

# Microfinance, Regulation, and Uncollateralised Loans to Small Producers in Argentina

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## Abstract

The essence of microfinance is uncollateralised loans to borrowers without a constant source of income from a wage job. Lack of collateral, however, increases the costs for lenders to judge risk and to enforce repayment. How does collateral-based regulation affect access to microfinance for small producers in Argentina? The analysis here suggests that collateral-based regulation in Argentina does not have a big effect on access to microfinance for small producers. Collateral affects the costs of lenders—and thus the price of loans to borrowers—much more as an ex post hostage than as an ex ante signal. Chattel mortgages on movable goods fail as hostages not because of regulation but rather because of a weak legal framework for security interests. Likewise, the lack of a comprehensive credit bureau discourages uncollateralised loans since borrowers cannot transfer their reputations among lenders. Probably the tightest constraint on uncollateralised loans for small producers is the extreme demand from urban households whose steady incomes from wage jobs make them low risks and enable them to pay high interest rates. Thus there is some scope to improve access to small loans for small producers through interventions aimed at chattel registries and credit bureaux. In the long term, however, most improvement will come not from decrees that attempt to direct loans to targeted niches but from the maintenance of the conservative regulatory framework that so far has successfully strengthened and restructured a financial system that was in shambles. More faith in banks will deepen the financial system and increase the amount of deposits, decrease their cost, and lengthen their term structures. In turn, this will increase the supply of loanable funds, decrease the cost of loans, and eventually increase access for small producers.

## Author's Notes

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# Microfinance, Regulation, and Uncollateralised Loans to Small Producers in Argentina

## 1. Introduction

The essence of microfinance is uncollateralised loans to borrowers without a constant source of income from a wage job. Microfinance can help small farmers and the self-employed who cannot or will not post standard physical collateral such as a mortgage on real estate. In fact, lenders may not accept collateral for small loans since the cost of seizure and sale may exceed the debt owed. Lack of collateral, however, increases the costs for lenders to judge risk and to enforce repayment (Nagarajan and Meyer, 1995). On the one hand, the willingness and ability to post collateral acts as an *ex ante* signal of willingness and ability to repay (Bester, 1985; Chan and Thakor, 1987). On the other hand, collateral acts as an *ex post* way for lenders to recoup losses and to impose a cost on defaulters (Benjamin, 1978; Barro, 1976).

How does collateral-based regulation affect access to microfinance for small producers? Argentina is a good place to analyse this issue for four reasons:

- (i) The regulations of the Central Bank of Argentina (BCRA) draw a sharp distinction between collateralised and uncollateralised loans;
- (ii) Government and donors are worried about constraints on access to loans for small producers (Rozenwurcel and Fernández, 1995; World Bank, 1994);

(iii) Authorities are loath to tinker with the reformed regulatory framework since it buoyed the financial system through recent crises (Hausman and Rojas-Suarez, 1996) and since the attempt to help small producers may open the floodgates for pleas to change the rules for other special-interest groups;

(iv) Unlike most low-income countries, most microfinance in Argentina is done not by unregulated NGOs but by regulated banks.

The analysis here suggests that collateral-based regulation in Argentina does not have a big effect on access to microfinance for small producers. Collateral affects the costs of lenders—and thus the price of loans to borrowers—much more as an *ex post* hostage than as an *ex ante* signal. Chattel mortgages on movable goods fail as hostages not because of regulation but rather because of a weak legal framework for security interests. Likewise, the lack of a comprehensive credit bureau discourages uncollateralised loans since borrowers cannot transfer their reputations among lenders. Probably the tightest constraint on uncollateralised loans for small producers is the extreme demand from urban households whose steady incomes from wage jobs make them low risks and enable them to pay high interest rates.

