NBER WORKING PAPER SERIES

RELATED LENDING

Rafael La Porta
Florencio López-de-Silanes
Guillermo Zamarripa

Working Paper 8848
http://www.nber.org/papers/w8848

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
March 2002

The views expressed here are those of the authors and not of the institutions they represent. We are grateful to two anonymous referees, David Baron, John Campbell, Simeon Djankov, Dan Kessler, Michael Kremer, Ken French, Stewart Myers, Paul Romer, Raghuram Rajan, David Scharfstein, Andrei Shleifer, Jeremy Stein, Tuomo Vuolteenaho, Luigi Zingales, and participants of the Finance Seminars at Harvard, Michigan, MIT, Stanford, Texas A&M, and Yale for helpful comments and to Lucila Aguilera, Juan Carlos Botero, Jamal Brathwaite, Jose Caballero, Claudia Cuenca, Mario Gamboa-Cavazos, Soledad Flores, Martha Navarrete, Alejandro Ponce, and Ekaterina Trizlova for excellent arm's-length research assistance. The views expressed herein are those of the authors and not necessarily those of the National Bureau of Economic Research.

Related Lending
Rafael La Porta, Florencio López-de-Silanes and Guillermo Zamarripa
NBER Working Paper No. 8848
March 2002
JEL No. G3

ABSTRACT

In many countries, banks lend to firms controlled by the bank's owners. We examine the benefits of related lending using a newly assembled dataset for Mexico. Related lending is prevalent (20% of commercial loans) and takes place on better terms than arm's-length lending (annual interest rates are 4 percentage points lower). Related loans are 33% more likely to default and, when they do, have lower recovery rates (30% less) than unrelated ones. The evidence supports the view that rather than enhance information sharing, related lending is a manifestation of looting.

Rafael La Porta
Department of Economics
Harvard University
Littauer Building - M7
Cambridge, MA 02138
and NBER
rafael_laporta@harvard.edu

Florencio López-de-Silanes
Yale University
135 Prospect Street
New Haven, CT 06520
and NBER
florencio.lopezdesilanes@yale.edu

Guillermo Zamarripa
National Banking and
Securities Commision, México
Insurgentes Sur 1971
México D.F., 01020
México

I. Introduction.

In many countries, banks are controlled by persons or entities with substantial interests in non-financial firms. Quite often, a significant fraction of bank lending is directed towards these related parties, which include shareholders of the bank, their associates and family, and the firms they control. Proponents of related lending argue that close ties between banks and borrowers may be efficient. For example, Lamoreaux (1994, page 79) writes of post-Revolution New England that "...given the generally poor quality of information, the monitoring of insiders by insiders may actually have been less risky than extending credit to outsiders." Critics of related lending claim worry that it diverts resources from depositors or minority shareholders.

The view that close ties between banks and borrowers are valuable is related to Gerschenkron's (1962) analysis of long-term bank lending in Germany, to the optimistic assessments of bank lending inside the keiretsu groups in Japan (Aoki, Patrick and Sheard 1994, and Hoshi, Kashyap, Scharfstein 1991), and to theoretical work on credit rationing (Stiglitz and Weiss 1981). Related lending may improve credit efficiency in several ways. Bankers know more about related borrowers than unrelated ones because they are represented on the borrower's Board of directors and share in the day-to-day management of the borrower. They may be able to use such information to assess the ex-ante risk characteristics of investment projects or to force borrowers to abandon bad investment projects early (Rajan 1992). In addition, both hold-up problems and incentives for pursuing policies that benefit one class of investors at the expense of others may be reduced when banks and firms own equity in each other. Thus, *related lending* may be better for both the borrower and the lender because more information is shared and incentives are improved. We call this optimistic assessment of related lending the *information view*.

The alternative view is that close ties between banks and borrowers may allow insiders to divert resources from depositors and/or minority shareholders to themselves. This view is related to the idea of looting (Akerlof and Romer 1993) and tunneling (Johnson et al. 2000) as well as the revisionist view of the benefits of keiretsu groups in Japan (Morck and Nakamura 1999, Kang and Stulz 1997). Looting can take several forms. If the banking system is protected by deposit insurance, the controllers of a bank can take excessive risk or make loans to their own companies on non-market terms, fully recognizing that the government bears the costs of such diversion. Even without deposit insurance, the controllers of a bank have a strong incentive to divert funds to companies they control, as long as their share of profits in their own companies is greater than their share in bank profits. The basic implication is that related lending is very attractive to the borrower, but may bankrupt the lender. We call this pessimistic assessment of related lending the *looting view*.

We study related lending in Mexico using a newly assembled database of individual loans. In

Mexico, banks are typically controlled by stockholders who also own or control non-financial firms. This is in direct contrast to previous studies of ownership structures in Germany and Japan where banks exert control over "group" firms but not vice-versa. Nevertheless, the Mexican banking structure is common in many developing countries.[1] Banks that are controlled by persons or entities with substantial non-financial interests are prominent in Bangladesh, Bolivia, Bulgaria, Brazil, Chile, Colombia, Ecuador, Estonia, Guatemala, Hong Kong, Indonesia, Kazakstan, Kenya, Korea, Latvia, Paraguay, Peru, Philippines, Russia, South Africa, Taiwan, Thailand, Turkey, and Venezuela.[2] Faccio et al. (2000) report that the ultimate controlling shareholder of 60% of the publicly-traded firms in Asia also controls a bank. Even in Europe, this figure is as high as 28%. In fact, the Mexican banking setup is similar not only to that of many developing countries, but can also be seen in the early stages of development in England, Japan, and the US (Cameron 1967, Patrick 1967, and Lamoreaux 1994).

Using all banks in Mexico, we first examine the identity of each bank's top 300 borrowers by total loan size. We find that 20% of loans outstanding at the end of 1995 were to related parties. Banks sharply increased the level of related lending when they are in financial distress. For each bank, we then collect information on the borrowing terms of a random sample of 90 loans from the top 300 loans outstanding at the end of 1995. The results show that related parties borrow at lower rates and are less likely to post collateral. We then track the performance of the loans in this random sample through December of 1999 to evaluate their default and recovery rates. After controlling for borrower and loan characteristics, related borrowers are 33%-35% more likely to default than unrelated ones. We also find that the default rate on loans made to related persons and to privately-held companies related to the bank is 77.4%. The equivalent rate for unrelated parties is 32.1%. Moreover, recovery rates are \$0.30 per dollar lower for related borrowers than for unrelated ones.

