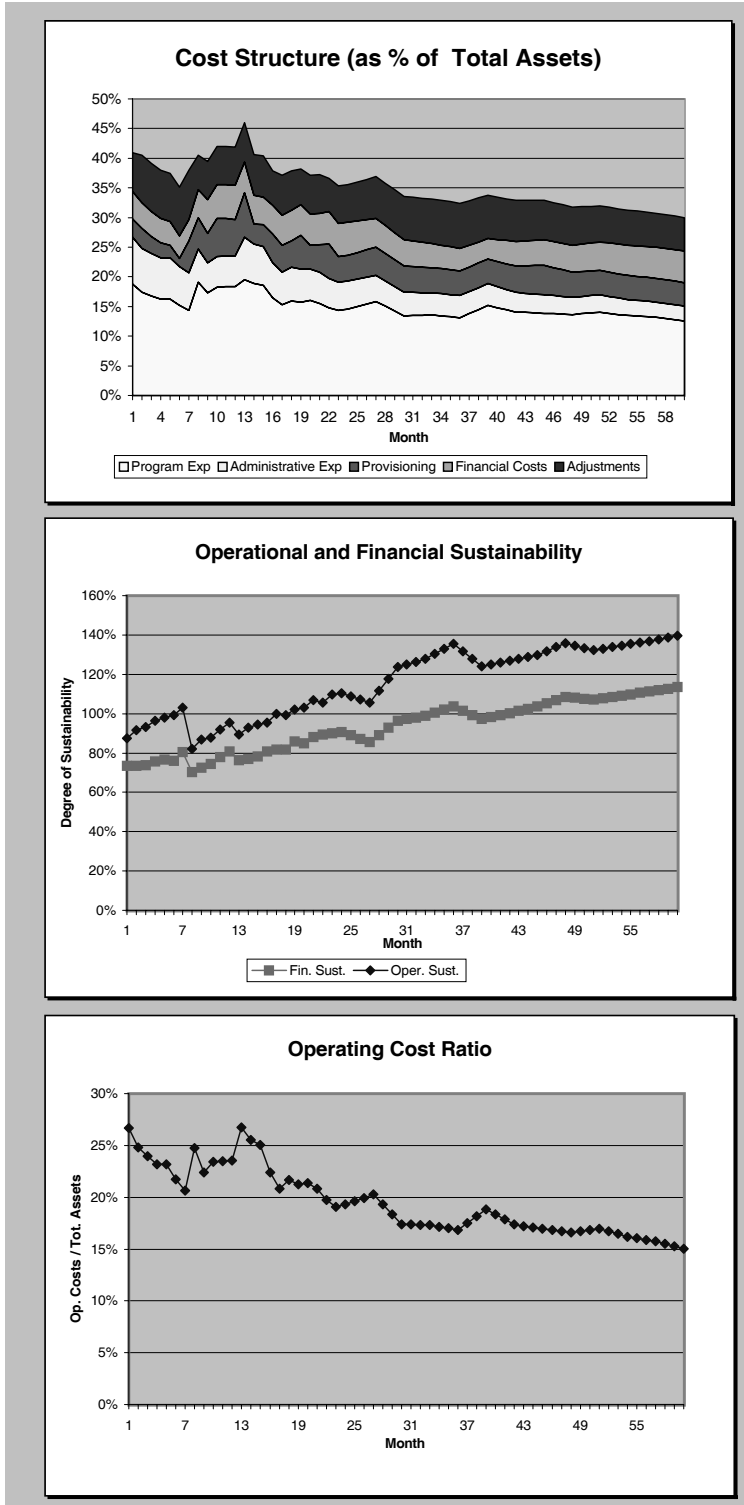
Graphs for Savings Products

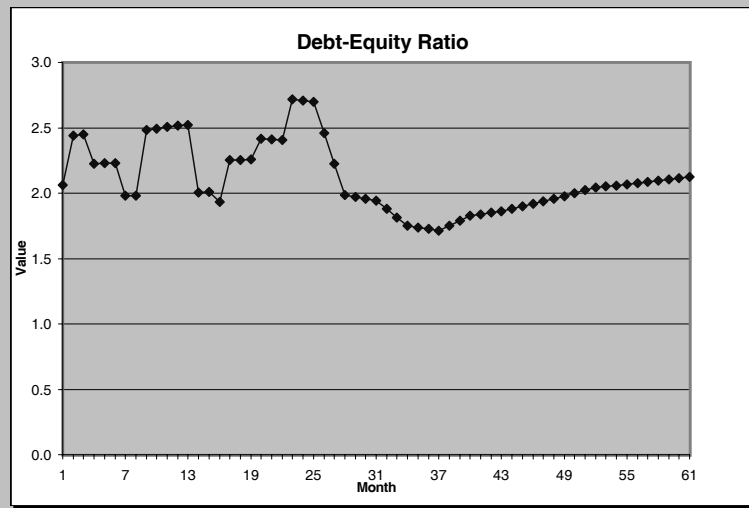
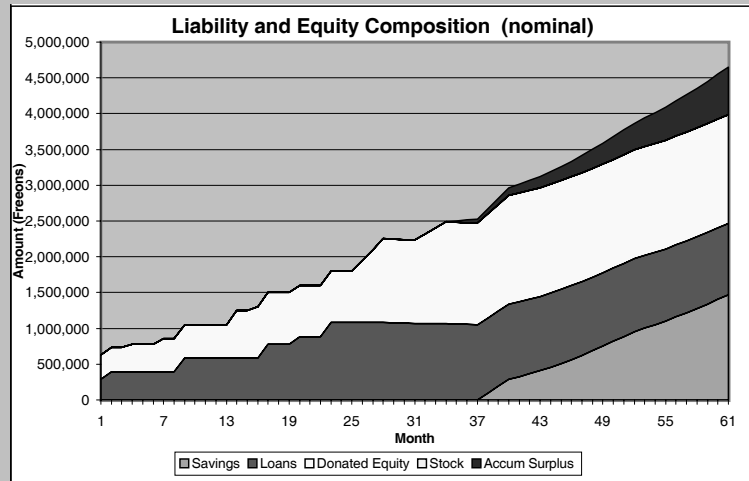
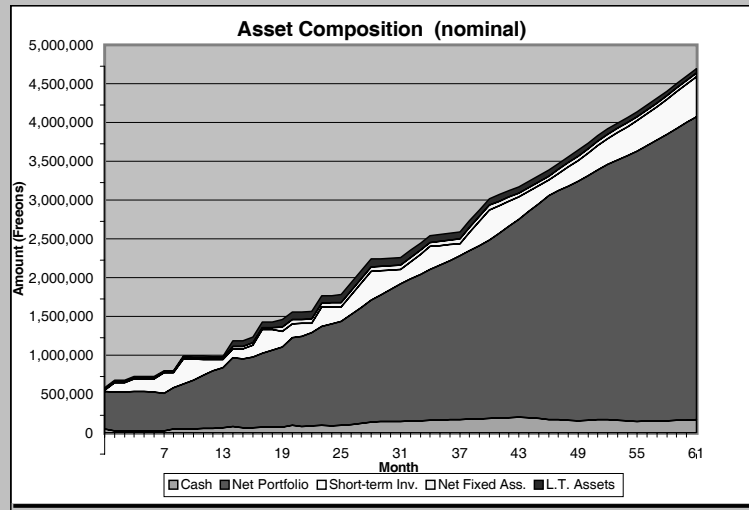


Income and Expense Graphs









Financing

This section contains printouts from two pages: the FINANCING SOURCES page and the FINANCING FLOWS page.

The FIN.SOURCES page contains sections on:

- Sources of financing
- Initial allocation of available assets
- Liquidity requirements
- Interest rates paid on borrowed funds
- Calculation of financial costs.

The FIN.FLOWS page contains sections on:

- Financing flows by source
- Investment strategy
- Income on investments
- Operational financing flow
- Portfolio financing flow
- Flow of financing for other assets
- Flow of financing for unrestricted uses
- Liquidity analysis.

#	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98
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Financing Sources

Sources of Financing

Earned income and savings have already been determined by the model. Enter names for each outside funding source. You may enter "To Be Determined" for any as-yet unidentified sources

NOTE: For grants, Init. Bal. should be the amount already received from the grant.

