

## Credit Scoring, Banks, and Microfinance: Balancing “High-Tech” with “High-Touch”

Mark Schreiner and Hans Dellien

Credit scoring is an explicit, quantitative way to evaluate repayment risk. A scorecard assigns points to the attributes of a loan applicant, and the sum of the points is the “score”, with more points meaning more risk. For “type of business”, for example, a carpenter might get 10 points and a corner grocery store 5 points. Likewise, each additional US\$1,000 of “cash-on-hand” might be -1 points, so US\$0 is zero points and US\$3,000 is -3 points. In this simple example, a carpenter with US\$3,000 cash-on-hand is more risky ( $10 - 3 = 7$  points) than a corner grocery store with no cash-on-hand ( $5 + 0 = 5$  points). A scorecard’s points are derived from an analysis of experience and/or data.

*(continued next page)*

### In This Issue

**Credit Scoring, Banks, and Microfinance: Balancing “High-Tech” with “High-Touch”**

**How Should Microfinance Institutions Best Fund Themselves?**

#### Inside:

Adapting Scoring to Microlending (and vice versa)	2
Recent Trends in MFI Funding	6

## How Should Microfinance Institutions Best Fund Themselves?

Glenn D. Westley

The microfinance industry is well on its way to maturity. Only a few years ago, the focus was on how to grant and recover loans and reach sustainability. While these continue to be important concerns, today other issues of great interest have come to the forefront as well, such as how microfinance institutions (MFIs) should best fund themselves.

This article summarizes selected parts of a large study recently completed by the IDB on this subject.<sup>1</sup> This study analyzes four main sources of MFI funding: mobilizing deposits, borrowing (from donors, governments, banks and other sources), issuing bonds and issuing stock. It examines recent trends in the use of these four instruments, the relative costs of each (including both financial and operating costs), other pros and cons of each

*(continued on page 6)*

<sup>1</sup>Felipe Portocarrero, Álvaro Tarazona and Glenn D. Westley, “How Should MFIs Best Fund Themselves?”, available at the IDB website, [www.iadb.org/sds/mic/index\\_mic\\_e.htm](http://www.iadb.org/sds/mic/index_mic_e.htm), under Publications.

Experience in high-income countries shows that scoring—properly used—decreases arrears while increasing profits, numbers of clients, and numbers of poor clients. Scoring also provides the quantitative, historically grounded measure of risk that is the foundation of Basel II risk management standards.<sup>1</sup>

Because of these benefits, Latin American banks are adopting scoring for consumer loans. Their salaried borrowers have a steady (and verifiable) income, they may have savings accounts, and they probably show up in a credit bureau.

In contrast, few microlenders use scoring. In fact, consumer lending's automated, "high-tech" approach based on credit-bureau data for salaried borrowers is the antithesis of microlending's individualized, "high-touch" approach based on loan officers' analysis of the cash flows and personal character of microenterprise owners.

Banks and microlenders will benefit from learning from each other. If banks want to reach microenterprises, their scorecards cannot rely only on credit-bureau data and paycheck stubs. Instead, banks will have to mimic microlenders' labor-intensive techniques to get data directly from the applicant. For microlenders, scoring holds great promise as a complement for loan officers.

2

Scoring has several strengths vis-à-vis microlenders' "high-touch" approach, as it:

- Assesses risk explicitly and consistently (rather than implicitly and variably)
- Produces quantitative (rather than qualitative) risk forecasts
- Uses the experience of the whole organization (rather than only the loan officer)
- Allows "low-risk" attributes to compensate for "high-risk" attributes (rather than pass/fail rules)

Scoring quantifies risk. This permits

risk-based pricing, risk-based collateral, risk-based credit limits, and, in general, risk-based decision-making. Better measurement of risk is a win-win for lenders and borrowers.

This article discusses how banks can adapt scoring to microenterprise loans and how scoring can be adapted to microlenders. It also discusses the process of introducing scoring in a microlender, drawing on experience from an IDB-funded project with affiliates of Women's World Banking in Colombia and the Dominican Republic.

### Adapting Scoring to Microlending (and vice versa)

Scoring depends on data. Consumer lending can be automated because borrowers' income and credit history are both documented and powerfully predictive of future repayment performance. Other predictive indicators (home ownership, phone ownership, age, and occupation) are inexpensively available in the written application.

In contrast, the self-employed poor cannot document income and credit history. To compensate, microlenders send out loan officers to applicants' homes and businesses where they work up financial statements and visit with the applicant, family, neighbors, employees, suppliers, and customers. Financial ratios are checked against pass/fail filters (for example, monthly installments cannot exceed 30 percent of free cash flow). Once past official credit-policy hurdles, the loan officer judges whether—based on qualitative impressions—the applicant will repay as promised.

Compared with consumer lenders, microlenders must work with data that is both more costly and less predictive of risk. Both types of lenders know how applicants repaid their past loans to the same lender, but only consumer lenders know about performance elsewhere (via a credit bureau). Both lenders use "family demographics" (e.g., age, education, and house-

hold size) and "business demographics" (e.g., years in business, type of activity, and number of employees), but only microlenders must gather detailed data on the finances of the family and business.