Overall, the results are consistent with the *looting* view and challenge the *information* view. The sheer magnitude of the gap in default rates between related and unrelated loans makes it difficult to argue that

---

[1] This structure is partially the result of the privatization policies implemented during the last two decades (see La Porta, Lopez-de-Silanes and Shleifer, 2002). The ownership of banks by non-financial firms is unrestricted in 38 countries (including Austria, Germany, Switzerland, and the UK, as well as Bolivia, Brazil, Indonesia, Russia, and Turkey). The ownership of banks by non-financial firms is prohibited in only four countries (British Virgin Islands, China, Guernsey, and Maldives). See Barth, Caprio and Levine (2001).

[2] Three general sources on the links between banks and non-financial firms in Latin America and Asia are: AmericaEconomia (Annual Edition, 1995-1996, pages 116-128), Backman (1999) and Lindgren et al. (1996). Country-specific sources include: Edwards and Edwards (1991) for Chile, Revista Dinero (http://www.dinero.com /old/ pydmar97 /portada/top/topmenu.htm) for Colombia, Standard & Poor's (Sovereign Ratings Service, November 2000, page 9) for Ecuador, African Business (May 1999) for Kenya, Garcia-Herrero (1997) for Paraguay, Koike (1993) and The Economist (8/5/2000, pages 70-71) for Philippines, Nagel (1999) and Laeven (2001) for Russia, The Financial Mail (12/6/1996) for South Africa, Euromoney (Dec 1997) for Thailand, and Verbrugge and Yantac (1999) for Turkey. Finally, Beim and Calomiris (2001) discuss the importance of related lending in financial crises.

it is optimal to lend to related parties on better terms than to unrelated ones. Furthermore, to the extent that we can measure it, related borrowers emerge from the crisis relatively unscathed – bank owners lose control over their banks but not their industrial assets. Despite these facts, our results may be consistent with some versions of the *information* view.

The paper proceeds as follows. In Section II, we present the hypotheses and develop a simple model of looting. Section III presents the sample and basic empirical methodology. Section IV describes the incentives for related lending in Mexico and documents its prevalence. Section V contrasts the lending terms of related and unrelated loans and studies their performance in the aftermath of the financial crisis of 1994. Section VI concludes.

II. A Simple Model of Looting and Alternative Hypotheses.

The banking literature stresses the incentives for excessive risk-taking when banks are financially distressed. Here we draw attention to other forms of looting that have received considerably less attention.[3] Specifically, we focus on the incentives for insiders to divert cash for their own benefit. Our key assumption is that insiders structure self-dealing transactions to minimize recovery on related-party loans when these default.[4] Specifically, we assume that related parties can avoid repaying their loans at the cost of foregoing their equity in the bank.[5] As a result, related parties repay their bank loans when the value of their equity in the bank is high but default otherwise.

We assume that each bank is controlled by a single shareholder who owns a fraction α of the cash-flows of the bank and a larger fraction $\beta (>\alpha)$ of the cash flows of an industrial firm (i.e., the "related party") which she also controls. We also assume that the controlling shareholder has effective control over lending decisions. She can direct the bank to lend to related parties on non-market terms but needs to engage in costly transactions to avoid repayment in the bad state. As a result, when a controlling shareholder directs the bank to lend L to a related party, the controlling party only receives $\phi(L)$ and L- $\phi(L)$ is wasted (Burkart, Gromb, and Panunzi 1998, Johnson et al. 2000, La Porta et al. 2002). We assume ϕ_L>0 and ϕ_{LL}<0.

[3] Akerlof and Romer (1993) is one notable exception. Their model is deterministic: looting takes place when the value of the bank's capital falls below a threshold. Instead, we emphasize the option-like nature of default as insiders may default on their bank loans at the cost of foregoing their equity in the bank.

[4] Consistent with this assumption , the auditor commissioned by the Mexican congress found that some related loans "...were granted without any appropriate reference to the capacity of the debtors to repay" and that loan officers had accepted "...collateral from the borrower that they knew was false or of no value to the bank" (Mackey 1999).

[5] Default is not tightly linked to bankruptcy in Mexico. In our sample, 14 related party borrowers who defaulted were publicly-traded firms, and it is easy to follow them in the post-1995 period. Only one publicly-traded industrial firm went bankrupt (Fiasa). Courts finally sanctioned Fiasa's bankruptcy because it did not have a known address, which suggests that creditors may have faced similar difficulties locating the firm's assets ("*El Economista*," 9/11/2000).

The model has two periods. In the first, a fraction of the assets of the bank must be financed by deposits (D) and the rest by shareholders' equity (E). Investors are risk-neutral and there is no deposit insurance.[6] For simplicity, we assume that the risk-free rate is zero while the promised (gross) interest on deposits is r. In the first period, the bank lends L to the related party and E+D-L to unrelated parties. Both borrowers promise to pay R per dollar borrowed. Loans are due in the second period and time ends. The world may be in either a "good" or "bad" in the second period, with probabilities q and (1-q), respectively. In the good state, loans are repaid in full. In the bad state, the bank recovers a fraction γ (<R) per dollar of unrelated loans. In contrast, the bank recovers nothing when related loans default. In expectation, loans are unprofitable when made to related parties (R_R= q*R<1) and profitable when made to unrelated ones (R_U= q*R+(1-q)*γ>1). Finally, to make our results interesting, we assume that the bank goes bankrupt if insiders default (γ*(E+D-L)<r*D).