Unrestricted Sources

Unrestricted grants

Greenland Dev. Agency

Init. Bal.	Names Used
0	Greenland Dev. Agency [Unres2 not used] [Unres3 not used]

Unrestricted loans

[UnresLn1 not used] [UnresLn2 not used] [UnresLn3 not used]

Equity Investments (Unrestricted)

NOTE: Equity source 4 initial balance calculates based on equity from initial balance sheet and balances input for sources 1-3

[Equity1 not used] [Equity2 not used] [Equity3 not used] - [Equity4 not used]
--

Restricted Operations Sources

Restricted grants for OPERATIONS

Head Start Foundation

Init. Bal.	Names Used
0	Head Start Foundation [Op2 not used] [Op3 not used]

Restricted Portfolio Sources

Restricted grants for PORTFOLIO

Global Reach Foundation

Freedom Fund

120,000	Global Reach Foundation
0	Freedom Fund [PortGr3 not used]

Restricted loans for PORTFOLIO

IDC

FNB

FUNDALL

Init. Bal.	Names Used
110,000	IDC
180,000	FNB
0	FUNDALL [PortLn4 not used] [PortLn5 not used] [PortLn6 not used]

Restricted "Other Assets" Sources

Restricted grants for OTHER ASSETS

Head Start Foundation

0	Head Start Foundation [OA2 not used] [OA3 not used]
---	---

Restricted loans for OTHER ASSETS

Init. Bal.	Names Used
	[AssLn1 not used] [AssLn2 not used]

Treatment of Savings

Savings restricted to portfolio use

Initial Allocation of Available Assets

All cash and investments on the initial balance sheet represent funds that may be used as financing. This section allocates these assets by any required restrictions. These amounts serve as initial balances in the respective financing sections below.

Cash in Bank and Near Cash	51,400
Short-term Investments	11,000
Long-term Investments	0
Total Available Assets	62,400
Allocations of the above amount	
Restricted for Portfolio financing	50,000
Restricted for Operational financing	
Restricted for Financing of Other Assets	
Available for unrestricted use	12,400

NOTE: This information comes from the Model Setup page.

Liquidity Requirements

Portfolio liquidity calculation method

as percentage of monthly portfolio disbursement

Liquidity margin for portfolio

NOTE: Numbers less than 1.00 are treated as percentages; numbers greater than 1.00 are treated as absolute amounts

User input	0.25									
Data used in calculations	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Portfolio liquidity margin	20,900	21,117	21,336	22,377	22,633	22,813	42,083	42,551	44,382	52,027

Operations liquidity calculation method

NOTE: Liquidity is calculated as a percentage of the monthly cash expenses

Liquidity margin for operations

NOTE: Numbers less than 1.00 are treated as percentages; numbers greater than 1.00 are treated as absolute amounts

User input	0.33									
Data used in calculations	33%	33%	33%	33%	33%	33%	33%	33%	33%	33%
Operational liquidity margin	5,155	5,160	5,165	5,170	5,176	5,130	5,135	6,999	7,375	7,603

#	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98
Interest Rates for Borrowed Funds											
This section is used to calculate the financing costs for loans. This amount will be transferred to the Admin / Head Office page. On that page, an allocation method is selected for distributing these costs to the branch offices.											
Enter annualized interest rates for each source in use below											
1 .	Input rate: IDC	3.0%									
	Rate used: IDC	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
1 .	Input rate: FNB	14.0%									
	Rate used: FNB	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%
1 .	Input rate: FUNDALL	8.0%									
	Rate used: FUNDALL	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
- .	Input rate: [PortLn4 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
- .	Input rate: [PortLn5 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
- .	Input rate: [PortLn6 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
- .	Rate used: [PortLn6 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Enter annualized interest rates for each source in use below											
- .	Input rate: [AssLn1 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
- .	Rate used: [AssLn1 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
- .	Input rate: [AssLn2 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
- .	Rate used: [AssLn2 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Enter annualized interest rates for each source in use below											
- .	Input rate: [UnresLn1 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
- .	Rate used: [UnresLn1 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
- .	Input rate: [UnresLn2 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
- .	Rate used: [UnresLn2 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
- .	Input rate: [UnresLn3 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
- .	Rate used: [UnresLn3 not used]	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
NOTE: This section is used to calculate Adjusted Return on Assets and Financial Sustainability.											
- .	Input changes on this line	14.0%									
	Interest rate used in calculations	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%
Threshold for commercial rate (%) 90% Loans which are charged at least this percentage of the market rate will be considered commercial loans											
Data ok											
NOTE: Indicate below with a "1" if the loan is tied to the indexing rate indicated on the MODEL SETUP page. Otherwise leave blank											
	[UnresLn1 not used]	Not indexed									
	[UnresLn2 not used]	Not indexed									
	[UnresLn3 not used]	Not indexed									
	IDC	Not indexed									
	FNB	Not indexed									
	FUNDALL	Not indexed									
	[PortLn4 not used]	Not indexed									
	[PortLn5 not used]	Not indexed									
	[PortLn6 not used]	Not indexed									
	[AssLn1 not used]	Not indexed									
	[AssLn2 not used]	Not indexed									
Calculation of Financial Costs											
NOTE: These calculations are not accurate until loan activity has been input on the Financial Flows page											
Interest paid on deposits											
	Weighted Avg. Cost of Savings	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Financial cost of portfolio loans											
	IDC	2,375	2,375	2,375	2,375	2,375	2,375	2,375	3,495	4,615	4,615
	FNB	2,100	2,100	2,100	2,100	2,100	2,100	2,100	3,220	4,340	4,340
	FUNDALL	-	-	-	-	-	-	-	-	-	-
	[PortLn4 not used]	-	-	-	-	-	-	-	-	-	-
	[PortLn5 not used]	-	-	-	-	-	-	-	-	-	-
	[PortLn6 not used]	-	-	-	-	-	-	-	-	-	-
	Weighted Avg. Cost of Port. Loans	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%	9.8%	14.5%	11.5%	11.5%
Financial cost of loans for Other Assets											
	[AssLn1 not used]	-	-	-	-	-	-	-	-	-	-
	[AssLn2 not used]	-	-	-	-	-	-	-	-	-	-
	Weighted Avg. Cost of O.A. Loans	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Financial cost of Unrestricted Loans											
	[UnresLn1 not used]	-	-	-	-	-	-	-	-	-	-
	[UnresLn2 not used]	-	-	-	-	-	-	-	-	-	-
	[UnresLn3 not used]	-	-	-	-	-	-	-	-	-	-
	Unidentified unrestricted loans	-	-	-	-	-	-	-	-	-	-
	Weighted Avg. Cost of Unrest. Loans	-	-	-	-	-	-	-	-	-	-
Note: accrued expense section for periodic payment of interest not included in beta version											

	Initial	1	2	3	4	5	6	7	8	9	10	11	12
#	Balance	Jan-98	Feb-98	Mar-98	Apr-98	May-98	Jun-98	Jul-98	Aug-98	Sep-98	Oct-98	Nov-98	Dec-98
1 Ending rest. resources, operations	0	0	0	25,000	9,332	0	0	0	0	0	0	0	0
2 Ending rest. resources, portfolio	50,000	36,862	29,064	26,726	26,689	32,638	125,024	67,591	210,248	163,866	98,269	41,349	0
3 Ending rest. resources, other assets	0	0	0	25,000	25,000	25,000	25,000	25,000	19,911	19,911	17,346	17,346	17,346
4 Ending unrestricted resources avail.	12,400	110,611	111,343	112,165	129,115	139,672	140,761	145,221	144,942	145,840	148,047	151,356	149,361
5 Excess/shortfall incl. liquidity requirement	0	121,418	114,130	162,389	162,588	169,501	262,842	190,594	325,551	277,859	204,034	149,729	105,822

Financing Flows

Explanation:

Enter projected new funding information, monitoring for positive balances in the blue band above

1 Automated default sources

Use default sources to maintain positive cash balance

NOTE: Default sources require additional recalculation time. You should disable this option when developing scenarios.

Control variables for default funding

- 2 Percentage from unrestricted grants
- 3 Percentage from unrestricted loans
- 4 Annual interest rate for unidentified loan

100% Note: The percentages from Lines 2 and 3 will add up to 100% after workbook is recalculated.
 Note: If default loan is indexed to an external value, input the sum of the nominal interest rate plus the indexing rate.

Financing by Source

Enter new receipts in the gray areas below. For loans, enter receipts as positive numbers and repayments as negative numbers.