A consumer scorecard might have 10–20 indicators and be dominated by credit-bureau items (current and past arrears elsewhere, number of inquiries, and utilization of credit lines). In contrast, a microfinance scorecard might have 50–80 indicators. Each indicator is less powerful, so more indicators are required, and no single class of indicators dominates. In the IDB-funded project scoring, the most powerfully predictive indicators were (in rough order of importance):

- Days in the longest spell of arrears in the previous loan
- Length of time as a client
- Type of business
- Age of applicant
- Identity of the loan officer
- Telephone ownership
- Household structure
- Years in business
- Cash-on-hand
- Number of scheduled installments
- Years in the current residence
- Number of installments in arrears in the previous loan
- Number of installments paid-off early in the previous loan
- Experience of the loan officer
- Number of businesses run by the household
- Days of delay between application and disbursement
- Total assets
- Days of rest after paying off the previous loan
- Accounts receivable
- Home ownership
- Debt/equity ratio

Scoring is more power for repeat borrowers (who have a history with the microlender) than for new borrowers.

What can microlenders and consumer lenders learn from each other? To reach microenterprises, consumer

<sup>1</sup>See Mark Schreiner, 2002, "Scoring: The Next Breakthrough in Microfinance?" Consultative Group to Assist the Poorest Occasional Paper No. 7, Washington, D.C., [http://www.cgap.org/docs/OccasionalPaper\\_07.pdf](http://www.cgap.org/docs/OccasionalPaper_07.pdf).

lenders need to assemble financial data on the household and business. This is costly, but they cannot rely solely on credit-bureau reports.

For their part, microlenders should keep their current processes and, in addition, quantify risk with scoring. While scoring is less powerful for microlending than for consumer lending, it can still detect many high-risk cases that slip by loan officers. Of course, scoring will not replace loan officers; only loan officers can gather the data that feeds scoring, and only loan officers can screen out dishonest applicants and other special cases that scoring, using purely quantitative data, cannot detect.

In this sense, scoring is a third voice in the credit committee, helping the loan officer and credit manager finalize decisions on cases that, without scoring, would be approved. In microfinance, scoring does not approve applicants who, without scoring, would have been rejected. Rather, scoring highlights cases that are riskier than the credit committee thought, leading to in-depth review and perhaps changes to the loan contract. Some very high-risk cases are rejected, and very low-risk cases are rewarded to improve loyalty (for example, with a line of credit or reduced interest rates).

Scoring may also allow microfinance loan officers to specialize, with some collecting quantitative financial data and others detecting qualitative red flags. Right now, loan officers are like one-person mobile branches, each one responsible for sales, analysis, loan approval, and collections. This all-in-one arrangement is necessary for incentive reasons. With personalized, qualitative processes, loan officers' effort and use of judgment is—of necessity—unsupervised. To ensure that loan officers do their best before disbursement to attract and approve low-risk clients, they are made responsible for monitoring repayment after disbursement.

In contrast, banks making consumer loans use standardized processes. Because there is little room for judgment and because effort can be measured as the number of standardized tasks completed, consumer lenders can divide tasks among specialized staff. This not only increases efficiency but also mitigates the risk of employee fraud. It works, however, only if credit bureaus allow most clients to be assessed via scoring.

How can banks downscale to microenterprises and how can microlenders adopt scoring? If data is key, then strengthening credit bureaus is a priority. More and better data about more people would allow microlender's to rely on scoring more. More comprehensive credit bureaus would also allowing banks to downscale without having to completely overhaul their processes.<sup>2</sup> Better data solves a host of issues and has democratized credit in high-income countries.

## Introducing Scoring in a Microlender

This section discusses a few broad lessons from the IDB-funded scoring project with affiliates of Women's World Banking in Colombia and the Dominican Republic. The overall project goal was not to centralize and automate decisions but to strengthen the decentralized risk-assessment process in the branches.

*Change management.* In any project, the central challenge is change management. Scoring is a radical break from the current approach, so microlenders are skeptical. Until now, loan officers have been the rock stars of microfinance, sallying forth alone to divide the sheep from the goats. Naturally, they doubt that scoring can improve on their judgment. If it ain't broke, why fix it?

Change management must be grounded in careful planning, repeated training, and long-term follow-up.

Members of the credit committee must be convinced that scoring works, that it will benefit them, that it is based on the microlender's own data and experience, and that its quantitative measures of risk complement (not contradict) loan officer's qualitative judgment.

For example, loan officers want to know exactly what indicators are in the scorecard. While they might use this knowledge to "cook" data to make scoring match their judgment, they cannot be expected to trust their jobs to a magic box.

Our approach is to give users a complete description of the scorecard and to make adjustments based on their feedback. Furthermore, loan officers get a report showing each of their loans and scoring's risk forecast. They can then compare predictions with performance for themselves. The report also shows how scoring would have affected arrears, portfolio size, and the loan officer's monthly bonus.