We consider the equilibrium in which the insider does not default in the good state (otherwise, outside shareholders cannot break even). In the good state, the insider willingly pays back when her liability to the bank (β*R*L) is less than the profits that accrue to her if she pays her loan, *i.e.*, when:

$$(1) \quad \alpha * \left(R * (E + D) - r * D\right) \geq \beta * R * L$$

Consider next the bad state. The insider defaults when her liability to the bank exceeds the profits that would accrue to her if she paid her loan, *i.e.*, when:

$$(2) \quad \alpha * \left(\gamma * (E + D - L) + R * L - r * D\right) < \beta * R * L$$

Whenever β>α, the insider always defaults. This occurs because repayments on unrelated loans are insufficient to reimburse depositors in the bad state. As a result, banks are very fragile: related parties optimally default on their loans from the bank precisely when outside borrowers are in financial distress.

Depositors are indifferent between investing in the riskless asset or in the bank. They are paid in full in the good state and receive the value of the bank's equity in the bad state. As a result, the value of deposits D is given by:

$$(3) \quad D = q * \left[r * D\right] + (1 - q) * \left[\gamma * (E + D - L)\right]$$

The insider receives profits from her equity holdings and from looting. In the good state, the insider receives her pro-rata share of the profits of the bank (=α*(R*(E+D)-r*D)) but loses money on looting since

[6] Deposit insurance creates further incentives to engage in related lending. Without deposit insurance, the extent of related lending is limited by the need to allow outside financiers to break-even on their investment. Because deposit insurance pays for the loses of depositors in the bad state, the level of related lending that is compatible with outside investors recouping their investment is even higher.

she must pay her share of the interest bill on the loan (=β*R*L) . In the bad state, the insider foregoes her equity in the bank but captures β*ϕ(L) in profits from looting. Accordingly, the expected profits of the insider are given by:

(4) $$E(\pi) = q * \left[\alpha * \left(R*(E+D) - r*D\right) + \beta * (\phi(L) - R*L)\right] + (1-q)*\left[\beta * \phi(L)\right]$$

Using equation (3) in equation (4), the expected profits of the insider can be rewritten as follows:

(5) $$E(\pi) = \alpha * \left[R_U * (E+D-L) + R_R * L - D\right] + \beta * \left[\phi(L) - R_R * L\right]$$

where R_U (=q*R+(1-q)*γ) and R_R (=q*R) denote the expected rates of return on loans to unrelated and related parties, respectively. The first term represents the insider's pro-rata share in the expected profits of the bank. The second term captures the "private benefits" that the insider does not share with other shareholders. We have so far assumed that the insider controls a single related party. A straightforward generalization of (5) to the case when the insider controls multiple related parties predicts that the insider will direct the bank to offer better borrowing terms to high-β entities than to low-β ones. Better borrowing terms for high-β entities may include lower interest rates and collateral requirements than for low-β entities.

The insider picks the level of related lending to maximize her expected profits. The first order condition for this problem can be written as:

(6) $$\beta * \phi_L = \alpha * (R_U - R_R) + \beta * R_R$$

This says that at the margin, the cost from engaging in related lending must exactly equal its benefit. Consider shifting $1 in loans from unrelated parties to related ones. The insider is a shareholder in the related party and receives β*ϕ_L when a dollar is diverted from the bank. On the other hand, as a shareholder in the bank, the insider bears a fraction α of the reduction in profits resulting from the change (R_U-R_R). At the same time, the insider pays R_R per borrowed dollar as a shareholder in the related party. According to equation [6], related lending is restrained by a high equity stake of the insider in the bank and by attractive opportunities to lend to outsiders. Related lending increases with the insider's equity stake in the related party (β) and when borrowing terms on related loans are attractive.

In our empirical work, we focus on five questions. First, what is the extent of related lending? Second, do banks lend to related parties at different and possibly more favorable terms? Third, which related parties get the most beneficial terms? Fourth, how do related- and unrelated loans perform in the "bad" state of the world? Fifth, when does related lending increase?

Equations (5) and (6) are helpful to answer these questions for Mexico. Before the crisis, Mexican banks were among the most profitable banks in the world (*i.e.*, R_U was likely high). In contrast, it is likely that the return on unrelated loans was low because the bad state occurs with certain regularity in Mexico. Moreover, poor protection of creditors allows related parties to default with relative impunity in the bad state. According to (6), this implies that the level of related lending should be high in Mexico. Moreover, the *looting view* predicts that related parties borrow at below-market terms and that high-β entities should receive the most beneficial borrowing terms. As a result, loans to related parties (and, in particular, to high-β entities) should perform very poorly in the bad state because such loans are backed by collateral of very dubious quality, if any. Low levels of collateral contribute to the bad performance of related loans by increasing the insider's incentive to default and by lowering the bank's recovery rate when default does occur. Finally, equation (6) predicts that related lending increases when the bad state becomes more likely.

Evidence on the size and terms of related lending is insufficient to distinguish among the *looting* and *information views*. Most plausible versions of the *information* view predict that related lending should be large in Mexico as it mitigates moral hazard and asymmetric information problems, both likely to be high in Mexico (La Porta et al. 1997 and 1998). The *information view* is also consistent with lending at advantageous terms to related parties as banks minimize costs by lending to borrowers they know well and/or to firms whose investment policies they control and pass some of these efficiency gains to borrowers.[7]

Different versions of the *information* view make opposing predictions regarding the performance of related-party loans during a severe recession. A standard version of the *information* view holds that advantageous lending terms for related parties are justified by low expected default rates and high expected recovery rates. In this view, related lending facilitates the optimal allocation of capital by removing informational barriers to selecting good projects and/or empowering banks to curtail excessive risk-taking by borrowers. In sum, related lending improves loan performance.[8] It is possible, however, to construct versions of the *information* view that make the opposite prediction regarding the performance of related party loans in a downturn. For example, a model could include three states (good, bad, and awful) and not just two. In the good state of the world, both related and unrelated loans pay as promised. In contrast, unrelated loans default more often than related ones in the bad state of the world. Finally, in the awful state of the world, related parties default more often than unrelated ones.[9] If the awful state of the world is infrequent enough,

[7] The information view is also consistent with related parties borrowing on less advantageous terms than unrelated ones (for example, low-quality debtors may be monitored by banks while high-quality debtors borrow against collateral). The opposite is true in our date and, thus, we focus on related lending that takes place on beneficial terms.

[8] In fact, related borrowers may (inefficiently) take too few risks. For example, critics of German banks argue that banks veto worthwhile investment projects because, as creditors, they do not internalize the benefits that accrue to shareholders when risky projects are successful (Wenger and Kaserer, 1998).