Thus there is some scope to improve access to small loans for small producers through interventions aimed at chattel registries and credit bureaux. In the long term, however, most improvement will come not from decrees that attempt to direct loans to targeted niches but from the maintenance of the conservative regulatory framework

that so far has successfully strengthened and restructured a financial system that was in shambles. More faith in banks will deepen the financial system and increase the amount of deposits, decrease their cost, and lengthen their term structures. In turn, this will increase the supply of loanable funds, decrease the cost of loans, and eventually increase access for small producers. Loosening constraints on loans for small producers in Argentina has nothing to do with collateral-based regulation and everything to do with the maintenance of the current regulatory framework.

This study is structured as follows. Part 2 discusses microfinance and how the Tequila Crisis of 1995 tightened regulation in Argentina and prompted fears of restricted access. Part 3 estimates the cost of uncollateralised loans for banks and discusses the implications for access. Part 4 presents the conclusions.

## 2. Microfinance and Tequila

*Microfinance* is small loans and small deposits. The hope that microfinance can help small farmers and the self-employed has sparked much recent debate about how best to regulate microfinance organizations (Vogel, 1998; Trigo, 1998; Rock and Otero, 1997; Berenbach and Churchill, 1997; Chaves and Gonzalez-Vega, 1994). Changes to regulations do not make sense unless they create benefits from improved access to microfinance that exceed the costs created by those changes.

### 2.1 Deposits

*Access to deposits* implies savings contracts that, for the intermediary, cost less than funds from other sources and that, for the saver, are safe, liquid, and convenient even with frequent transactions and low balances. Some non-government organizations (NGOs) that make small loans have sought regulatory changes that would let them take deposits in spite of their low net worth and their lack of a legal status like that of traditional deposit-takers such as banks or cooperatives. Regulation matters since, while access to savings is valuable for small producers, all but the most robust NGOs are too financially fragile to be entrusted with the savings of depositors.

In Argentina, runs on banks by depositors in the Tequila Crisis in 1995 led to a framework for prudential regulation and supervision that reduced the number of deposit-takers and strengthened those that remained. Public confidence in the system

has grown, and the subsequent financial deepening will likely increase access to deposits for small producers more than would lax rules that would let NGOs take deposits.

## 2.2 Loans

*Access to loans* is the ability and willingness to borrow and to repay at a price that covers the long-run cost of an efficient lender. Access to loans is the nexus of *creditworthiness*—demand based on ability and willingness to repay—and technology—supply based on an efficient way to judge creditworthiness and to enforce repayment. More access means that loans depend more on demand and less on the constraints of supply. While the ability to post standard physical collateral such as a mortgage on real estate can signal creditworthiness and can help to insure the lender against default, some borrowers are creditworthy but cannot or will not signal and guarantee it with collateral. Indeed, since collateral increases costs for borrowers, those with the least risk and the lowest expected returns may opt not to borrow at all (Nagarajan and Meyer, 1995; Wette, 1983; Stiglitz and Weiss, 1981).

The breakthrough of microfinance has been to find cost-effective ways to judge creditworthiness and to enforce repayment on uncollateralised loans to small producers who do not have constant incomes from wage jobs. Regulators in Argentina, however, use the presence or absence of collateral as a low-cost rule of thumb to judge the risk of portfolios (Stiglitz, 1993). Uncollateralised loans have high requirements for capital and

for loan-loss provisions. This ties up bank capital and so increases both costs for lenders and prices for borrowers. All else constant, this decreases access.

## **2.3 Tequila**

The Tequila Crisis of 1995 wounded the bank system in Argentina (World Bank, 1996). Depositors fled from banks seen as risky towards banks seen as safe. At the low point, the deposit base was reduced by 16 percent or \$8 billion (World Bank, 1995). Depositors ran, but not because they feared bank failure. If they had, then they would have withdrawn all types of deposits from all types of banks. Instead, they withdrew just sight deposits in pesos from cooperative banks and from banks owned by provincial governments. They then bought dollars and deposited them in strong private banks, both Argentine and foreign. This suggests that depositors feared that the government would fail to keep inflation in check and to maintain its policy of one-to-one convertibility between the peso and the dollar.