Successful change depends less on getting the scorecard perfect (although, of course, it must quantify risk accurately) and more on bringing users on-board. In high-income countries, about half of scoring projects fail, not because the scorecard is inaccurate but rather because no one uses it. Most of the lessons below reflect attempts to ensure that a microlender and its employees do use scoring and use it properly.

*Scorecard testing.* Tests of predictive accuracy before roll-out aim to ensure that scoring really does work, and—if it does—to demonstrate that fact to users.

The "back-test" checks how scoring would have performed in the past. In technical terms, this should be the most convincing test. In human terms, managers are less than convinced, perhaps because the results are at the portfolio level. Back-test-

<sup>2</sup>See Mark Schreiner, 2005, "Can Scoring Help Attract Profit-Minded Investors to Microcredit?", [http://www.microfinance.com/English/Papers/Scoring\\_Helps\\_Attract\\_Profit\\_Minded\\_Investors\\_to\\_Microcredit.pdf](http://www.microfinance.com/English/Papers/Scoring_Helps_Attract_Profit_Minded_Investors_to_Microcredit.pdf).

ing is still useful, however, for setting policy cut-offs. For example, it tells how many “bads” and “goods” would have been rejected in the past (and probably will be in the future) if scoring policy were to reject all cases with predicted risk of more than 50 percent.

The “extreme-risk” test looks at the 100 lowest-risk cases and the 100 highest-risk cases. Technically, this is weaker than the “back-test” because fewer loans are tested. The results, however, are presented loan-by-loan, and users can see right away that the lowest-risk cases rarely have any arrears and that many—if not most—of the highest-risk cases have severe arrears. The “extreme-risk” test clearly shows users that scoring can detect high-risk cases that the credit committee missed.

*Preserve existing processes.* Our approach runs counter to the hope (drawn from how scoring is used in consumer lending) that scoring will allow microlenders to stop visiting clients’ homes and businesses. Scoring simply cannot detect cases who look fine on paper but who are risky due to dishonesty, marital problems, or overdue informal debts.

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 Microlenders should maintain their evaluation process. The credit committee should not consult scoring until after a case has been provisionally approved the traditional way. Most cases have low or average risk and proceed to disbursement as usual. A few cases (maybe 15 percent) have borderline risk and receive further review or modifications (smaller disbursements, greater guarantees, shorter terms). Finally, perhaps 5 to 10 percent have very high risk and are rejected.

For high-risk or borderline cases, the committee reviews a report that shows why risk is high. For example, risk might be high because the case is a carpenter with no cash-on-hand. Knowing this, the committee can

override scoring policy if they believe there are compensating factors that the scorecard does not consider. Even if carpenters as a group are risky, perhaps this one is exceptional, or perhaps the loan officer’s visit suggested that new sources of cash are forthcoming. More important, the report helps users see scoring as a reasonable, transparent, non-arbitrary tool, and it empowers users to focus on those aspects of the case that matter most for risk.

The case file also includes a report that shows how risk would change if the committee were to change the loan amount, number of installments, or guarantee requirements. The idea is that scoring does not dictate decisions but rather empowers the credit committee with better tools to manage risk.

*Minimize “extra” work.* Users are more likely to accept scoring and use it properly if they do not see it as “extra” work. On the most basic level, this means that scores and scoring reports are automated and integrated in the existing computer system. In Colombia, nothing changes for front-line workers until the last step of the credit committee: loan officers collect the same data, the same data are keyed in as before, and reports are generated automatically.

*Manage expectations.* Microlenders typically expect scoring either to have nothing to offer or to do everything. As discussed above, scoring can help some, but it will not go to replace loan officers nor make microlending a cakewalk.

Downscaling banks in particular are tempted to try to rely solely on scoring and avoid learning the traditional, labor-intensive approach. But when scorecards developed for consumer loans have been applied to microloans, the result has been a bankrupted lender and a damaged microfinance market.<sup>3</sup> Scoring is a useful tool, not a shortcut.

*Keep it simple.* The main challenge of a scoring project is to win users’ acceptance and trust. To this end, the project should stay simple, focused on a single scorecard, without requiring additional data collection. Once lenders try scoring, they will probably fall in love with it, and then there will be time for refinements.

For example, some projects install three scorecards: one for new applicants, one for repeat applicants, and one for outstanding loans. While lenders like the idea of three scorecards instead of one (and vendors are happy to sell three), the added complexity increases the chances that the project will bog down before any “live” cases are scored. A single scorecard can serve all three purposes and simplify the project.

For example, the pre-disbursement score—whether for new or repeat borrowers—is an excellent predictor of the risk that an outstanding loan that become overdue today will reach 30 days. Thus, loan officers can use pre-disbursement scores to prioritize collections efforts.

In general, the pre-disbursement score has a wealth of uses. For repeat applicants, it could be run before the field visit. If risk is very low, and if there was a field visit for the previous loan, then the loan officer’s visit might be reduced to a phone call (or a less high-powered employee might be dispatched to verify that the business still exists). Likewise, very low-risk clients might be offered lines of credit or long-term loans. In all these examples, scoring saves loan officers—and clients—time.