[9] One way to motivate the awful state of the world is to argue that related borrowers are negatively affected by the loss of banking relationships (perhaps because relationship banks have specialized human capital that other banks cannot easily substitute). Both Bernanke (1983) and Diamond and Rajan (2000) emphasize the losses that result from severing the ties between bankers and their related borrowers during financial crises.

it may be fair to grant beneficial terms (e.g., low interest rates and collateral requirements) to related parties. Note, that an implication of the *three-state-information* view is that loans made in the awful state break-even. In contrast, the *looting* view predicts that such loans lose money on average.

III. Data and Methodology.

A. Data

This paper is based on a new database describing the terms and performance of a sample of loans made by 17 Mexican banks circa 1995. We are interested in comparing the terms offered to related and unrelated borrowers as well as the ex-post performance of those loans. Our sample includes all but two banks that existed when privatization was concluded in 1992. The two missing banks (Bancrecer and Banoro) are under state administration at the time of writing and feared that disclosing information on related lending might undermine efforts to sell them. Three new banks entered the market in 1994 and are not in our sample as they may not have had sufficient time to reach "steady-state". Our sample represents 93% of the assets of the banking system at the end of 1994.

Banks were required to submit to the banking supervisor a list of the 300 hundred largest loans together with their size and the names of each of the borrowers. Starting in December of 1995, banks were also required to disclose the affiliation of these debtors, which allows us to classify borrowers as related and unrelated ones. We follow standard legal practice and define related debtors as those who are: (1) shareholders, directors or officers of the bank; (2) family members of shareholders, directors or officers of the bank; (3) firms where the previous two categories of individuals are officers or directors; or (4) firms where the bank itself owns shares.[10, 11]

We use the list of the three hundred largest loans from each bank in our sample for two very different

---

[10] We checked the accuracy of the reported classification of related and unrelated borrowers using a list of all the officers and directors of all banks, publicly-traded firms (and their subsidiaries), and the top-500 firms (and their subsidiaries) in 1995. With rare exceptions, all the borrowers with links to the banks as officers and directors had been appropriately classified as "related" by our primary sources. In addition, we examined whether unrelated loans are reclassified as related ones six months after a forced change in control. The implicit assumption is that most knowable cases of fraud and misreporting are likely, by that period, to be identified by the new management of the bank. We found very few mistakes (2 to 3 per bank) in the initial classification of a debtor as related or unrelated. In contrast, it is rather common that performing loans be reclassified as non-performing.

[11] Our definition of related party leaves out two potentially important modes of self-dealing. First, associates of Bank X may have systematically borrowed from Bank Y whereas associates of Bank Y may have systematically borrowed from Bank X. In fact, audits of some of the bankrupt banks revealed that related lending sometimes took exactly that form. As a robustness check, we have expanded the definition of related lending to include borrowers associated with other banks (8 borrowers). The results are qualitatively similar and we do not report them on the text. Second, some bankers may have avoided related-lending regulations by lending to firms controlled by front men (Mackey, 1999). Unfortunately, we have no way of addressing outright fraud in our database. Fraud, however, biases the results against our findings.

purposes: to get a snapshot of the aggregate magnitude of related and unrelated lending in Mexico, and to select a random sample of loans for further analysis of their terms and ex-post performance.[12] For each bank, we draw a random sample of approximately 90 different borrowers from the 300 largest loans in December 1995 or, when unavailable, in March of 1996. We collect data on the terms of each of the loans in the random sample. In addition, we follow their evolution through time until December of 1999 as they are repaid, renewed, and restructured. Note that our sample may be biased towards the "cleaner" forms of self-dealing as it is drawn from loans that were routinely scrutinized by regulators.

Whenever possible, we sample 45 related and 45 unrelated loans for each bank.[13] The National Banking and Securities Commission sent an official request to gather information on the loans in our random sample. Although the information was supplied by the banks, the credit files were made available to the regulator to verify their accuracy. Each bank was required to extract and supply the following information: (1) characteristics of the debtor (assets, total liabilities, liabilities with the bank, sales, and profits); (2) characteristics of the credit (interest rates, maturity, collateral, and guarantees); (3) performance of the credit (date of default, percentage recovered, terms of any renewals, restructures and/or loan forgiveness); (4) amount of the yearly payments made by the borrower between 1993 and 1999; and (5) analogous information about other credits that the debtor had, or obtained within four years of the date of the loan, with the same bank.

The total number of loans in the sample is over 1,500. Some borrowers had more than one loan outstanding with the same bank. In such cases, we report the weighted average of the terms (e.g., interest rates) of all loans by the same borrower and compute total promised payments and total actual payments by borrower.

An important characteristic of our sample is that banks were in varying degrees of financial distress at the time we took the snapshot of their loan portfolio. The first bank failures (Cremi, Union, and Oriente) took place in the second half of 1994 and the last one (Serfin) in 1999 (see the first column in Table I). At the onset of the financial crisis, the government took over financially distressed banks with the goal of restructuring them and finding a buyer for them in better times. The government took over three banks in this fashion in 1994 (Cremi, Union, and Oriente). Three years later, the government sold the branches of those three banks but retained most of their (non-performing) loans. Later, the government focused on finding buyers for the failing banks (11 banks) and skipped the restructuring process. As a result, the related

[12] Section III presents time-series statistics on the evolution of the proportion of the largest 300 loans that were given to related parties. For the period before December of 1995, we manually classified loans as related or unrelated using secondary sources.