	15,346	16,369	16,474	16,950	16,908	16,635	20,022	20,931	23,247	25,246	26,368	27,197	
1 Earned income	0	0	0	0	0	0	0	0	0	0	0	0	
2 Change in available savings	0	0	0	0	0	0	0	0	0	0	0	0	
3 Automated Default Sources	-	-	-	-	-	-	-	-	-	-	-	-	
4 Unrestricted grants	-	-	-	-	-	-	-	-	-	-	-	-	
5 Unrestricted loans	-	-	-	-	-	-	-	-	-	-	-	-	
6 Unrestricted grants	-	-	-	-	-	-	-	-	-	-	-	-	
Greenland Dev. Agency	-	-	-	-	-	-	-	-	-	-	-	-	
[Unres2 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
[Unres3 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
7 Unrestricted loans	-	-	-	-	-	-	-	-	-	-	-	-	
[UnresLn1 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
[UnresLn2 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
[UnresLn3 not used]	100,000	-	-	-	-	-	-	-	-	-	-	-	
8 Equity Investments (Unrestricted)	-	-	-	-	-	-	-	-	-	-	-	-	
[Equity1 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
[Equity2 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
[Equity3 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
[Equity4 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
Payment of Dividends	-	-	-	-	-	-	-	-	-	-	-	-	
9 Restricted grants for OPERATIONS	-	-	-	-	-	-	-	-	-	-	-	-	
Head Start Foundation	-	-	25,000	-	-	-	-	-	-	-	-	-	
[Op2 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
[Op3 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
10 Restricted loans for PORTFOLIO	-	-	-	-	-	-	-	-	-	-	-	-	
IDC	-	-	-	-	-	-	-	-	-	-	-	-	
FNB	-	-	-	-	-	-	-	-	-	-	-	-	
FUNDALL	-	-	-	-	-	-	-	192,000	-	-	-	-	
[PortLn4 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
[PortLn5 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
[PortLn6 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
11 Restricted grants for PORTFOLIO	-	-	-	-	-	-	-	-	-	-	-	-	
Global Reach Foundation	-	-	-	-	-	-	80,000	-	-	-	-	-	
Freedom Fund	-	-	-	-	-	-	-	-	-	-	-	-	
[PortGr3 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
12 Restricted grants for OTHER ASSETS	-	-	-	-	-	-	-	-	-	-	-	-	
Head Start Foundation	-	-	25,000	-	-	-	-	-	-	-	-	-	
[OA2 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
[OA3 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
13 Restricted loans for OTHER ASSETS	-	-	-	-	-	-	-	-	-	-	-	-	
[AssLn1 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
[AssLn2 not used]	-	-	-	-	-	-	-	-	-	-	-	-	
14 Equity Multiplier	2.06	2.44	2.45	2.23	2.23	2.23	1.98	1.98	2.48	2.49	2.51	2.52	2.52

Investment Strategy

NOTE: This section allows the modeling of the investment of excess cash in instruments earning different rates of interest.

1 Cash and Investments Balances	62,400	147,473	140,407	188,890	190,136	197,309	290,785	237,812	375,102	329,617	263,663	210,051	166,707
2 Operational	0	0	0	25,000	9,332	0	0	0	0	0	0	0	0
3 Portfolio	50,000	36,862	29,064	26,726	26,689	32,638	125,024	67,591	210,248	163,866	98,269	41,349	0
4 Other Asset Financing	0	0	0	25,000	25,000	25,000	25,000	25,000	19,911	19,911	17,346	17,346	17,346
5 Unrestricted	12,400	110,611	111,343	112,165	129,115	139,672	140,761	145,221	144,942	145,840	148,047	151,356	149,361
6 Minimum liquidity level	26,055	26,277	26,502	27,547	27,808	27,943	27,943	47,219	49,550	51,758	59,629	60,322	60,885
7 Balance in excess of minimum liquidity	121,418	114,130	162,389	162,588	169,501	262,842	190,594	325,551	277,859	204,034	149,729	105,822	
8 Proposed Balance	121,418	114,130	162,389	162,588	169,501	262,842	190,594	325,551	277,859	204,034	149,729	105,822	
9 Manual override	-	-	-	-	-	-	-	-	-	-	-	-	-
10 Balance used	11,000	121,418	114,130	162,389	162,588	169,501	262,842	190,594	325,551	277,859	204,034	149,729	105,822
Short-term Investments	-	-	-	-	-	-	-	-	-	-	-	-	-
NOTE: Any balance in excess of minimum liquidity is assumed to be invested short-term.	-	-	-	-	-	-	-	-	-	-	-	-	-
11 Balance, user input	-	-	-	-	-	-	-	-	-	-	-	-	-
12 Balance used	0	0	0	0	0	0	0	0	0	0	0	0	0
Long-term Investments	-	-	-	-	-	-	-	-	-	-	-	-	-
NOTE: Any long-term investments must be manually input. Watch for negative cash balances!!!	-	-	-	-	-	-	-	-	-	-	-	-	-
13 Amount of cash deposits	51,400	26,055	26,277	26,502	27,547	27,808	27,943	47,219	49,550	51,758	59,629	60,322	60,885

	#	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98	11 Nov-98	12 Dec-98
Income on														
This section allows input of interest rates and calculates income on investments.														
1	Cash Deposits	51,400	26,055	26,277	26,502	27,547	27,808	27,943	47,219	49,550	51,758	59,629	60,322	60,885
	Interest rate earned - input	0.0%												
	Interest rate earned	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Income from liquidity deposits		0	0	0	0	0	0	0	0	0	0	0	0
2	Short-term Investments	11,000	121,418	114,130	162,389	162,588	169,501	262,842	190,594	325,551	277,859	204,034	149,729	105,822
	Interest rate earned - input	8.0%												
	Interest rate earned	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
	Income from short-term investments		73	809	761	1,083	1,084	1,130	1,752	1,271	2,170	1,852	1,360	998
NOTE: Savings reserves are derived from the total savings and the % to hold in reserve parameter on the product definition page														
3	Savings reserves	0	0	0	0	0	0	0	0	0	0	0	0	0
	Interest rate earned - input	8.0%												
	Interest rate earned	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
	Income from investments of reserves		0	0	0	0	0	0	0	0	0	0	0	0
4	Long-term Investments	0	0	0	0	0	0	0	0	0	0	0	0	0
	Interest rate earned - input	12.0%												
	Interest rate earned	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%
	Income from long-term investments		0	0	0	0	0	0	0	0	0	0	0	0
5	Total income on investments		73	809	761	1,083	1,084	1,130	1,752	1,271	2,170	1,852	1,360	998

Operational Financing														
This section shows the financing of cash operational expenses.														
1	Beginning restricted resources					25,000	9,332							
2	Less Operational Expenses	Note that loan loss provisions are excluded as they are not a cash expense												
	Financial Costs	2,375	2,375	2,375	2,375	2,375	2,375	2,375	2,375	3,495	4,615	4,615	4,615	4,615
	Program Operating Costs	9,556	9,562	9,568	9,574	9,581	9,434	9,440	14,029	14,039	14,758	14,769	14,780	14,780
	Administrative Operating Costs	4,058	4,067	4,076	4,086	4,095	4,105	4,114	4,124	4,134	4,144	4,153	4,163	4,163
	Amount of taxes paid													
3	Plus non-cash operating expenses		367	367	367	367	367	367	367	438	438	479	479	479
	Depreciation and Amortization													
	+/- change in accrued expenses													
NOTE: The following two lines are for manual adjustments of these two lines from the Balance Sheet														
4	Less net incr. in other current assets													
5	Plus net incr. in other current liabilities													
6	Balance before use of unrestricted	(15,622)	(15,637)	(15,653)	9,332	(6,352)	(15,546)	(15,562)	(21,210)	(22,350)	(23,038)	(23,059)	(23,080)	(23,080)
7	Month's income used for operations	15,346	15,637	15,653		6,352	15,546	15,562	20,931	22,350	23,038	23,059	23,080	23,080
8	Unrestricted funds used for operations	277							279					
9	Balance after use of unrestricted				9,332									
10	New restricted grants for operations			25,000										
	Head Start Foundation: Received			25,000										
	Head Start Foundation: Bal. (ref)			25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
	[Op2 not used]: Received													
	[Op2 not used]: Bal. (ref)													
	[Op3 not used]: Received													
	[Op3 not used]: Bal. (ref)													
11	Ending rest. resources, operations	0	0	0	25,000	9,332	0	0	0	0	0	0	0	0