Once scoring is in place and accepted, additional scorecards can predict drop-out risk (so that safe-but-potentially-disloyal clients can be offered incentives to repeat) and the likelihood that a client is poor (to track depth of outreach).<sup>4</sup>

<sup>3</sup>See Damian von Stauffenberg, 2001, “How Microfinance Evolves: What Bolivia Can Teach Us”, *Microenterprise Development Review*, Vol. 4, No.1

<sup>4</sup>For drop-out scoring, see Mark Schreiner, 2003, “Scoring Drop-Out at a Microlender in Bolivia”, *Savings and Development*, Vol. 27, No. 2, pp. 101–118. For poverty scoring, see Mark Schreiner, 2005, “Fichas de puntaje de pobreza para México y ALSol”, report to Grameen Foundation U.S.A.

## Benefits of Scoring

Scoring for microfinance reduces arrears and conserves loan officers' time, increasing profits and improving outreach. It does this by bending microlender's "high-touch" approach closer to banks' "high-tech" approach to consumer loans. At the same time, banks using scoring to downscale must, like microlenders, collect detailed financial data from the household and business.

A "back-test" from Colombia illustrates scoring's potential benefits. A scorecard was built with cases paid-off up to March 2004 and then applied retroactively to 7,618 cases paid-off from April 2004 to July 2005. About 22 percent (1,666 loans) were "bad", defined as ever being 30 days late or averaging 7 days of arrears per installment.

If the microlender had rejected all applicants with a risk above 50 percent,<sup>5</sup> it would have rejected 697 cases that, in reality, were approved. Of these high-risk cases, 48 percent (338) indeed went "bad". Thus, scoring would have reduced the number of disbursements by 9 percent and the number of "bads" by 20 percent. In simple terms, the cost of avoiding one "bad" loan was losing one "good" loan.

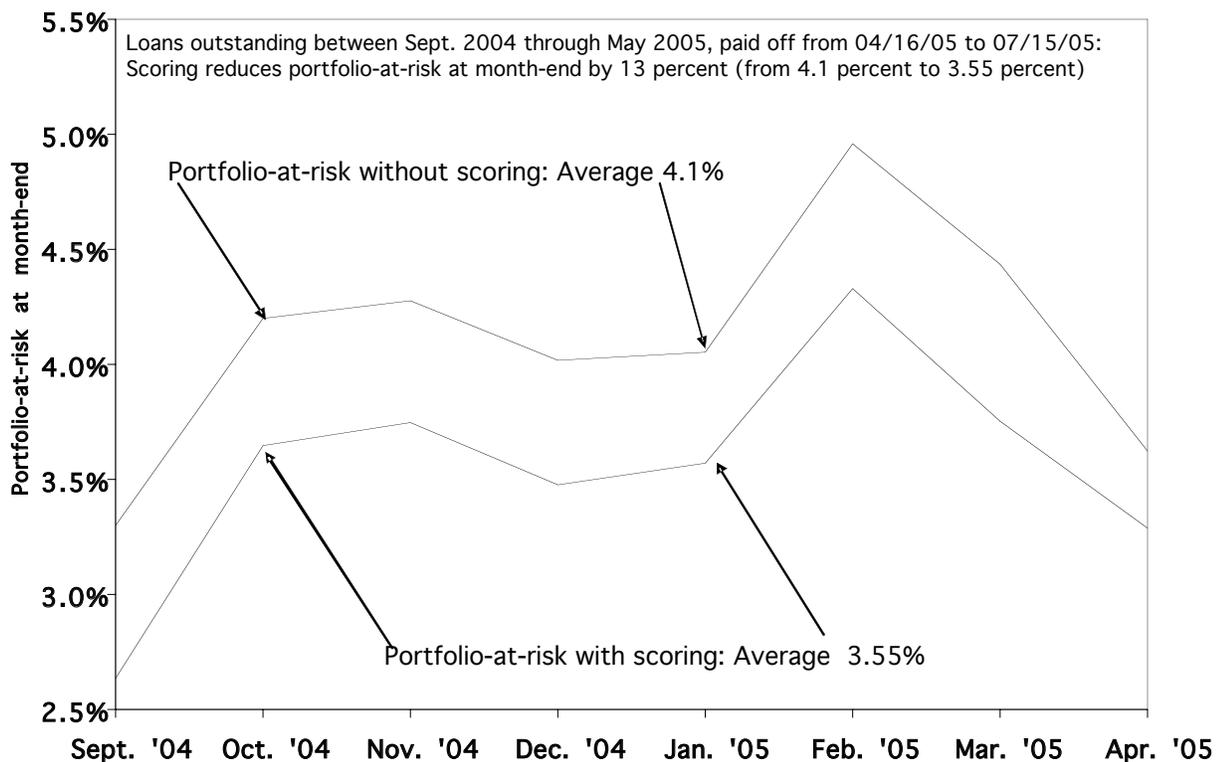
How would this affect profits? Based on an Activity Based Costing (ABC) exercise, it was estimated that avoiding a "bad" saved US\$362 and losing a "good" cost US\$187. With 338 "bads" avoided and 359 "goods" lost, the net financial effect is about US\$55,000.