[13] In some cases banks did not have 45 related loans among the largest 300 loans and we had to settle for less. Those cases are: Banpais (40), Cremi (38), and Citibank which did not have any related loans.

party that made the loan in our random sample is typically not the agent that tries to recover from a non-performing borrower. We believe this is an advantage as related parties may have procrastinated before pulling the plug on loans to their associates. [14]

B. Methodology.

In this sub-section, we discuss how we compute interest rates and recovery rates. We introduce the remaining variables as we discuss them in the text (see the appendix for definitions of the variables). Loans vary on the date on which they were granted and on their maturity. This complicates direct comparisons across loans since interest rates were highly volatile over the sample period. To partially address this difficulty, we report realized real interest rates over the maturity of the loan. To illustrate, consider a loan that, in period t, pays a spread of *s* over the reference rate *i* and has a maturity of T months.[15, 16] Letting the inflation rate be π, we compute the average real rate for this loan as follows:

$$(7) \quad \frac{1}{T}\sum_{t=1}^{T}\frac{1+i_t+s}{1+\pi_t}$$

In addition to real interest rates, we also compute the average difference between the interest rate paid by the loan and the "risk-free" rate as measured by the one-month rate on government bonds. Continuing with the previous example and letting r^f be the currency- and maturity-matched rate on government bonds (i.e., depending on the currency of the loan, the US or Mexican government bond rate), our measure of spread over government rates is computed as follows:

$$(8) \quad \frac{1}{T}\sum_{t=1}^{T}(i_t+s-r_t^f)$$

We keep floating and fixed interest rates separate as they present different risk characteristics. For the same reason, we also keep domestic and foreign interest rates separate and deflate using the Mexican or US wholesale price index as appropriate. As a result, we group loans in four categories: (1) domestic/fixed; (2) domestic/floating; (3) dollar/fixed; and (4) dollar/floating.

One of the goals of the paper is to assess the number of loans that paid less than initially contracted ("bad loans"). To examine the performance of the loans in our random sample, we track them from the

[14] We include bank-fixed effects in the regressions to capture the fact that banks faced different incentives to loot. We also include in the regressions a dummy for whether the bank is under government or private management.

[15] For data availability reasons, we are only able to follow loans through December of 1999.

[16] For fixed loans, *s* is zero and *i* is the promised coupon rate.

formation period (i.e., December of 1995 or, when not available, March of 1996) through 1999 as they are either: (1) paid at maturity; (2) paid in advance; (3) renewed; (4) restructured; (5) transferred to FOBAPROA; (6) settled in court; or (7) in default and not yet settled. We aggregate all these outcomes into a single performance measure ("recovery ratio") by keeping track of the net cash-flows paid to the bank by the borrower after the loan enters the sample. Keeping track of loan performance over time is important as problems with related loans may take time to show up if banks renew related loans without paying attention to their credit quality or restructure loans without assessing the repayment ability of the borrower.[17]

Our calculations are designed to avoid these problems. Specifically, we define the recovery ratio as follows:

$$(9) \qquad \frac{\sum_{t=1}^{T} \frac{payment_t - renew_t}{1+i_t}}{capital_0}$$

where: $payment_t$ includes coupon and amortization payments received, amounts recovered in court, and collateral repossessed; $renew_t$ is the face value of loan renewals; i_t is the contracted interest rate; $capital_0$ is the face value of the loan when it was first made; and T is the maturity of the loan extended, if necessary, by renewals, restructurings, or court awards.

Identifying bad loans involves some judgment calls. The most obvious bad loans are those that defaulted. For regulatory purposes, loans were classified in default after 90 days of missing a payment, or in the case of a one-payment loan, after 30 days of missing the payment. Forced restructurings of performing loans are more difficult to capture. Most loans were typically restructured because the borrower was financially distressed. However, it is possible that some loans were restructured at no loss to the bank. We err on the conservative side by classifying restructured loans as bad loans only when the bank simultaneously takes an accounting loss. Thus, our proxy for bad loans underestimates the true level of noncompliance by not capturing, for example, a bank that grants additional time without interest to pay back a debt.[18]

[17] At least some of that did take place. "Interest accruing on these loans [referring to loan to directors] was frequently capitalized rather than paid. In some cases, additional loans were issued to borrowers for the purpose of paying interest on the initial loans." (Mackey, 1999, page 216).

[18] Twenty nine of the loans in our random sample were sold to FOBAPROA although they were not technically in default. On average, FOBAPROA paid 88.7% of the face value of the loans but has recovered only 15-20% of their face value so far. Because banks had incentives to sell to FOBAPROA those loans with the worst repayment expectations, we classify all loans sold to FOBAPROA as bad loans even if they had not technically defaulted at the time when they were transferred to the government. We compute recovery rates for loans transferred to the government in the same manner as for all other loans in the sample. Specifically, we ignore payments from FOBAPROA and keep track of all coupon and amortization payments made by the borrower.

IV. Facts About Related Lending in Mexico.

A. Banking in Mexico.

Many of the ownership and control features of the banks in our sample can be traced back to privatization that returned commercial banks to the private sector by 1992, ten years after all commercial banks had been nationalized.[19] Privatization took place gradually through the placement of minority stakes in the stock market in 1987. By 1992, government ownership of commercial banks was fully eliminated.

In privatization, control of banks was auctioned off to the highest cash bidder. However, important ownership restrictions were put in place at the time to prevent banks from becoming controlled by either non-financial corporations or by foreigners (Lopez-de-Silanes 1997). Specifically, at least 51% of the votes of a bank had to be held by a Mexican group, and control over banks by corporations was ruled out. Instead, banks had to be controlled by a dispersed group of individuals. Each of the members of the controlling group could own up to 5% of the equity of a bank without question, or up to 10% with the express consent of the Ministry of Finance. Foreign entities could own up to 30% of a bank's equity in low-voting shares under similar ownership-dispersion requirements as those that applied to individuals.

These ownership restrictions, coupled with the low-level of development of financial markets, severely limited competition in the privatization auctions by restricting potential bidders to domestic investors with cash to bid. Nevertheless, the average (median) control premium paid for banks at the time of their privatization was 51.8% (50.0%) (López-de-Silanes and Zamarripa 1995).[20] These data are consistent with the view that controlling shareholders of banks perceived private benefits of control to be high.

Just as corporations were not allowed to control banks, banks were not allowed to own more than 5% of the capital of non-financial corporations.[21] Beyond these ownership restrictions, few rules addressed potential conflicts of interest. Related loans could not exceed 20% of a banks' loan portfolio and no special approval was required on loans to related parties as long as <u>each</u> loan was smaller than 0.2% and 1% of the bank's net capital for loans to individuals and firms, respectively.[22] When those limits where exceeded, loans to related parties had to be approved by a majority of the members of the Board of Directors. No rules limited the participation of interested directors in such decisions.