Portfolio Financing														
This section shows the financing of the loan portfolio.														
1	Beginning restricted resources	50,000	36,862	29,064	26,726	26,689	32,638	125,024	67,591	210,248	163,866	98,269	41,349	
2	Change in portfolio													
	Plus loan repayments	70,462	76,671	83,007	89,471	96,480	103,640	110,901	120,862	131,147	142,510	153,928	165,615	165,615
	Minus loan disbursements	(83,600)	(84,468)	(85,345)	(89,508)	(90,531)	(91,253)	(168,334)	(170,205)	(177,529)	(208,107)	(210,849)	(213,076)	(213,076)
3	Bal. before changes in rest. funding	36,862	29,064	26,726	26,689	32,638	45,024	67,591	18,248	163,866	98,269	41,349	(6,112)	
4	Debt Financing of Portfolio													
	Change in available savings	0	0	0	0	0	0	0	0	0	0	0	0	0
	Available Compulsory savings													
	Available Voluntary savings													
	Product 1: Passbook Savings													
	Product 2: Term Deposits													
	Product 3: [savprod 3 not in use]													
	Product 4: [savprod 4 not in use]													
5	Change in Portfolio Loans	0	0	0	0	0	0	0	192,000	0	0	0	0	0
	IDC: Rec./Repay													
	IDC: Bal. (ref)	110,000	110,000	110,000	110,000	110,000	110,000	110,000	110,000	110,000	110,000	110,000	110,000	110,000
	FNB: Rec./Repay													
	FNB: Bal. (ref)	180,000	180,000	180,000	180,000	180,000	180,000	180,000	372,000	372,000	372,000	372,000	372,000	372,000
	FUNDALL: Rec./Repay													
	FUNDALL: Bal. (ref)													
	[PortLn4 not used]: Rec./Repay													
	[PortLn4 not used]: Bal. (ref)													
	[PortLn5 not used]: Rec./Repay													
	[PortLn5 not used]: Bal. (ref)													
	[PortLn6 not used]: Rec./Repay													
	[PortLn6 not used]: Bal. (ref)													
6	TOTAL CHANGE IN DEBT FINANCING	0	0	0	0	0	0	0	192,000	0	0	0	0	0
7	Equity Financing of Portfolio													
	New restricted grants for portfolio	0	0	0	0	0	80,000	0	0	0	0	0	0	0
	Global Reach Foundation: Received						80,000							
	Global Reach Foundation: Bal. (ref)	120,000	120,000	120,000	120,000	120,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000	200,000
	Freedom Fund: Received													
	Freedom Fund: Bal. (ref)													
	[PortGr3 not used]: Received													
	[PortGr3 not used]: Bal. (ref)													
8	TOTAL CHANGE IN EQUITY FINANCING	0	0	0	0	0	80,000	0	0	0	0	0	0	0
9	Balance before use of unrestricted	50,000	36,862	29,064	26,726	26,689	32,638	125,024	67,591	210,248	163,866	98,269	41,349	(6,112)
10	Unrestricted funds used for portfolio													6,112
11	Ending rest. resources, portfolio	50,000	36,862	29,064	26,726	26,689	32,638	125,024	67,591	210,248	163,866	98,269	41,349	0

Financial statements and analysis

This section contains printouts of several pages:

- The **SUMMARY OUTPUT REPORT**, providing a brief overview of all activity, with data reported by fiscal year rather than by month
- The **INCOME STATEMENT**, which includes analysis of adjustments for concessionary loans, inflation, and in-kind subsidies
- The **BALANCE SHEET**
- The **CASH FLOW** projections
- The **RATIO ANALYSIS** page, with financial ratios on portfolio quality, profitability, solvency, efficiency and productivity, and growth and outreach.

This section also contains two additional worksheets that are not integrated into the model but serve as analytical tools:

- The **CLIENT COST** page, a worksheet for calculating the cost of a loan to the client, taking into consideration all financial aspects of the loan as well as compulsory savings, transaction costs, and peer lending risk (see annex 5)
- A detailed **REPAYMENT SCHEDULE** for the situation modeled in the **CLIENT COST** worksheet.

	FY96	FY97	Year 1 FY98	Year 2 FY99	Year 3 FY00	Year 4 FY01	Year 5 FY02
Summary Output Report							
Balance Sheet							
ASSETS							
Cash in Bank and Near Cash	56,380	51,400	60,885	93,151	169,953	155,058	165,346
Net Portfolio Outstanding	404,000	484,000	776,899	1,344,046	2,110,008	3,085,239	3,910,023
Short-term Inv. & other curr assets	61,400	11,400	106,222	182,668	159,155	269,544	516,291
Net Fixed Assets	20,000	16,000	20,284	59,717	59,364	57,559	45,175
Long-term Invest. & other LT assets	0	0	0	40,000	30,000	20,000	10,000
TOTAL ASSETS	541,780	562,800	964,291	1,719,582	2,528,479	3,587,400	4,646,835
LIABILITIES							
Savings deposits	0	0	0	0	0	750,824	1,469,826
Concessional Loans	310,000	110,000	210,000	710,000	680,000	650,000	620,000
Commercial Loans		180,000	372,000	372,000	372,000	372,000	372,000
Other liabilities	0	0	0	0	0	0	0
TOTAL LIABILITIES	310,000	290,000	582,000	1,082,000	1,052,000	1,772,824	2,461,826
EQUITY							
Accum. Donated equity, prev. period	291,700	42,600	130,000	250,000	700,000	100,000	0
Donated equity, current period	5,700	297,400	340,000	470,000	720,000	1,420,000	1,520,000
Shareholder equity (less div pmt)	0	0	0	0	0	0	0
Accumulated net surplus	(65,620)	(67,200)	(87,709)	(82,418)	56,479	294,576	665,010
TOTAL EQUITY	231,780	272,800	382,291	637,582	1,476,479	1,814,576	2,185,010
TOTAL LIABILITIES AND EQUITY	541,780	562,800	964,291	1,719,582	2,528,479	3,587,400	4,646,835
Balance sheet verification	0	0	0	0	0	0	0
Income Statement							
Total Financial Income	0	169,320	241,694	453,386	733,216	1,047,984	1,401,461
Total Financial Costs	0	22,200	38,580	73,713	95,043	129,600	210,988
Gross Financial Margin	0	147,120	203,114	379,673	638,173	918,384	1,190,473
Provision for loan losses	0	20,000	35,212	67,214	98,577	138,968	165,577
Net Financial Margin	0	127,120	167,902	312,459	539,597	779,416	1,024,896
Program Operating Exp	0	80,100	139,091	228,067	312,270	440,424	545,139
Administrative Operating Exp	0	48,600	49,319	79,101	88,428	100,896	109,323
Amount of taxes paid			0	0	0	0	0
Net income from operations (after taxes)	0	(1,580)	(20,509)	5,291	138,898	238,097	370,434
Grant Income	0	42,600	130,000	250,000	700,000	100,000	0
Excess of Income over Expenses	0	41,020	109,491	255,291	838,898	338,097	370,434
Adjustments to Operating Margin			57,667	90,620	166,243	210,953	239,049
Cashflow Projections							
Cash flow from Operations (a)			19,585	91,549	259,726	400,743	560,967
Total Other Sources (b)			1,935,958	3,544,961	4,971,150	7,214,808	9,164,869
Total Other Uses (c)			2,076,057	3,854,244	5,854,075	7,730,446	9,715,547
Net change in equity (d)			0	0	0	0	0
Plus grant income (e)			130,000	250,000	700,000	100,000	0
Ending Balance			60,885	93,151	169,953	155,058	165,346

	FY96	FY97	Year 1 FY98	Year 2 FY99	Year 3 FY00	Year 4 FY01	Year 5 FY02
Financing Sources							
New Unrestricted Grants			0	200,000	200,000	100,000	0
New restricted grants for operations			25,000	25,000	0	0	0
New restricted grants for portfolio			80,000	0	500,000	0	0
New restricted grants for other assets			25,000	25,000	0	0	0
New Unrestricted Loans			100,000	0	0	0	0
Change in Portfolio Loans			192,000	500,000	(30,000)	(30,000)	(30,000)
Change in Loans for other assets			0	0	0	0	0
New equity investments			0	0	0	0	0
Ratio Analysis							
Portfolio Quality							
Loan Loss Reserve Ratio			3.9%	3.9%	3.9%	3.9%	3.9%
Loan Write-off Ratio			3.9%	3.9%	3.7%	3.7%	3.6%
Profitability							
Adjusted Return on Total Assets			-9.7%	-6.0%	-1.2%	0.9%	3.2%
Solvency							
Equity Multiplier			2.52	2.70	1.71	1.98	2.13
Efficiency & Productivity							
Operating Cost Ratio			32.9%	28.1%	22.0%	19.2%	17.5%
Borrowers per Loan Officer			228	268	291	283	292
Overhead percentage			26.2%	25.8%	22.1%	18.6%	16.7%
Loan Officers as % of total staff"			65.7%	67.0%	68.7%	60.6%	62.7%
Growth and Outreach							
Total Loan Portfolio	420,000	504,000	808,799	1,399,232	2,195,848	3,210,753	4,069,092
Overall growth in portfolio		20%	60%	73%	57%	46%	27%
Number of active loans	0	3,600	4,784	6,977	8,721	10,466	11,961
Overall growth in borrowers		#N/A	33%	46%	25%	20%	14%
Client dropout rate			13%	13%	15%	15%	16%
Total Voluntary Savings Deposits	0	0	0	0	0	750,824	1,469,826
Number of voluntary depositors			0	0	0	9,812	12,906
Financial Statements in External Currency							