Most of the benefit is loan officers' spending less time on collections and more on new applicants. In Colombia,

loan officers spend about 2 days per week on evaluations, 1 day on office work, and 2 days in collections. If scoring reduces "bads" by 20 percent, it increases time for evaluating new applicants by about 3 hours per week. In turn, this should increase disbursements enough to more-than-compensate for lost "goods". In this way, scoring can both increase portfolio size and reduce arrears.

With many of the worst loans avoided, portfolio-at-risk (defined as the balance of any loan in arrears) also decreases. In the Colombian "back-test" (Figure 1), scoring with a 50-percent cut-off would have reduced portfolio-at-risk by about 13 percent, generating additional financial benefits from reduced loan-loss provisions.<sup>6</sup>

**Figure 1: Effect of scoring on month-end portfolio-at-risk with 50% cut-off**



<sup>5</sup>This is a simple example; actual scoring policy is, as discussed earlier, more nuanced.

<sup>6</sup>Mark Schreiner is Director of Microfinance Risk Management, L.L.C. ([www.microfinance.com](http://www.microfinance.com)). Hans Dellien is Manager of Microlending Services for Women's World Banking ([www.swwb.org](http://www.swwb.org)) and lead author of "Product Diversification in Microfinance: Introducing Individual Lending". Schreiner made the first scorecards for microfinance.

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## How Should...

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funding source, and best practices in the use of the four instruments.

### Recent Trends in MFI Funding

In their start-up phase, many MFIs depended on grants and loans from donors and governments. Currently, however, deposits are by far the main source of MFI funding, indicating that an important milestone has been reached. This observation is based on the analysis of a database we have constructed covering 61 MFIs that specialize in microfinance and are subject to prudential regulation—to our knowledge, the largest database ever assembled on the funding side of Latin American MFIs. These 61 MFIs are located in nine Latin American countries with major microfinance markets: Bolivia, Colombia, Ecuador, El Salvador, Honduras, Mexico, Nicaragua, Paraguay and Peru.

Taken together, these 61 MFIs had US\$1,899 million in total liabilities at the end of 2003. These liabilities include:

- deposits of US\$1,243 million, which represent 65 percent of total liabilities
- 6 • borrowed funds—from governments, donors, banks, social investors, and others—of US\$517 million, which represent 27 percent of total liabilities
- bonds outstanding of US\$33 million, which represent 1.7 percent of total liabilities

In addition, the net worth of the 61 MFIs is US\$376 million. This equals 20 percent of total liabilities, for a leverage ratio of 5:1.

The ratio of deposits to loans reached 76 percent by the end of 2003, indicating that the amount of deposits was almost equal to the size of the loan

portfolio. Thus, it is fair to say that deposits are no longer the forgotten half of microfinance, at least not in Latin America. At the same time, borrowing has decreased in importance in the MFI funding structure. The issuance of bonds, while promising, continues to be little used. Although precise estimates are not available, issuing stock to add new shareholders is a mechanism rarely used by MFIs in Latin America. Instead, the capital base of the MFIs has been increased mostly by reinvestment of a large share of the sizable profits that the MFIs have generated.

Peru and Bolivia have been clear leaders in attracting deposits: they have mobilized 78 percent of the total deposits captured by the 61 MFIs in the nine countries, or approximately US\$964 million of the US\$1.24 billion total. The Peruvian MFIs alone mobilized 62 percent of the nine country total (US\$772 million), with the Bolivian MFIs mobilizing the remaining 16 percent (US\$193 million). In terms of borrowing, total liabilities and equity, the dominance of the MFIs in these two countries is only slightly less, with 66, 73 and 71 percent, respectively, of the totals.

The 61 MFIs have attracted funds from the general public into time deposits (74 percent of their total deposits at the end of 2003), savings accounts (26 percent), and checking accounts, which have been little used to date (0.1 percent). Time deposits offer customers greater returns, and high MFI time deposit interest rates have enticed many bank clients to transfer their time deposits to MFIs. For the MFIs, time deposits are the most stable type of deposit, at least in the short run, and have the lowest operating costs, advantages that must be set against their greater financial cost and the depositors' sensitivity to the interest rates paid. Very few of the

61 MFIs are authorized to offer checking accounts. Those that do have such authorization give these accounts little priority due to their high operating costs, the powerful (and interconnected) database they require and the limited demand for this product by microentrepreneurs.

A closer examination of MFI depositors shows that: (i) MFIs have attracted a large number of depositors, thus expanding and diversifying their principal liability, (ii) the vast majority of clients are small depositors, who provide only a small share of total deposits, and (iii) both the intermediate and large size depositors provide substantial shares of total deposits.