Key to the interpretation of the results in the paper is that, in practice, ownership dispersion requirements and rules separating banks and industrial firms were insufficient to avoid potential conflicts of

[19] See La Porta and Lopez-de-Silanes (1999) for a general account of privatization in Mexico.

[20] The number of non-financial firms with publicly-traded equity at the time of privatization is too small to compute the value of control for those firms.

[21] Higher percentages were possible with the authorization of the Ministry of Finance.

[22] In February of 1995, restrictions on related lending were changed. The new rules allowed banks to lend to related parties up to their net capital.

interest. To illustrate this point, consider the case of Banco Serfin (the third largest bank) which is representative of the other banks in the sample. Adrián Sada González was the Chairman of the Board and owned 8% of the capital and 10.1% of the votes in Serfin. Although his stake in Serfin met the letter of the law regarding ownership dispersion requirements, it seriously underestimates Sada-González's control over the Board of Serfin. Other directors and officers of the bank owned 33.6% of the capital and 42.7% of the votes in Serfin. Two sons of Adrián Sada González sat on the Board and eleven of the forty-four members of the Board of Serfin were related to each other by blood or marriage. Because reporting requirements do not allow us to know the identity of those directors and officers, we cannot pin down the fraction of the votes effectively controlled by Adrián Sada González but it clear that he exercised effective control over Serfin.

Serfin had close ties with many of the largest corporations in Mexico. Adrián Sada González was also the largest shareholder and Chairman of the Board of Vitro—a publicly-traded maker of glass products.[23] In fact, the Board of Serfin included the controlling shareholders of fourteen other publicly-traded firms. To put this figure in perspective, only 185 firms were publicly traded in 1995. Furthermore, many of the publicly-traded firms controlled by Serfin's directors and officers were among its largest borrowers. For example, 8 of the top twenty loans to firms in the private sector were given to publicly-traded firms controlled by members of Serfin's board. Another 3 of the largest 20 private-sector loans went to privately-held firms owned by Serfin's directors and officers. Finally, the son of a member of the Board was among the top 20 private sector borrowers. All in all, related parties obtained 12 of the largest 20 loans made to the private sector. The example of Serfin suggests that the separation between the control of industrial and financial firms may have been more apparent than real. It also suggests that the agency problems in Mexican banking were different from those in, for example, Japan where both banks and industrial firms are typically widely-held and run by professional managers.[24]

Lending policies were also shaped by other features of the banking regulation. At the time of privatization, Mexico created a deposit insurance system ("FOBAPROA") similar to the FDIC in the US. FOBAPROA guaranteed all deposits equally, regardless of the creditworthiness of the bank. At the same time, minimum capitalization requirements were independent of the riskiness of a bank's loan portfolio. Banks were allowed to set interest rates and to allocate credit freely. Bank supervision was lax partly because regulators were overwhelmed by the rapid growth of credit that followed privatization and partly because

[23] Officers and directors of Vitro (including Adrián Sada González) owned 23.2% of the capital and 38.64% of the votes in Vitro.

[24] The only bank in our sample that is clearly different from Serfin is Citibank. From a regulatory standpoint there was no difference between Citibank Mexico and domestic banks. However, Citibank operated in Mexico as a wholly-owned subsidiary of the US parent and most large loans made by Citibank's Mexican subsidiary had to be approved by US headquarters.

prudential regulation was inappropriate (Gil-Díaz and Carstens 1997, López-de-Silanes and Zamarripa 1995).

In summary, banks were acquired by local families that already controlled industrial groups and had the financial resources required to bid in the privatization auction. Furthermore, during the sample period, related lending was largely unregulated and poorly supervised while banks operated under a generous deposit insurance system. We turn next to measuring the extent of related lending.

B. The Size of Related Lending.

Table I presents basic data on related lending for each of the banks in the sample. We group banks into two categories. The first group of thirteen banks ("*bankrupt banks*") includes those that were either taken over by the government or acquired by other banks to avoid a government takeover. The remaining five banks ("*survivor banks*") did not experience changes in control during the sample period. Although some of the members of the group of *survivor banks* experienced considerable financial distress during the sample period, we separate both groups of banks since they may have faced different incentives. We are particularly interested in the level of related lending when *bankrupt banks* change control (the *event period*) since incentives for self-dealing increase as the value of the bank's equity falls. For comparison purposes, we define September of 1997 as the *event period* for *survivor banks* (roughly, the median date of change in control for *bankrupt banks*).[25] We present snapshots of the percentage of the top-300 loans made to related parties at three points in time: (1) December of 1993 (i.e., before the devaluation), (2) one-year before the *event period*, and (3) during the *event period*.

Table I shows that the mean (median) bank in the sample had 13% (14%) of the top-300 outstanding loans with related parties in 1993. Related lending in 1993 is moderately higher for *bankrupt banks* than for *survivor banks* (14% versus 10%, respectively, for both the means and medians). The difference in the fraction of loans to related parties for *bankrupt* and *survivor banks* increases sharply as bankruptcy looms closer. Consistent with the *looting* view, the mean (median) fraction of related lending increases by 13 (13) percentage points for *bankrupt banks* between December 1993 and the *event period*. Furthermore, most of this increase in related lending by *bankrupt banks* is concentrated in the year preceding the *event period* when the mean (median) fraction of related lending jumps by 12 (10) percentage points.[26] In contrast, the mean (median) fraction of related lending increases by 3 (7) percentage points for *survivor banks* between December 1993 and the *event period*. In sum, related lending by *bankrupt* and *survivor* banks is comparable

[25] The level of related lending by *survivor banks* between December of 1994 and December of 2000 is fairly stable at around 13% and the choice of *event period* for *survivor banks* does not qualitatively affect the results.

[26] The level of related lending in bankrupt banks peaks at the time of the change in control and drops quickly afterwards (which suggests that concealment of related lending is not a very important problem in the sample of large loans).

in 1993 but markedly diverges as banks plunge into financial distress.