To be completed

	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98	11 Nov-98	12 Dec-98
Income Statement													
Income Statement													
Financial Income													
Interest on loans		12,764	13,026	13,153	13,182	13,108	12,768	13,220	14,554	15,751	17,151	18,682	19,807
Commissions and fees incl. penalties		2,508	2,534	2,560	2,685	2,716	2,738	5,050	5,106	5,326	6,243	6,325	6,392
Indexing income on loans		0	0	0	0	0	0	0	0	0	0	0	0
Income on Investments		73	809	761	1,083	1,084	1,130	1,752	1,271	2,170	1,852	1,360	998
Total Financial Income		15,346	16,369	16,474	16,950	16,908	16,635	20,022	20,931	23,247	25,246	26,368	27,197
Financial Costs													
Interest and fees on borrowed funds		2,375	2,375	2,375	2,375	2,375	2,375	2,375	3,495	4,615	4,615	4,615	4,615
Interest paid on savings deposits		0	0	0	0	0	0	0	0	0	0	0	0
Indexing expense of deposits and loans		0	0	0	0	0	0	0	0	0	0	0	0
Total Financial Costs		2,375	2,375	2,375	2,375	2,375	2,375	2,375	3,495	4,615	4,615	4,615	4,615
Gross Financial Margin		12,971	13,994	14,099	14,575	14,533	14,260	17,647	17,436	18,632	20,631	21,753	22,582
Provision for loan losses		1,547	1,856	1,642	1,540	1,221	824	3,506	3,826	3,973	5,212	5,132	4,932
Net Financial Margin		11,423	12,138	12,457	13,035	13,313	13,437	14,140	13,610	14,659	15,419	16,620	17,650
Operating Costs													
Program		9,556	9,562	9,568	9,574	9,581	9,434	9,440	14,029	14,039	14,758	14,769	14,780
Salaries and benefits		6,645	6,645	6,645	6,645	6,645	6,645	6,645	9,240	9,240	9,600	9,600	9,600
Other operational expenses		2,797	2,803	2,809	2,815	2,821	2,674	2,680	4,604	4,614	4,933	4,944	4,955
Depreciation		114	114	114	114	114	114	114	185	185	226	226	226
Administration		4,058	4,067	4,076	4,086	4,095	4,105	4,114	4,124	4,134	4,144	4,153	4,163
Salaries and benefits		1,740	1,740	1,740	1,740	1,740	1,740	1,740	1,740	1,740	1,740	1,740	1,740
Other operational expenses		2,065	2,074	2,083	2,093	2,102	2,112	2,121	2,131	2,141	2,151	2,160	2,170
Depreciation and amortization		253	253	253	253	253	253	253	253	253	253	253	253
Total Operating Costs		13,614	13,630	13,645	13,660	13,676	13,538	13,554	18,153	18,173	18,902	18,923	18,944
Net Income from Operations (before taxes)		(2,191)	(1,491)	(1,188)	(625)	(363)	(102)	587	(4,543)	(3,514)	(3,483)	(2,302)	(1,294)
Amount of taxes paid		0	0	0	0	0	0	0	0	0	0	0	0
Net income from operations (after taxes)		(2,191)	(1,491)	(1,188)	(625)	(363)	(102)	587	(4,543)	(3,514)	(3,483)	(2,302)	(1,294)
Income from grants for Loan Fund Capital		0	0	0	0	0	80,000	0	0	0	0	0	0
Income from grants for Fixed Assets		0	0	25,000	0	0	0	0	0	0	0	0	0
Income from grants for Operations		0	0	25,000	0	0	0	0	0	0	0	0	0
Income from unrestricted grants		0	0	0	0	0	0	0	0	0	0	0	0
Excess of Income over Expenses		(2,191)	(1,491)	48,812	(625)	(363)	79,898	587	(4,543)	(3,514)	(3,483)	(2,302)	(1,294)

Adjustments to Income Statement													
Note: Adjustments and financial ratios EXCLUDE any taxes paid by the institution													
Net Income from Operations (before taxes)		(2,191)	(1,491)	(1,188)	(625)	(363)	(102)	587	(4,543)	(3,514)	(3,483)	(2,302)	(1,294)
Adjustments to Operating Margin		3,343	4,423	4,615	4,810	4,809	5,129	5,453	4,300	5,239	5,205	5,175	5,165
Subsidized cost of funds adjustment		809	1,907	1,907	1,907	1,907	1,907	1,907	787	1,775	1,775	1,775	1,775
Inflation adjustment of equity		2,034	2,017	2,208	2,403	2,402	2,722	3,046	3,013	2,964	2,930	2,900	2,890
In-kind subsidies		500	500	500	500	500	500	500	500	500	500	500	500
Adjusted Return from Operations		(5,535)	(5,915)	(5,803)	(5,435)	(5,172)	(5,231)	(4,866)	(8,843)	(8,753)	(8,688)	(7,477)	(6,458)

Income Statement Analysis														
NOTE: The choice of denominator is made on the MODEL SETUP page in the financial ratios section														
Choice of denominator for ratios		Calculate ratios based on TOTAL ASSETS												
Note: If cash balances are negative, they are excluded from the calculation														
Total Assets		562,800	660,609	659,118	707,930	707,305	706,941	786,840	787,426	974,884	971,370	967,887	965,585	964,291
Average Total Assets		611,704	659,863	683,524	707,617	707,123	746,891	787,133	881,155	973,127	969,629	966,736	964,938	
NOTE: The following ratios are stated on an annualized equivalent														
Return on Total Assets		30.1%	29.8%	28.9%	28.7%	28.7%	26.7%	30.5%	28.5%	28.7%	31.2%	32.7%	33.8%	
- Financing Costs *		4.7%	4.3%	4.2%	4.0%	4.0%	3.8%	3.6%	4.8%	5.7%	5.7%	5.7%	5.7%	
= Gross Financial Margin		25.4%	25.4%	24.8%	24.7%	24.7%	22.9%	26.9%	23.7%	23.0%	25.5%	27.0%	28.1%	
- Loan Loss Provisions *		3.0%	3.4%	2.9%	2.6%	2.1%	1.3%	5.3%	5.2%	4.9%	6.5%	6.4%	6.1%	
= Net Financial Margin		22.4%	22.1%	21.9%	22.1%	22.6%	21.6%	21.6%	18.5%	18.1%	19.1%	20.6%	21.9%	
- Operating Costs		26.7%	24.8%	24.0%	23.2%	23.2%	21.8%	20.7%	24.7%	22.4%	23.4%	23.5%	23.6%	
= Operating Margin (ROA)		-4.3%	-2.7%	-2.1%	-1.1%	-0.6%	-0.2%	0.9%	-6.2%	-4.3%	-4.3%	-2.9%	-1.6%	
- Adjustments to Operations		6.6%	8.0%	8.1%	8.2%	8.2%	8.2%	8.3%	5.9%	6.5%	6.4%	6.4%	6.4%	
= Net Margin (Adjusted ROA)		-10.9%	-10.8%	-10.2%	-9.2%	-8.8%	-8.4%	-7.4%	-12.0%	-10.8%	-10.8%	-9.3%	-8.0%	
NOTE: The symbol #NA indicates that the number is too large to calculate.														
Operational Sustainability		88%	92%	93%	96%	98%	99%	103%	82%	87%	88%	92%	95%	
Financial Sustainability		73%	73%	74%	76%	77%	76%	80%	70%	73%	74%	78%	81%	
Adjusted Return on Equity		-24%	-26%	-24%	-21%	-20%	-18%	-15%	-27%	-27%	-27%	-23%	-20%	