An analysis of MicroRate's database on the amount and composition of borrowing by 23 regulated MFIs in seven Latin American countries shows that at the end of 2003, the public sector was the single most important source, providing 47 percent of the funds lent to MFIs; donors held second place with 21 percent; local commercial banks and other internal sources were next with 18 percent; and last, international social investors and other external sources provided only 14 percent of total funding.<sup>2</sup>

The importance of borrowing from public-sector institutions and donors is that it allows MFIs to enjoy interest rates and maturities that would be difficult to obtain from domestic or international commercial lenders. Borrowing from these former sources allows MFIs to reduce liquidity and term mismatch risks. At the same time, the interest rates charged by these sources are clearly positive in real terms and are trending up toward commercial rates. This avoids the creation of serious distortions in the financial system and at the same time prepares MFIs to increasingly access commercial financing.

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<sup>2</sup>MicroRate is a specialized rating agency for MFIs; see [www.MicroRate.com](http://www.MicroRate.com) for general information on MicroRate.

Borrowing also affects the risks faced by MFIs in several ways. First, when MFIs have credit lines that have not been fully utilized, liquidity management is greatly facilitated since these funds can be mobilized quickly to deal with short-term difficulties. Second, exchange rate risk is normally increased, given that a substantial part of MFI borrowing is in foreign currency (FC), while most MFI loans are in local currency (LC). Third, interest rate risks are also increased, given that most MFI borrowing is at variable rates (especially borrowing from government second tier facilities, donors and social investors) and most MFI loans are at fixed rates. Finally, borrowing may increase concentration risk, by leading MFIs to depend on a small number of creditors.

### Financial and Operating Costs of the Four Funding Sources

Detailed costing studies of 10 MFIs provide data on the financial and operating costs of the four funding sources. The 10 MFIs were selected to be broadly representative of the larger group of 61 MFIs. The 10 MFIs cover a wide range of sizes and funding mixes, factors that influence both the financial and operating costs of the different instruments.<sup>3</sup>

The cost data show that capital is generally the most expensive funding source, while the cost ordering of the remaining sources varies according to the size of the MFI. This ranking, from lowest to highest cost, is given in the table below. The degree to which borrowing is subsidized is found to have substantial impact on whether deposit-taking or borrowing is cheaper for the MFI. This is particularly the case for the large MFIs, given that these institutions typically have achieved significant scale economies in attracting deposits. Thus, the cost ordering of funding sources given in the table below may be affected

by changes governments and donors make in their subsidy policies.

The MFIs examined here capture deposits through two basic products: savings accounts (SA) and time deposits (TD), in both local currency and dollars. Considering our sample of nine MFIs that offer both products, the average total cost of savings accounts is 15 percent, versus 12.2 percent for time deposits. The operating costs for savings accounts are much higher than those for time deposits, averaging 11.4 and 2.4 percent per annum, respectively, of the average account balances. The interest rates paid on the deposits constitute the difference between total costs and operating costs, and equal 3.6 percent for savings accounts and 9.8 percent for time deposits. These costs demonstrate that for time deposits, the major cost component is the interest rate paid and not operating costs, while the reverse is true for savings accounts. In view of the high financial costs of time deposits, it is important to set their interest rates carefully: high enough to attract the needed funds, but otherwise at the lowest possible rates. Many MFIs still do not give this task the priority it deserves despite paying out substantial sums in time deposit interest. Their still-wide financial margins allow them to absorb without great difficulty the

high interest rates that they currently pay on TDs.

Given the lower total cost of mobilizing time deposits compared to savings accounts, MFIs should generally give priority to the former. TDs have other advantages as well: they are easier to manage and are more stable and predictable in the short- and medium-term (until the TDs mature). TDs may well permit a better matching between assets and liabilities during this same time period (but not necessarily in the longer term, after the current TDs mature).

The great operating cost advantage of TDs is mainly due to the larger balances maintained in these accounts, which are on average nearly 20 times the size of savings accounts (US\$7,396 compared to US\$399). Surprisingly, the cost advantage of TDs is not primarily due to the fact that savings accounts have more transactions per account than do time deposits (1.56 per month for savings accounts vs. 0.39 per month for time deposits). This last assertion can be deduced from the fact that at all MFIs monthly operating costs *per account* are higher for TDs than for SAs, averaging three times higher overall (US\$12.40 per month for TDs vs. US\$3.50 per month for SAs). It appears that this higher per-account cost for TDs is the

**Ranking of Funding Sources by Total Cost (from least to most expensive)**

Large MFIs	Small and Medium-sized MFIs
1. Bonds	1. Borrowing
2. Deposits and Borrowing	2. Deposits
3. Capital – shares	3. Capital – shares

*Note:* By definition, the large MFIs have more than US\$50 million in deposits, the small MFIs have less than US\$5 million, and the medium-sized MFIs have between US\$5 and 50 million. It is assumed that the small and most medium-sized MFIs would not issue bonds since they would not meet the minimum volumes needed to undertake an issue and the capital markets would have little or no appetite for their paper.