Observable differences in corporate governance (e.g., ownership structures, board composition, etc) do not explain the increase in related lending. Recall that all banks (except Citicorp) have similar corporate governance structures and are publicly-traded entities controlled by a small number of individuals. Similarly, all banks were privatized in the same manner. One version of the *three-state information view* that may explain the increase in the fraction of related loans is that such borrowers required additional loans in the post-devaluation period to keep attractive projects viable. Contrary to these predictions, related lending by survivor banks in the six months that follow the devaluation is roughly constant at 13% (not reported).[27] In the *looting* view, increases in related lending are tied to reductions in the profitability of loans to unrelated parties and in the value of insiders' equity in the bank. As a crude proxy for the shock that hit banks, we compute the change in non-performing unrelated loans between December of 1993 and the bankruptcy date as a fraction of the bank's capital in December of 1993.[28] The correlation between this variable and the change in related lending in the same period is 0.63. This result is consistent with the *looting view* although the number of observations (14) is too small to achieve statistical significance.

To assess the economic significance of the *looting view*, Table I compares the volume of related lending relative to the price that bidders paid to gain control of the banks. The results show that the mean (median) bidder obtained \$1.50 (\$0.72) in (top-300) loans for each dollar that she paid at the privatization auction. These figures likely underestimate the magnitude of related lending if the controllers of banks were able to camouflage some self-dealing transactions.

Finally, Table I also reports the fraction of non-performing loans made to the private sector. We compute non-performing loans based on the loans to the private sector in the sample of top-300 loans for each bank six months after the *event period*. We examine non-performing loans six months after *bankrupt banks* experience a change in control as auditors are, by that time, typically able to identify most of the inappropriate practices followed by the previous management . At the same time, six months is probably not long enough for new management to turn around the bank, alter its lending policies, and deal aggressively with non-performing loans. Naturally, non-performing loans are significantly higher for distressed banks than for healthier ones (32% versus 10%). More interestingly, consistent with the predictions of the looting view, the correlation between non-performing loans and related lending is very high (0.815). However, mor micro-level data is needed to examine this issue in detail and we postpone such analysis until Section V.

[27] Furthermore, Section V presents evidence that loans made by *bankrupt* banks after the big devaluation were also highly unprofitable.

[28] As an alternative measure of the size of the shock to a bank's capital, we examined the ratio of accumulated losses in the two years that precede the bank's bankruptcy to the level of capital at the beginning of that period. The results are qualitatively similar to those reported in the paper.

To review the results thus far, consistent with both views of related lending, banks make large loans to related parties. Banks appear to step up the intensity of related lending as a forced change in control looms closer. Related loans are strongly correlated with the fraction of non-performing loans. Although the last two findings require further examination, which we undertake in the next three sections, they are consistent with the *looting* view and difficult to reconcile with the *information* view.

V. Lending Terms and Ex-post Performance.

A. Lending Terms.

The *information* view maintains that related borrowers may obtain preferential terms (e.g., lower interest rates) because they are easier to screen and monitor. Under the *looting* view, better terms for related borrowers reflect self-dealing by bank insiders. Table II describes the borrowing terms for related and unrelated borrowers with the following five categories of variables: (1) interest rates; (2) collateral; (3) guarantees; (4) original maturity; and (5) grace period. The results in this section, and in the remainder of the paper, are based on this random sample of loans.

Panel A in Table II shows the results for real interest rates. Interest rates on related loans are consistently lower for related parties than for unrelated ones. Flexible rate loans in domestic currency, are the most frequent type of loan in our sample. The mean (median) real interest rate on these loans is 9.56% (9.87%) for unrelated loans but only 6.75% (7.36%) for related ones and the mean (median) spread over government bonds is 6.54% (7.00%) for unrelated loans but only 3.44% (4.00%) for related ones. The other categories of loans show a similar pattern.

Panel C reports the incidence of collateral and guarantees as well as their value as a fraction of the loan's principal at the time it was granted. Although related parties borrow at lower rates, their loans are less likely to be backed by collateral. Whereas 84% of the unrelated loans are collateralized with assets, only 53% of related loans are backed by collateral. Furthermore, the mean (median) collateral-to-face-value ratio is 1.19 (0.52) for loans to related parties compared with 2.89 (1.84) for loans to unrelated parties (differences in means and medians are both significant at 1%). Parallel results hold for the frequency of guarantees (see Panel D). Related loans are less likely to have personal guarantees (47.7% versus 66.3%). The evidence on interest rates and collateral requirements is consistent with the *looting* view, but can be reconciled with the *information* view if, for example, related parties are high-quality borrowers.

Panel E shows that unrelated loans have slightly shorter maturities than related ones (although the difference is not statistically significant). The mean (median) maturity is 45.6 (36) months for unrelated loans and 48.7 (36) months for related ones. Similarly, unrelated parties have shorter grace periods than related ones (7.4 months shorter for means and 6 months shorter for medians) before banks have the right to pull the plug on them (Panel F). One interpretation of these findings is that banks shorten the maturity of loans to unrelated parties to facilitate monitoring and gain bargaining power over low-quality borrowers. The alternative interpretation is that banks are soft on related parties.

Since differences in the ex-ante financial risk characteristics of the two types of borrowers may account for the observed divergence in borrowing terms, we examine whether our results on borrowing terms survive in regressions that control for size, profitability, and leverage. The independent variables include fixed-year and bank effects and dummies for fixed-rate and foreign currency loans. The dependent variables are: (1) real interest rates; (2) interest rate spread over the risk-free rate; (3) a dummy that takes a value equal to 1 if the loan has collateral; (4) the collateral-to-face-value ratio; (5) the guarantee-to-face-value ratio; (6) the maturity period; and (7) the grace period.

Table III presents the results.[29] In the regressions using real interest rates as the dependent variable, size and leverage have the expected signs, but only size is significant. Fixed-rate loans and domestic-currency loans pay lower real rates (probably because of the surprise devaluation of 1994 and the inflation that ensued). The key finding in the interest-rate regression is that related loans pay 4.15 percentage points less than unrelated ones, and this difference is significant at the one per cent level. Results using interest rate spreads as the dependent variable are very similar and imply that related loans pay 5.15 percentage points less than unrelated ones (also significant at the one percent level).