The government, however, kept its word. Along with some of the stronger banks, it coordinated a liquidity pool to tide over some of the weaker banks. It introduced insurance for short deposits earning normal returns. Along with donors, the government made a fund to ease mergers and buy-outs of weak banks. Convertibility survived, in the end stronger and more credible than ever.

### **2.3.1 Tequila and small producers**

By 1995, banks in Argentina had started to expand their portfolios downwards to small producers. Tequila put a halt to this trend. The banks closest to small producers—the cooperative banks and the banks owned by provincial governments—bore the brunt of the crisis and of the wave of mergers and buy-outs in its wake. Peso deposits fell, and so peso loans fell, exactly the type of loan most within the reach of small producers. For a short time, interest rates doubled, arrears increased, and terms to maturity shrunk. The bank system contracted, and fifty branches closed, many of them in rural areas outside the Pampa.

In most ways, however, Tequila did not affect access for small producers. Interest rates did double, but they quickly returned to normal. The privatised provincial banks might have dropped a few small producers, but most of these banks had been moribund for years before the crisis and privatization. In short, most small producers did not have any access they could lose.

### **2.4.2 Tequila and regulation**

After Tequila, the government of Argentina strengthened the powers of prudential regulation and supervision of the BCRA. As with all regulation (Santomero, 1997), the goal was to address problems caused by asymmetric information about the quality of banks and by distrust in the bank system as a whole so as to prevent another panic or run triggered by the collapse of small, weak banks.



Stronger regulation and supervision are not costless. Regulators walk a tightrope; they must allow profits to reward competition and efficiency, but they must also constrain the risks taken in the search for profits. In Argentina, the benefits of widespread confidence in banks have far outweighed the costs of regulation. After all, the most important cause of lack of access to loans is a lack of deposits to fund loans (Carrizosa *et al.*, 1996). Argentina chose to tackle the first-generation problem of access to safe deposits for big and small alike before the second-generation problem of lack of access to loans for small producers. All Argentines qualify for savings services and have a use for them, but not all Argentines qualify for loans and have a use for them. As long as banks remain safe places to deposit savings, time will loosen constraints on access to loans. Furthermore, access to savings services can help small producers to cope with lack of access to loans (Morduch, 1998a).

In the short term, Tequila may have restricted access to loans for a few small producers. In the long term, however, Tequila probably will increase access for many small producers since it hastened the consolidation of the bank system. The reform has led to constant improvements in confidence, strength, competition, and efficiency. This cannot but improve access for small producers. For example, some of the banks formed from the mergers of small, weak cooperatives have started to explore small producers as their own market niche. Likewise, competition from foreign banks has started to push Argentine banks downmarket.

When lenders do go downmarket, potential borrowers will often be unwilling or unable to post collateral. The next section reviews the rules of the BCRA and their implications for the costs of uncollateralised loans.

## 3. Regulation and the cost of uncollateralised loans

### 3.1 Rules of the BCRA

As a result of Tequila, the BCRA was strengthened in its capacity and power. (Carrizosa *et al.*, 1996). The rules for capital adequacy and provisions for bad debt were linked to the risk of assets. An evaluation system developed by US regulators (CAMEL) was installed, and the BCRA increased the size and quality of its workforce.

The new requirements for provisions for loan losses and for capital serve two purposes. The first is to recognise adequately the risk of normal loan losses. The second is to provide a buffer against the risk of uncommon loan losses. The requirements are prudent, and they help to control the risk of bank failures. They also increase the costs of lending, however, and so they may reduce access to loans.

#### 3.1.1 Requirements for provision for loan losses

The BCRA puts loans in two categories, commercial and personal. All loans over \$200,000 are commercial loans. In contrast, personal loans include home loans, loans for consumption, credit-card loans and, in general, any loan whose repayment does not come from an asset purchased with the loan but from another source such as wages. A bank may classify any loan smaller than \$200,000 as personal (BCRA, 1994).