End of information on this page

	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98	11 Nov-98	12 Dec-98
Cashflow Projections													
Net income from operations		(2,191)	(1,491)	(1,188)	(625)	(363)	(102)	587	(4,543)	(3,514)	(3,483)	(2,302)	(1,294)
Non-cash operating items													
+ Depreciation and amortization		367	367	367	367	367	367	367	438	438	479	479	479
+ Loan loss provisions		1,547	1,856	1,642	1,540	1,221	824	3,506	3,826	3,973	5,212	5,132	4,932
Cash flow from Operations (a)		(277)	732	821	1,282	1,225	1,089	4,460	(279)	897	2,208	3,309	4,117
Plus other sources													
Loan repayments received		70,462	76,671	83,007	89,471	96,480	103,640	110,901	120,862	131,147	142,510	153,928	165,615
Net increase in borrowed funds		100,000	-	-	-	-	-	-	192,000	-	-	-	-
Net increase in savings deposits		-	-	-	-	-	-	-	-	-	-	-	-
Net decrease in other assets		-	-	-	-	-	-	-	-	-	-	-	-
Net decrease in short-term invest.		-	7,288	-	-	-	-	72,248	-	47,692	73,825	54,304	43,907
Net decrease in long-term invest.		-	-	-	-	-	-	-	-	-	-	-	-
Net increase in accrued expenses		-	-	-	-	-	-	-	-	-	-	-	-
Net decrease in other current assets		-	-	-	-	-	-	-	-	-	-	-	-
Net increase in other current liabilities		-	-	-	-	-	-	-	-	-	-	-	-
Net increase in other long-term liabilities		-	-	-	-	-	-	-	-	-	-	-	-
Total Other Sources (b)		170,462	83,958	83,007	89,471	96,480	103,640	183,149	312,862	178,839	216,336	208,233	209,523
Minus other uses													
Loan disbursements		83,600	84,468	85,345	89,508	90,531	91,253	168,334	170,205	177,529	208,107	210,849	213,076
Net decrease in borrowed funds		-	-	-	-	-	-	-	-	-	-	-	-
Net decrease in savings deposits		-	-	-	-	-	-	-	-	-	-	-	-
Net increase in other assets		1,512	-	-	-	-	-	-	5,089	-	2,565	-	-
Net increase in short-term investments		110,418	-	48,259	200	6,912	93,341	-	134,958	-	-	-	-
Net increase in long-term investments		-	-	-	-	-	-	-	-	-	-	-	-
Net decrease in accrued expenses		-	-	-	-	-	-	-	-	-	-	-	-
Net increase in other current assets		-	-	-	-	-	-	-	-	-	-	-	-
Net decrease in other current liabilities		-	-	-	-	-	-	-	-	-	-	-	-
Net decrease in other long-term liabilities		-	-	-	-	-	-	-	-	-	-	-	-
Total Other Uses (c)		195,530	84,468	133,604	89,707	97,443	184,594	168,334	310,251	177,529	210,672	210,849	213,076
Changes in equity position													
Plus: Stock issued		0	0	0	0	0	0	0	0	0	0	0	0
Minus: Dividend payments		0	0	0	0	0	0	0	0	0	0	0	0
Net change in equity (d)		0	0	0	0	0	0	0	0	0	0	0	0
Plus grant income (e)		-	-	50,000	-	-	80,000	-	-	-	-	-	-
Net Cash Flow (a + b - c + d)		(25,345)	222	224	1,046	261	135	19,275	2,332	2,207	7,872	692	564
Beginning Cash Balance		51,400	26,055	26,277	26,502	27,547	27,808	27,943	47,219	49,550	51,758	59,629	60,322
Ending Balance		26,055	26,277	26,502	27,547	27,808	27,943	47,219	49,550	51,758	59,629	60,322	60,885
Comparison to Balance Sheet cash		0	0	0	0	0	0	0	(0)	(0)	0	0	0

	Initial Balance	1 Jan-98	2 Feb-98	3 Mar-98	4 Apr-98	5 May-98	6 Jun-98	7 Jul-98	8 Aug-98	9 Sep-98	10 Oct-98	11 Nov-98	12 Dec-98
Ratio Analysis													
Portfolio Quality													
Portfolio at Risk > 30 days	10.0%	10.3%	10.6%	10.9%	11.2%	11.5%	10.0%	10.3%	10.6%	10.9%	11.2%	11.5%	10.0%
Loan Loss Reserve Ratio	4.0%	4.2%	4.5%	4.8%	5.0%	5.3%	3.9%	4.2%	4.5%	4.7%	5.0%	5.3%	3.9%
Loan Write-off Ratio		0.0%	0.0%	0.0%	0.0%	0.0%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	1.8%
Profitability													
NOTE: These figures are annualized													
Adjusted Return on Total Assets		-10.9%	-10.8%	-10.2%	-9.2%	-8.8%	-8.4%	-7.4%	-12.0%	-10.8%	-10.8%	-9.3%	-8.0%
Operational Sustainability		88%	92%	93%	96%	98%	99%	103%	82%	87%	88%	92%	95%
Financial Sustainability		73%	73%	74%	76%	77%	76%	80%	70%	73%	74%	78%	81%
Adjusted Return on Equity		-24%	-26%	-24%	-21%	-20%	-18%	-15%	-27%	-27%	-27%	-23%	-20%
Solvency													
Equity Multiplier	2.06	2.44	2.45	2.23	2.23	2.23	1.98	1.98	2.48	2.49	2.51	2.52	2.52
Quick Ratio	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Efficiency & Productivity													
Yield on Portfolio		30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Operating Cost Ratio		32.0%	31.4%	31.1%	31.1%	31.3%	31.8%	30.8%	37.4%	34.6%	33.1%	30.4%	28.7%
Borrowers per Loan Officer	277	282	288	294	300	306	338	345	222	229	214	221	228
Portfolio per Loan Officer	38,769	39,780	40,380	40,560	40,562	40,105	41,672	46,458	31,939	34,380	34,230	36,940	38,514
Average cost of debt		8.4%	7.3%	7.3%	7.3%	7.3%	7.3%	7.3%	8.6%	9.5%	9.5%	9.5%	9.5%
Overhead percentage		29.8%	29.8%	29.9%	29.9%	29.9%	30.3%	30.4%	22.7%	22.7%	21.9%	21.9%	22.0%
Loan Officers as % of total staff*	65%	65%	65%	65%	65%	65%	63%	63%	66%	66%	68%	68%	68%
Program Other Op Costs / Portfolio		6.5%	6.4%	6.4%	6.4%	6.5%	6.4%	5.8%	9.1%	8.5%	8.2%	7.6%	7.4%
Net FA per branch/program staff person		313	305	298	291	284	277	288	280	364	357	417	409
Admin-level Other Op Exp / Portfolio		4.8%	4.7%	4.7%	4.8%	4.8%	5.1%	4.6%	4.2%	3.9%	3.6%	3.3%	3.2%
#REF!	2,750	3,065	3,002	2,938	2,875	2,812	2,749	2,685	2,622	2,559	2,496	2,432	2,369
Growth and Outreach													
Lending													
Total Loan Portfolio	504,000	517,138	524,936	527,274	527,311	521,362	500,069	557,502	606,845	653,227	718,824	775,744	808,799
Overall growth in portfolio		3%	2%	0%	0%	-1%	-4%	11%	9%	8%	10%	8%	4%
Number of active loans	3,600	3,672	3,745	3,821	3,896	3,975	4,054	4,135	4,218	4,353	4,492	4,636	4,784
Overall growth in borrowers		2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%	3%
Client dropout rate		18%	18%	18%	12%	12%	12%	11%	11%	11%	12%	12%	12%
First loans as % of active loans	33%	33%	33%	34%	33%	33%	33%	31%	28%	27%	26%	26%	26%
Voluntary Savings													
Total Voluntary Savings Deposits	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent change in savings deposits		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Number of voluntary depositors	0	0	0	0	0	0	0	0	0	0	0	0	0
Percent change in depositors		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Compulsory Savings													
Compulsory savings as % of portfolio	14%	14%	14%	15%	15%	16%	17%	17%	16%	16%	15%	15%	15%

Effective Interest Rate and Cost to Client Analysis

Loan amount: 3,000
 Quoted interest rate: 30.0% annualized rate
 30.0% annual nominal equivalent

Repayment frequency: Weekly
 Number of installment periods: 13 Weeks
 Term Ok

Grace period: Weeks
 Interest rate method: Declining balance

Installment schedule: Multiple installments
 Interest earned on savings (annual): 10.0%