<sup>3</sup>The 10 MFIs include six from Peru (the *Cajas Municipales* of Arequipa, Piura, Pisco, and Chinchá and the *Cajas Rurales* NorPerú and Señor de Luren), two from Bolivia (FIE and Banco Los Andes ProCredit), one from Colombia (Finamérica) and one from Nicaragua (Confía/Procredit). The emphasis on MFIs from Peru and Bolivia matches their preponderance in the 61 MFI database, where those from Peru and Bolivia account for 47 of the 61 MFIs and 78 percent of the total deposits mobilized.

result of the service that larger clients receive from branch managers and other relatively high-ranking personnel. Even though savings accounts generate more monthly transactions per account, they are largely attended to by tellers and other personnel with much lower salary levels. For this reason, the costs per account are much lower for SAs than TDs.

Data from the 10 studies on the cost of mobilizing deposits show mixed results on the existence (or non-existence) of economies of scale. The 10 MFIs are ranked according to their total number of accounts (SAs + TDs), from 1,616 at Finamérica to 100,194 at CMAC Arequipa. The concept of economies of scale is that the larger MFIs (those with more accounts) can spread their overhead costs over a greater number of accounts.

A comparison of the two smallest MFIs with the two largest provides evidence in support of economies of scale. In the case of savings deposits, the two smallest MFIs have an average monthly unit cost (operating cost per account) of US\$5.95, compared to US\$3.20 for the two largest MFIs. With respect to time deposits, the average monthly unit cost for the two smallest MFIs is US\$13.70, vs. US\$4.40 for the two largest MFIs. Clearly, there is evidence of economies of scale, given the significant drops in unit costs when comparing the smallest and largest MFIs.

8

The other six MFIs provide evidence against economies of scale. These six medium-sized MFIs have the lowest average unit cost for savings deposits (US\$2.20 per month) and the highest average unit cost for time deposits (US\$14.57 per month), instead of having intermediate unit cost values in both cases. However, it may be difficult to detect economies of scale in data such as these, except between extreme cases such as the smallest and the largest MFIs. This is due to difficulties in assigning a number of important operating costs to each product and to differences in management efficiency among MFIs.

Microsavings, which consist of savings accounts with balances of less than US\$100, account for 74 percent of the total number of savings accounts at small MFIs, and 76 percent at large ones. These small accounts provide only 2.5 percent and 3 percent of total savings deposits, respectively. They also generate 30 and 59 percent of total account transactions, respectively. As a result, annual operating costs exceed 200 percent of the amount deposited in microsavings accounts, leading us to conclude that microsavings generate extremely high operating costs for MFIs of all sizes. This means that clients with small balances are being subsidized by the rest.

In dealing with microsavings, MFIs have at least the following three options:

- *Subsidize small savers.* This option is the most commonly used by Latin American microfinance institutions. MFIs justify subsidies for small savers by pointing out that serving these savers is part of the MFI's social mission, and that even small deposits offer economies of scope and other significant benefits. However, MFIs hardly ever estimate the cost of this subsidy or explore the possibilities for rationalizing it. It is possible that in the medium term growing competitive pressures in the microfinance marketplace will lead to a change in this orientation and adoption of one or both of the following options.
- *Adopt a more selective policy toward serving microdepositors,* through a series of measures. These measures may include establishing higher minimum deposit sizes, paying interest on account balances only above a certain level, charging commissions for each transaction, and imposing monthly account fees.
- *Massify the microdepositor client base,* in order to reach a critical mass that can be served more economically through technological

and organizational innovations (including ATMs), as well as by offering a range of financial products to small savers—to both facilitate transactions and fully recover the costs generated. Both Prodem and Banco Sol in Bolivia are following this strategy and have found, for example, that ATMs have greatly reduced the cost of mobilizing deposits. At the same time, customer service and satisfaction have improved and significant additional savings have been captured.

## A Closer Look at Deposits vs. Borrowing

While deposits have displaced borrowing as the main source of liabilities for MFIs in Latin America, deposits and borrowing are generally complementary sources of funding. Because of the longer terms of much of the borrowed funds, they help solve problems of term mismatch and facilitate medium-term financial planning. Only in situations of excess liquidity are deposits and borrowing substitutes instead of complements.

Even at small MFIs, the fact that borrowing can be done at lower cost than deposit mobilization should not lead these institutions to prioritize borrowing and de-emphasize deposit mobilization. That is because in choosing between these two funding sources, it is important to consider a number of other factors:

- The amount an MFI can borrow from each lender is typically restricted by loan limits these lenders place on the amount of credit they are willing to extend to any single borrower, including to MFIs.
- A significant amount of borrowing concentrates funding risks and may make the MFI overly reliant on governments and donors, which are the main sources of borrowed funds for the microfinance industry. As a result, liquidity management and the ability to do medium-term planning would typically be adversely impacted.

- Deposits greatly diversify an MFI's funding sources and thus offer much greater stability to its overall liabilities. MFIs no longer depend so heavily on the sometimes unpredictable decisions of governments and donors, and so the management of MFIs becomes much more autonomous.
- Increasing the volume of deposits mobilized can help reduce their average operating costs since it is possible to spread fixed costs over a greater volume of funds and generate economies of scale.
- Finally, attracting deposits has other significant advantages, including: (i) knowing the clientele better by examining their deposit history, thereby reducing the cost of analyzing loan applications (economies of scope), (ii) achieving greater integration into the local and regional economies, which helps to build loyalty among the MFI's clients, (iii) supporting greater prudence in MFI governance and management since MFI executives are held accountable by local depositors who continually monitor the MFI's performance, and (iv) facilitating the development and/or cross-selling of other financial products—such as loans, money transfers, debit and credit cards and microinsurance—thus generating revenues that may be used to offset the operating costs of deposits, while also providing the client with better service.