Two factors drive the requirements for provisions for loan losses. The first factor is the type of guarantee, non-preferred or preferred. *Non-preferred guarantees* include provincial bonds or no guarantee at all (Table 1 on page 25). Unguaranteed loans get

the highest risk factor. *Preferred guarantees* include mortgages on real estate or new motor vehicles, cash or bank deposits or national government bonds, or pledges of movable goods (chattel mortgages). Among preferred guarantees, chattel mortgages have the highest risk factor.

The second factor that drives requirements for provisions for loan losses is the risk class as derived from the guarantee and from the repayment and financial performance of the borrower. Both personal and commercial loans are placed in one of five risk classes. Class 1 (normal) has the least risk, and class 5 (uncollectible) has the most risk. Table 2 on page 26 shows the names of the classes, the number of days of arrears for each, and the required provisions for loan losses for each class as a percentage of the outstanding balance and as a function of the type of guarantee.

Given a risk class and a type of guarantee, both commercial and personal loans require the same provisions for loan losses. The placement in a risk class, however, differs between commercial and personal loans. For personal loans, the risk class depends just on repayment performance and is adjusted each month. Arrears are a low-cost way for regulators to judge risk. For commercial loans, the risk class depends not only on repayment but also on an analysis of the financial performance and business prospects of the borrower. Eleven factors in this framework are listed in Table 3 on page 27 with guesses on how small producers might fare. The risk class of commercial loans is updated less than monthly. If commercial loans are not judged against this

framework, then they require 100-percent provisions (BCRA, 1994). For regulators and lenders, this detailed analysis is costly and thus makes sense just for big loans.

Loans to small producers would likely look more risky as commercial loans than as personal loans. In practice, most loans to small producers are personal loans. Not only are most of them smaller than \$200,000, but lenders also want to avoid the cost to analyse commercial loans.

### **3.1.2 Minimum-capital requirements**

Capital acts as a buffer against loan losses. The capital requirements for a given loan are based on three factors. The first factor is the balance. Bigger balances require thicker buffers since more is at stake. The second factor is the interest rate. The likelihood of default increases with the interest rate due to its effects on adverse selection and moral hazard (Stiglitz and Weiss, 1981) as well as the fact that lenders charge more for the loans that they suspect may go bad (Adams, 1994). The third factor is the guarantee. Guarantees function to reduce the risk of a loan and thus to reduce the capital required as insurance against default in up to four ways:

- (i) A guarantee whose replacement would cost a lot increases the cost of default for a borrower and so decreases the likelihood of voluntary default;
- (ii) A guarantee whose resale would earn a lot decreases the cost of default for a lender;
- (iii) The ability of a borrower to offer a guarantee signals some degree of income and wealth and thus signals a lower likelihood of involuntarily default;

(iv) The willingness of a borrower to offer a guarantee signals a lower likelihood of voluntary default.

Thus loans backed by guarantees require thinner buffers than otherwise. This does not mean that all low-risk loans are guaranteed nor that all guarantees serve all four functions. For example, most informal loans are unsecured (Adams and Fitchett, 1992). Standard physical collateral such as a mortgage on real estate does serve all four functions, but even guarantees that do not serve all four functions still reduce risk. For example, joint-liability guarantees such as those of the Grameen Bank of Bangladesh (Morduch, 1998b; Khandker, 1996) and BancoSol of Bolivia (Gonzalez-Vega, *et al.*, 1997; Mosley, 1996) link future access for all members of a group to prompt repayment by each member. The loss of future access imposes a cost on borrowers (Stiglitz and Weiss, 1983; Eaton and Gersovitz, 1981) that decreases the likelihood of voluntary default (functions one and four), but it does not reduce the loss borne by lenders (function 2) nor signal the ability of borrowers to withstand the negative shocks that might lead to involuntary default (function three). Chattel mortgages on machines, furniture, or livestock follow the same logic. Most chattel is worth less than the cost of seizure and sale and so fails to serve the second function. Also, even people exposed to involuntary default may have an old television or cow to pledge, so chattel fails to serve the third function. Still, the replacement of chattel may cost a lot for the borrower, so it can serve the two functions that signal a low likelihood of voluntary default.