Amortized loan?: Amortized principal and interest
 Inflation rate (annual): 0.0%

Loan indexed to external rate: 0.0%

Note: in the following section, numbers <1 are treated as percentages, and numbers >1 are absolute amounts

Upfront commission #1	0%	Effective Interest Rate	increment	nadj. Tot.	real
Upfront commission #2	0%		Loan only	30.0%	18.2%
Ongoing commission	0%	including savings	16.9%	46.9%	33.6%
Upfront compulsory savings	0.2 20%	incl. transaction costs	5.0%	52.0%	38.1%
Ongoing compulsory savings	0%	incl. peer risk	48.2%	100.2%	82.0%

A detailed repayment schedule can be found on the next worksheet page ("RepSched")
 Page Down to see Transaction Cost section

Transaction Costs Analysis

	Before loan	Each period	The amount in the "period" column will be repeated for the installment frequency. This is currently established as:
Number of trips to office/bank	3	1	Weeks
Cost of roundtrip transportation going to office	x 0.50	x 0.50	
Cost of transportation	= 2	= 1	
Number of roundtrips to office	3	1	
Hours spent to go roundtrip to/from office	x 1.0	x 1.0	
Hours spent in transportation	= 3.0	= 1.0	
Hours spent with loan officer at business	+ 1.0	+ 1.0	
Hours in training sessions	+ 3.0	+ 0.5	
Hours spent in group sessions	+ 1.0	+ 0.1	
Hours spent at bank and office	+ 2.0	+ 1.55	
Total Hours	= 10.0	= 1.55	
Opportunity cost of time (per hour)	x 0.20	x 0.20	
Total opportunity cost of time	= 2.00	= 0.31	
Total Transaction Costs (transportation + opportunity costs)	3.50	0.81	

Financial risk of group default

Assumes each borrower has equal odds of default and that other members in group will share burden.
 Thus, in a group of 5 people, there are 4 other possible defaulters, but any defaulting will be split four ways (the borrower being analyzed plus the three remaining good members)

Average loan size	3,000
Percentage of clients that stop paying their part of group payment	5.0%
Probable amount the "good" client will need to cover (applied in final month)	150

The following table shows the repayment schedule and cashflow for the loan given the conditions indicated on the Client Cost page.

Month #	Loan Cost and Cashflow						Compulsory Savings					Transaction Costs		Default Risk	
	Balance	Principal	Interest	Indexing	Commission	Cashflow	Savings	Interest	Withdrawal	Savings Balance	Cashflow	Transaction Costs	Cashflow	Default Risk	Cashflow
0	3,000					3,000	600			600	2,400	3.50	2,397		2,397
1	2,777	222.89	17.31	-	-	(240)	-	-	-	600	(240)	0.81	(241)	-	(241)
2	2,553	224.17	16.02	-	-	(240)	-	-	-	600	(240)	0.81	(241)	-	(241)
3	2,327	225.47	14.73	-	-	(240)	-	-	-	600	(240)	0.81	(241)	-	(241)
4	2,101	226.77	13.43	-	-	(240)	-	-	-	600	(240)	0.81	(241)	-	(241)
5	1,873	228.08	12.12	-	-	(240)	-	-	-	600	(240)	0.81	(241)	-	(241)
6	1,643	229.39	10.80	-	-	(240)	-	-	-	600	(240)	0.81	(241)	-	(241)
7	1,413	230.72	9.48	-	-	(240)	-	-	-	600	(240)	0.81	(241)	-	(241)
8	1,180	232.05	8.15	-	-	(240)	-	-	-	600	(240)	0.81	(241)	-	(241)
9	947	233.39	6.81	-	-	(240)	-	-	-	600	(240)	0.81	(241)	-	(241)
10	712	234.73	5.46	-	-	(240)	-	-	-	600	(240)	0.81	(241)	-	(241)
11	476	236.09	4.11	-	-	(240)	-	-	-	600	(240)	0.81	(241)	-	(241)
12	239	237.45	2.75	-	-	(240)	-	-	-	600	(240)	0.81	(241)	-	(241)
13	-	238.82	1.38	-	-	(240)	-	-	600	-	360	-	360	150	210
14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
45	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
51	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		3,000	123	0	0	30.0%	600	0	600		47%	13	52.0%	150	100.2%

0.0058

Data Requirements for Completing Microfin

This annex lists all the data required to complete the model, grouped by the page on which the information is input. (For clarification of any of the requirements refer to the relevant sections of the handbook.) As the list indicates, Microfin requires substantial data to generate reliable projections. Much of this information describes current loans. If an institution does not track the kind of detailed information needed to complete the model, staff can analyze a sample survey of client records to estimate the data (box A3.1).

MODEL SETUP page

1. Name of the institution
2. Name of the local currency
3. Starting month and year for projections
4. Inflation rate projections
5. Product indexing rate projections (only for institutions with indexed financial products)
6. Balance sheet and income statement for current fiscal year (complete or estimated for the end-period prior to the starting month and year for the projections)
7. Balance sheet and income statement for previous two fiscal years (optional)
8. Statistical portfolio data (optional; see the MODEL SETUP page for data requirements)

PRODUCTS page

- Number of distinct loan and savings products to be offered in the coming five years (maximum of four each)
- For each loan product:
 1. Average loan amount by cycle and by month
 2. Indication of whether loan amounts increase by inflation either monthly or annually
 3. Repayment frequency (daily, weekly, biweekly, monthly, end-of-term)
 4. Average effective loan term by cycle and by month
 5. Grace period
 6. Any up-front or ongoing compulsory savings requirements
 7. Interest rate method (declining balance or flat)

8. Annual interest rate charged, by month
 9. Any up-front and ongoing commissions charged, by month
 10. Indication of whether the loan is indexed to an external value
- For each savings product:
 1. Annual interest rate paid, by month
 2. Percentage of savings held in reserve, by month
 3. Indication of whether savings accounts are indexed to an external value
 4. For compulsory savings only, indication of whether the savings appear on the institution's balance sheet

INST.CAP. page

1. Loan write-off frequency (monthly, quarterly, semiannual, annual)
2. Loan loss provisioning rates by aging bracket
3. Overhead cost allocation methods (how financial costs and operational administrative or head office costs are allocated back to branch offices; required only if modeling individual branches)
4. Title used in the institution for the position of loan officer
5. Staff titles for all program (or branch office) positions
6. Staff titles for all administrative (or head office) positions
7. Indication of whether salaries and benefits are revised annually for inflation
8. Program (or branch office) operational expense categories
9. Administrative (or head office) operational expense categories
10. Program (or branch office) fixed asset categories
11. Administrative (or head office) fixed asset categories
12. Any buildings owned or to be owned
13. Categories for other assets (such as MIS software)

PROGRAM/BRANCH page

- For each loan product:
 1. Number of active loans for the product at the beginning of the projections
 2. Estimated distribution of those active loans by loan cycle
 3. Initial loan portfolio for the product
 4. Projected number of active loans for each month (This is a critical number for generating the portfolio projections; it should be based on the market study done during strategic planning.)
 5. Estimated client retention rates for each cycle, by month
- For any compulsory savings, the initial balance of savings held
- For each voluntary savings product:

1. Estimated percentage of borrowers of each loan product saving voluntarily, by month
 2. Projected number of savers, independent of borrower projections, by month
 3. Any initial savings balance for the product
 4. Estimated average balance per savings account, by month
- For the expense projections:
 1. Projected portfolio at risk rates
 2. Projected long-term loan default rate, as a percentage of the average annual portfolio
 3. Initial balance of the loan loss reserve for the branch
 4. Loan officer productivity estimates (percentage of optimal caseload for entry- and intermediate-level staff, number of months between promotions)
 5. Average longevity of loan officers (used to calculate staff turnover)
 6. Minimum number of new loan officers to be hired as a group
 7. Length of any loan officer training program or apprenticeship period
 8. Optimal loan officer caseload for each product, by month
 9. Number of staff for all program-level positions, current and projected
 10. Monthly salary and benefits for each staff position, current and projected
 11. Estimated monthly operational expenses for each category, current and projected
 12. Undepreciated book value of all currently held branch-level fixed assets, by category
 13. Estimated average remaining life of initial fixed assets
 14. Planned fixed asset acquisition schedule, by category

ADMIN/HEAD OFFICE page

1. Number of administrative (or head office) staff, by position, current and projected
2. Monthly salary and benefits for each administrative (or head office) staff position, current and projected
3. Estimated monthly operational expenses for each category, current and projected
4. Undepreciated book value of all currently held administrative (or head office) fixed assets, by category
5. Estimated average remaining life of initial fixed assets
6. Planned fixed asset acquisition schedule, by category
7. Projected land acquisition, by month
8. Projected building acquisition, by month
9. Accumulated depreciation for buildings
10. Unamortized book value of all currently held other assets, by category