For these reasons, then, the relationship between borrowing and deposits is more one of complementarity than of substitution. In the medium term, it is desirable for the most important source of funding to be deposits, supplemented by borrowing in order to lengthen the average maturity of the MFI's liabilities and reduce average funding costs. Subsequently, these two sources could be supplemented by access to the local capital markets, with the MFI issuing bonds.

## Best Practices

Best practice recommendations for MFIs in the use of the different funding instruments include the following.

### *Deposits*

In the area of deposit mobilization, MFIs should: (i) give priority to attracting time deposits because of their lower operating and total costs and their contribution to the matching of assets and liabilities, (ii) deal with the problem of microsavings, as noted above, and (iii) analyze their own depositor database and segment the clientele. In the area of organization and management, the MFI should develop detailed annual deposit-mobilization plans and review them periodically, should set interest rates that are differentiated by region and client segment and should consider creating incentive pay schemes for personnel in the savings area.

Deposit mobilization has important repercussions for the major market risks faced by MFIs, namely liquidity, term mismatch, interest rate and exchange rate risks. Best practices in managing these risks include setting up an asset-liability committee made up of the MFI's principal managers, and creating an annual management plan that includes a primary cash flow analysis that is updated at least monthly. The MFI should also use gap models, liquidity ratios and stress tests to help control these market risks. It should have contingency plans to deal with situations of impaired liquidity, as well as sufficient liquidity reserves. More sophisticated MFIs may use duration analysis instead of gap models to control interest rate risk.

To minimize exchange rate risk, MFIs should make loans in local currency (LC) to clients that produce nontradable goods and make loans in foreign currency (FC) to clients that produce tradable goods. The currencies of the MFI's liabilities should then be matched to those of the MFI's loan portfolio. Regarding this last condi-

tion, if there is an oversupply of deposits in FC, the MFI may stimulate deposits in LC with higher rates and better conditions, use deposits (and borrowed funds) in FC as collateral to obtain LC bank loans (back-to-back operations) and employ hedging transactions in the local swap markets.

### *Borrowing*

With respect to borrowing, MFIs should give priority to increasing the diversification of their sources, while simultaneously taking account of borrowing costs and of the need to avoid excessive dependency on the government's second-tier institutions. Foreign and second-tier borrowing should be used to lengthen the average term of the MFI's liabilities and bring greater stability to its funding. Local commercial bank borrowing should be used to deal with short-term liquidity needs and to convert deposits collected in FC into loanable funds in LC through back-to-back operations. Finally, MFIs should use as a liquidity reserve the portion of borrowings that have been approved but not drawn down—especially funds from second-tier institutions, donors and other foreign sources—all of whose correlations with the domestic liquidity cycle is low.

### *Bonds*

The MFI should issue bonds only when it has clearly achieved sustainability and operates in a stable macroeconomic and political environment that is expected to last through the medium term. Generally, the first bonds should be issued for periods of 18 months to three years, so that the market can become familiar with the MFI and its risk profile. If the MFI seeks to attract institutional investors, it may be important to include a credit enhancement. This provides a partial guarantee of principal and serves to raise the bond's rating and facilitate its purchase. In any event, the MFI should obtain the services of an investment bank with a solid reputation and extensive relation-

ships with potential purchasers. In order to diversify funding sources and avoid depending excessively on capital markets that often lack depth, some experts suggest that deposit-taking MFIs in Latin America should limit their bond funding to no more than 15 percent of their total liabilities.

### **Stock**

It is important to define the role of profit reinvestment and new share issue within the framework of a medium-term strategic plan. The favorable aspects of these capital investments are that they provide the most stable funds available to a financial institution, that they absorb the greatest risks of any funding instrument and that they permit the MFI to leverage liabilities. Their unfavorable characteristics are the high cost of the

capital attracted, owing to the risk premium demanded by capital investors, and the high cost of generating the information that must be provided to these investors.

MFIs that are considering adding new shareholders should thoroughly evaluate the different types of possible investors and the advantages and disadvantages of each. In addition to the general advantages and disadvantages noted in the preceding paragraph, this evaluation should consider such positive aspects as the capacity of new shareholders to make additional capital contributions in the future, their potential contributions to the governance and management of the MFI, the possibility that they may improve the institution's credit rating and reputation, and the potential for

new shareholders to facilitate access to technical assistance resources and credit lines. The MFI must also weigh the possible disadvantages of incorporating new shareholders, such as the fact that the investment horizons and profit and dividend expectations of the new investors may differ from those of the existing shareholders.

## **In Future Issues...**

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**The Risk of Microfinance and Basel II**

**Agricultural Insurance Revisited**

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