In Argentina, the minimum-capital requirement for a loan is the product of a rating from the BCRA (1.00 for a strong bank), a leverage coefficient (0.115, more conservative than the 0.08 required by the Basel Convention), the balance, a risk factor based on the interest rate, and a risk factor based on the guarantee. For dollar loans, the risk factor based on the interest rate is 1.00 for loans with annual interest rates of 18 percent or less, with 0.20 added to the risk factor for every three percentage points that the interest rate exceeds 18 percent (BCRA, 1993).

### **3.2 The cost of the lack of collateral**

This section estimates the effects of minimum-capital and loan-loss provision requirements on the cost of loans to borrowers with a mortgage on real estate, a chattel mortgage, or no guarantee at all. The estimation uses several assumptions:

- (i) The lender is a strong bank;
- (ii) The lender breaks even on the loan;
- (iii) The \$10,000 loan has one-year term and an average balance of \$5,000;
- (iv) The regulations of the BCRA reflect the true risk of default;
- (v) The loan is in Class 1 (arrears of 0-31 days) or Class 3 (arrears of 91-180 days);
- (vi) The financial cost of funds is 7.5 percent, the average interest rate on 30-to-60 day certificates of deposit in August 1996 (BCRA, 1996a);
- (vii) The operating cost of lending funds is 4 percent per year, the average rate paid for funds less the average rate charged for loans in 1996 (BCRA, 1996b).

- (viii) Operating costs do not vary across loans. In fact, all else constant, banks spend more to screen and to monitor loans with weaker guarantees.
- (ix) The opportunity cost of a unit of capital is 10 percent;
- (x) When borrowers default, they will have repaid half the loan, on average.
- (xi) Inflation is zero (International Monetary Fund).

### 3.2.1 Types of costs

The interest rate charged by the lender must cover four types of costs:

- (i) *Financial cost*. In the example here, this is the financial cost of funds multiplied by the average annual balance, or  $0.075 \cdot \$5,000 = \$375$ .
- (ii) *Intermediation cost*. This is the operating cost of lending funds multiplied by the average annual balance, or  $0.04 \cdot \$5,000 = \$200$ . Financial and intermediation costs are assumed to be independent of the guarantee.
- (iii) *Risk cost*. The expected cost of default is the product of the balance of the loan at the time of default, the probability of default, and the reciprocal of one less the probability of default (Rosenberg, 1996). Loans with non-preferred guarantees have higher expected risk costs (Table 4 on page 28).
- (iv) *Capital cost*. The costs of the capital required to meet regulations is the product of the opportunity cost of a unit of capital, a coefficient from the BCRA, the average loan balance, the risk weight for the interest rate, and the risk weight for the guarantee (Table 5 on page 29).



### 3.2.2 Results

The break-even interest rate is the sum of the four types of costs divided by the average balance (Table 6 on page 30). There are four results to note.

First, for a loan in good standing (risk class 1), the break-even interest rate is 13-14 percent, regardless of the guarantee. Thus, for a loan yet to reveal itself as a bad risk through arrears, the type of guarantee has almost no effect on cost. The slight rise in cost for loans without guarantees is due to increases in required capital. Collateral is not useful as an *ex ante* signal of creditworthiness. If it were, then the break-even rates for loans in good standing with mortgages would be much lower than the rates for loans without guarantees.