11. Estimated average remaining life of other assets
12. Planned acquisition schedule for other assets, by category
13. Formulas for the calculation of any taxes to be paid
14. Estimates of any in-kind contributions received (such as technical support or free office space)

FIN.SOURCES and FIN.FLOWS pages

1. For all current grant sources, balances already received, projected disbursement schedules, estimated total funding available, and any applicable funding restrictions
2. For all loan sources, initial balances, total approved amounts, disbursement schedules, repayment schedules, interest rates, and any restrictions on use of the loan
3. For all equity sources, initial balances, projected investments, and projected dividends
4. Determination of whether savings are to be restricted to portfolio financing or treated as unrestricted funds
5. Restrictions on the use of any initial cash, bank, or investment balances
6. Estimated target liquidity levels for operations and for portfolio financing
7. Market rate cost of funds projections (cost for the institution to borrow funds from commercial sources)
8. Average interest rates earned on cash deposits, short-term and long-term investments, and savings reserve deposits

Box A3.1

Performing a sample survey of client loan data

Institutions that need to estimate the client loan data required by the model can do so by analyzing two samples—a sample of new loans issued in the past 12 months and a sample of clients.

First, a random sampling of new loans issued in the past 12 months should be analyzed for each loan product. The data should be grouped by the client's loan cycle; for example, a record for the third loan received by a client should be grouped with the records for other third-cycle loans. (See section 4.2.2 for an explanation of loan cycles.) Then the average initial loan amount and contractual loan term should be calculated for each loan cycle. In addition, for loans that have been repaid, the contractual loan term should be compared with the actual time taken to pay back the loan to calculate the effective loan term (see section 4.3.2). These data will all be used in defining each loan product.

Second, a random sampling of clients should be selected, sorted by loan product, to calculate the retention rates for each product. For each client it should be determined whether the client proceeded to receive another loan once one loan was fully repaid. The results should be tabulated by loan cycle. Then, to calculate the retention rate for each cycle, the number of clients receiving a loan from the next cycle should be divided by the number of clients fully paying off a loan in that (first) cycle (see section 5.2.3).

Program or Branch Modeling Exercise

The purpose of this exercise is to help users understand how calculations are performed on the PROGRAM/BRANCH page. Follow these steps:

1. Use loan product 4 as the test product to avoid having to modify any work done previously. Assign it the name *test product* at the top of the PRODUCTS page. (You may need to change the number of loan products in use, also at the top of the PRODUCTS page.)
2. In the product definition section for loan product 4 indicate a loan size of 100 for each cycle, no indexing to inflation, and monthly repayments. Indicate an effective loan term of three months for each cycle and no grace period.
3. Assign compulsory savings of 10 percent up front on the requested loan amount.
4. Assign an interest rate of 12 percent on a declining balance and an up-front commission of 1 percent.
5. Move to the PROGRAM/BRANCH page. Click on the LOAN INPUT button and then page down to the loan product 4 input section.
6. In step 1 leave initial balances as zero.
7. In step 2 input growth rates in line 12, bypassing the ANNUAL TARGETS BY BRANCH section. Input an increase of 100 active loans a month in the month 1 cell, the month 13 cell, and the beginning of years 3, 4, and 5.
8. In step 3 input 100 percent retention rates for all cycles.
9. Click on the GRAPHS button. Find and analyze the three graphs relating to product 4.
10. *Don't forget to hit F9 (the recalculation button)* before viewing graphs after each change.
11. Click on the RETURN FROM GRAPHS button to get back to the numbers. Then click on the LOAN OUTPUT button and page down to the loan product 4 section.
12. Study the information in the NUMBER OF LOANS section until you understand what is happening. Then study the information in the PORTFOLIO ACTIVITY section until you understand it.
13. Now click on the SHOW/HIDE DETAIL button to increase the level of detail. Follow the flow of clients through the loan cycles in the NUMBER OF LOANS section until you understand it. What happens when loans mature within a specific cycle?
14. Now study the information in the PORTFOLIO ACTIVITY section. Follow the flow of money until you understand what is happening.
15. Click on the LOAN INPUT button to move back to the top of the page. In step 3 change all retention rates for product 4 from 100 percent to 50 percent.

16. Click on the **GRAPHS** button to view the change in the **LOANS BY CYCLE** graph. What is happening? (Don't forget to hit F9 to recalculate.)
17. Click on **RETURN FROM GRAPHS** and then click on **LOAN OUTPUT**. Study the cycle-by-cycle information in the **NUMBER OF LOANS** section for product 4 and determine what is happening. How is the number of disbursed first-cycle loans determined?
18. Click on the **GRAPHS** button and review the graphs relating to all loan product activity (these follow the product 4 graphs). Try to interpret the information each graph is showing you. Note the amounts in month 60 for loan portfolio, disbursements and repayments (on the branch-level graphs page), and average loan size.
19. Click on **RETURN FROM GRAPHS** and move to the **PRODUCTS** page. Change the average loan amounts in the succeeding cycles to 100, 200, 300, 400, 500, and 600. Change the loan terms to 3, 4, 5, 6, 7, and 8 months.
20. Move to the **PROGRAM/BRANCH** page and change the client retention rate to 80 percent for each cycle.
21. Click on the **GRAPHS** button to review the results of these changes. (Remember to hit F9.) Note the difference both in the shape of the graphs and in the monetary amounts for portfolio, disbursements, repayments, and average loan size.
22. If you have more time, continue to experiment!
23. Remember to "zero out" all this activity for product 4 before continuing to work with the case study (or reset the number of loan products in use on the **PRODUCTS** page).

Analysis of Effective Interest Rates and Costs to Clients

Microfin includes a tool for making precise calculations of effective interest rates and considering other cost issues that may influence a client's decision to take out a loan. This worksheet, labeled CLIENT COST, is near the end of the Microfin workbook (figure A5.1).

FIGURE A5.1

Calculating the cost of a loan to the client

Effective Interest Rate and Cost to Client Analysis						
Loan amount	3,000			Quoted interest rate	30.0%	annualized rate ▼
Repayment frequency	Weekly ▼				30.0%	annual nominal equivalent
Number of installment periods	13	Weeks		Term	Ok	
				Interest rate method		Declining balance ▼
Grace period		Weeks		Interest earned on savings (annual)		
Installment schedule	Multiple installments ▼			Inflation rate (annual)	10.0%	
Amortized loan?	Amortized principal and interest ▼			Loan indexed to external rate	0.0%	
Note: in the following section, numbers <1 are treated as percentages, and numbers >1 are absolute amounts						
Upfront commission #1		0%		Effective Interest Rate	increment	unadj. Tot. real
Upfront commission #2		0%		Loan only		30.0% 18.2%
Ongoing commission		0%		including savings	16.9%	46.9% 33.6%
Upfront compulsory savings	0.2	20%		incl. transaction costs	5.0%	52.0% 38.1%
Ongoing compulsory savings		0%		incl. peer risk	48.2%	100.2% 82.0%

In addition to allowing more detailed analysis of financial factors considered previously, this worksheet enables users to quantify transaction costs that the client may perceive as a result of the loan requirements (figure A5.2). It also helps users estimate the financial risk to a client of guaranteeing the loans of other group members in group lending methodologies.

Experimenting with this worksheet can help users understand the true financial costs for clients under different scenarios. For example, does a loan become more or less expensive when the repayment frequency changes from monthly to weekly?

FIGURE A5.2

Analyzing transaction costs for clients

Transaction Costs Analysis					
			Before loan		Each period
Number of trips to office/bank			3		1
Cost of roundtrip transportation going to office	x		0.50	x	0.50
Cost of transportation		=	2	=	1
Number of roundtrips to office			3		1
Hours spent to go roundtrip to/from office	x		1.0	x	1.0
Hours spent in transportation		=	3.0	=	1.0
Hours spent with loan officer at business	+		1.0	+	
Hours in training sessions	+		3.0	+	
Hours spent in group sessions	+		1.0	+	0.5
Hours spent at bank and office	+		2.0	+	0.1
Total Hours		=	10.0	=	1.55
Opportunity cost of time (per hour)	x		0.20	x	0.20
Total opportunity cost of time		=	2.00	=	0.31
Total Transaction Costs			3.50		0.81
(transportation + opportunity costs)					

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