Second, the break-even interest rate for a problematic loan (risk class 3) is at least twice as high as for a loan in good standing. For loans backed by mortgages, whether real estate or chattel, the rate doubles. For loans without a guarantee, the rate more than triples. Almost all of the increase is due to provisions to absorb expected losses from default rather than from increases in required capital. Provisions are lower for collateralised loans since lenders will recoup some losses from the sale of collateral. Thus collateral matters a lot as an *ex post* hostage.

Third, for loans with mortgages on real estate or chattel, the break-even interest rate is almost unaffected by the higher risk weight of chattel mortgages. This suggests that the scarcity of chattel loans in Argentina is not likely the result of regulation but

rather of inefficient registries and a legal framework that impede low-cost foreclosure on pledges (Fleisig and de la Peña, 1996; de la Peña and Muguillo, 1995).

Fourth, the break-even interest rate for the small, short-term loans demanded by small producers is close to the interest rates on credit cards, overdrafts, shopkeeper credit, and other small, short, unsecured loans in Argentina (BCRA, 1996c). Regulation is not what keeps banks from lending to small producers.

## 4. Conclusion

The World Bank (1994) found that, in spite of a lack of market failures, the bundle of reforms linked to the fixed-exchange-rate regime that led to economic recovery in Argentina constrained access to loans for small producers. This constraint matters since strong, steady, sustained, and fair growth in Argentina depends in part on access to formal loans for small producers. In turn, access depends in part on what guarantees lenders accept, and the usefulness a given type of guarantee depends in part on the regulatory framework.

How much is access to microfinance for small producers affected by collateral-based regulation? The rules of the BCRA do recognise that guarantees reduce risk even though, unlike mortgages on real estate, they may not serve all four of the functions of a guarantee. Regulators put small loans in a risk class based on repayment, a low-cost rule of thumb. The regulations for capital and provisions help to ensure the safety and soundness of a bank system with a checkered past. The key to access to microfinance for small producers in Argentina is not a relaxed regulatory standard.

The estimated effect of the type of guarantee on the cost of a loan suggests that collateral is worth more an *ex post* hostage than as an *ex ante* signal. The lack of chattel mortgages does not impugn collateral-based regulation but rather points to a weak legal framework. The registries for liens on movable goods are fragmented and outdated (Fleisig and de la Peña, 1996; Bacchiocchi *et al.*, 1995). Banks claim that the

framework for security interests is a worse problem than conservative regulation (Fleisig and de la Peña, 1995). Access to small loans for small producers would increase if registries were unified and modernised so that security interests against chattel could be efficiently attached, perfected, and enforced. Lenders accept mortgages against new motor vehicles precisely because new vehicles have a comprehensive registry.

The break-even interest rates for uncollateralised loans to small producers are close to those of consumer loans. The lack of loans to small producers highlights the extreme demand for loans from salaried households in a market with a limited supply of loanable funds (Berasateziu, 1994). Economic recovery in Argentina unleashed a glut of pent-up demand from salaried households, and small producers cannot compete against their lower risks and greater willingness to pay high prices. If government and donors want to improve access, then they should eschew attempts to direct loans through changes in regulation and embrace attempts to strengthen the bank system as a whole and to reform the credit bureaux. A stronger bank system with more and longer deposits would have more funds to lend and so salaried households would crowd out small producers less. The credit bureaux, like the chattel registries, are fragmented by lender and by region (Fleisig and de la Peña, 1995). They record just problem borrowers and ignore those who repay as contracted. This incomplete system discourages uncollateralised loans since it reduces the worth of future access to loans. Small producers who repay as promised and who switch lenders must start anew and

thus get loans on worse terms until the lender learns about their creditworthiness. With a comprehensive credit bureau, a credit record is portable among lenders. This improves the expected terms of future loans and thus increases the incentives to repay uncollateralised loans that are guaranteed by access to future loans. Reviews of payment records can also reduce the risk of uncollateralised loans for lenders.

In summary, access to microfinance for small producers in Argentina is constrained mostly by three factors unrelated to conservative regulation. First, the financial system is still shallow. As long as deposits are small, short, and swift to be withdrawn, loans will be small, short, and scarce. The greatest constraint on loans in Argentina is lack of deposits. Strict regulation will continue to strengthen and consolidate the banking system and thus deepen the market and attract more deposits. Second, most lenders who make uncollateralised loans can lend all they want and earn high profits from salaried consumers who are better clients than small producers. Competition in demand is not a market failure that deserves intervention. Third, weak registries for liens on movable goods and incomplete credit bureaux reduce the value of chattel as a hostage and reduce the incentives for borrowers to preserve clean credit records. Public resources used to improve these public goods would improve access to uncollateralised loans for small producers in Argentina.

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	Type of guarantee	Risk factor (%)
Preferred	Cash or certificates of deposit	0
	National govt. or other short-term bonds	0
	Warrants	30
	Mortgage on real estate	50
	Mortgage on motor vehicles	50
	Pledge of other movable property	75
Non-preferred	Municipal, provincial, or long-term bonds	50
	No guarantee at all	100

Source: BCRA, 1993.

**Table 1: Risk weights for preferred and non-preferred guarantees**

	Risk class	Days of arrears	Required Provision for Loan Losses as a Percentage of the Outstanding Balance	
			Preferred Guarantee	Non-preferred Guarantee
1	Normal	0	1	1
2	Potentially risky	32-90	3	5
3	Problematic	91-180	12	25
4	High risk	181-365	25	50
5	Uncollectible	>365	50	100

Source: BCRA, 1994a and 1994b.

**Table 2: Risk classes of loans for provisions for loan losses**

Factor	Judgement for a typical small producer
1. Guarantee	1. Non-preferred
2. Intrinsic default risk	2. Greater than average
3. Liquidity	3. Illiquid
4. Debt/equity ratio	4. High for small farmers, low otherwise
5. Financial statements	5. Not available or not impressive
6. Risk of future cash flow	6. High
7. Requirements of refinancing	7. History of refinancing for small farmers
8. Management and internal control	8. Not formalized
9. Information systems	9. Absent
10. Sector	10. Some competitive, others not
11. Above median in sector	11. Some above, some below

Source: Authors and BCRA, 1994a.

**Table 3: Factors that determine the risk class of commercial loans**

Guarantee	Risk class	Ave. Balance	Provision	$\frac{1}{1 - \text{Provision}}$	Expected risk cost
Real estate	1	\$5,000	0.01	1.01	\$51
Chattel	1	\$5,000	0.01	1.01	\$51
None	1	\$5,000	0.01	1.01	\$51
Real estate	3	\$5,000	0.12	1.14	\$684
Chattel	3	\$5,000	0.12	1.14	\$684
None	3	\$5,000	0.25	1.33	\$1,662

Source: Authors' calculations

**Table 4: Calculation of expected risk costs**

Guarantee	Risk class	Coef. * Opp. Cost	Ave. Bal.	Risk Weight		Cost
				Guarantee	Interest rate	
Real estate	1		\$5,000	0.5	1	\$29
Chattel	1	0.10	\$5,000	0.75	1	\$43
None	1	*	\$5,000	1	1	\$58
Real estate	3	0.115	\$5,000	0.5	1.4	\$40
Chattel	3		\$5,000	0.75	1.4	\$60
None	3		\$5,000	1	2.8	\$161

Source: Authors' calculations

**Table 5: Calculation of minimum-capital costs**

Guarantee	Risk class	Break-even Rate (%)	Breakdown (%)			
			Financial	Intermediation	Risk	Capital
Real estate	1	13	7.5	4	1	0.6
Chattel	1	13	7.5	4	1	0.9
None	1	14	7.5	4	1	1.2
Real estate	3	26	7.5	4	13.6	0.8
Chattel	3	26	7.5	4	13.6	1.2
None	3	48	7.5	4	33.3	3.5

Source: Authors' calculations

**Table 6: Break-even interest rates**