The results on collateral are also interesting. Large firms post collateral less frequently and, when they do, in smaller amounts. Similarly, highly leveraged firms post larger amounts of collateral. Related loans are 30% less likely to have collateral and the predicted collateral-to-loan ratio is roughly 2.9 units lower for related than unrelated parties. To put this figure in perspective, note that the mean collateral-to-loan ratio is 2.14 with a standard deviation of 3.38. The results on guarantees, maturity, and grace period also confirm our findings on Table II: loans to related parties are less likely to be backed by personal guarantees, have longer maturities, and longer grace periods than loans to unrelated parties.

To summarize, related parties borrow at lower interest rates and longer maturities than unrelated ones. They also post less collateral against their loans and offer fewer personal guarantees than unrelated creditors. The preferential treatment received by related parties does not appear to be tied to differences in size, profitability, or leverage. These results are consistent with the view that related lending is a manifestation of self-dealing. An alternative interpretation is that related loans are safer than arm's length ones in ways that are not picked up by our controls. We compare these two interpretations in the next section.

[29] In this section, we report results based on pooling corporate and non-corporate borrowers. To check the robustness of the results, we rerun all regressions using the sub-sample of corporate borrowers and including the log of sales as a measure of size, the debt-to-asset ratio as a proxy for financial risk, and the income-to-sales ratio as a measure of profitability. The results are qualitatively similar and we do not report them.

B. Ex-post performance.

The devaluation in December of 1994 started a severe and prolonged downturn in the Mexican economy, during which many borrowers defaulted on their bank loans. In this section, we compare the default and recovery rates of related and unrelated loans in our sample. Under the simple version of the *information* view, related parties borrow on beneficial terms because screening and monitoring reduce their default rates and enhance their recovery rates**.** In contrast, the *looting* view predicts that related lending takes place on advantageous terms although related borrowers have higher default rates and lower recovery rates than unrelated ones. Similarly, the *three-state information* view also predicts that unrelated loans perform better than related ones in a severe financial crisis.

Panel A in Table IV shows the incidence of bad loans in our sample. Consistent with both the *looting* and *three-state information* views, the default rate is 37% for unrelated borrowers and 66% for related ones (the difference is statistically significant at 1%). The number of performing loans restructured with forgiveness ("other bad loans") is very small. As a result, the fraction of all bad loans is 39% for unrelated borrowers and 70% for related ones.[30] One can interpret these findings in two ways. One interpretation is that related borrowers were hit disproportionately hard by the crisis.[31] A more cynical interpretation is that related borrowers found it easier to default. Recall that related loans are less likely to be collateralized, raising the incentive to default. In addition, as pointed out by the FOBAPROA officer in charge of recovering bad loans, "...proper procedure was not followed when [related] loans were granted, they lacked some of the required legal documentation, collateral was not duly registered in the Public Register of Property, there was no follow up of how borrowed funds were used or of how loans performed..." (*Jornada* 8/2/99). Plenty of anecdotal evidence is consistent with this view including loans backed by buildings that were never built or by planes that could not fly.

Panel A also shows the collection procedures followed by banks. One may wonder how aggressive were collection efforts, particularly when the government took over banks. Collection efforts were fairly aggressive as most bad loans were sent to court (461 loans out of 807). Only 13.3% of bad loans to unrelated parties and 12.4% of bad loans to related parties were restructured but not sent to court. Finally, a few loans (3-4%) were sold to FOBAPROA.

Panel B of Table IV presents data on the recovery rate of bad loans. As predicted by both the *looting*

[30] One possible concern is that defaults may be more likely for loans that mature in 1995 and that related loans may disproportionately do so. The opposite is true. Loans that mature in 1995 are more likely to be unrelated than related ones (58.5% versus 41.5%).

[31] We present evidence against this view in Section V.

and *three-state information* views, the mean (median) recovery rate for bad loans was 46.2% (44.8%) for unrelated borrowers and 27.2% (15.0%) for related ones (the differences are statistically significant at 1%). Some of the large differences in recovery rates may stem from the fact that, unrelated credits are backed by more collateral than related ones. But even when the loan is not backed by collateral, collection is substantially higher for unrelated parties. The mean (median) recovery rate for an uncollateralized unrelated bad loan is 42.1% (43%), while a similar related loan yields only 25.8% (10%). We obtain similar results if we compare the recovery rates of bad loans backed by less collateral than the median loan in the sample.

Finally, the last section of Panel B shows recovery rates for all loans. We shift the focus of the analysis from bad loans to all loans to aggregate the effects of default rates and recovery rates into a single number. Related loans are doubly hit: higher default probabilities and lower recovery rates in default than unrelated ones. As result, the mean (median) gap in the recovery rate of all loans widens to 30% (60%) from 19% (30%) for all bad loans. The recovery rate for the median related loan in our sample is a paltry 40%.

For robustness, we check whether our results survive in regressions that control for size, profitability, and leverage, as well as bank, year-of-loan and industry effects. Table V shows that borrowers that are bigger, more profitable, and less leveraged when the loan was made are less likely to default and have higher recovery rates when they do. Controlling for everything else, related borrowers are 33-35% more likely to default (depending on whether we use all the sample or only corporate borrowers). The results on recovery rates also show an economically large effect of related lending: the recovery rate drops by 0.28 for a bad loan made to a related borrower, and by 0.70-0.78 for all related loans. The related dummy is significant at 1% in all regressions. In sum, all the univariate results survive in the regressions.

The above results fit well with the *looting* view of related lending as they show that, controlling for observable measures of risk, related parties borrow on advantageous terms. . However, these results also fit the *three-state information* view. Whereas there can be little disagreement that 1995 was a very bad year it is less clear that, the devaluation of that year was a rare event. In fact, the country experienced six devaluations during the period 1970-95 of 20% or more in real terms (in 1976, 1982, 1985, 1986, 1994, and 1995). Note also that for the *three-state information* view to explain why banks step up their lending to related parties as the crisis sets (Table I), it is necessary to further assume that related parties, although unable to repay their pre-crisis loans, enjoyed attractive investment opportunities going forward. To examine the nature of the investment opportunities available to related parties in the post-1994 period, we distinguish between "old" and "new" borrowers depending on whether the first loan to a borrower was made before or after December of 1994, respectively. The pre-1994 loans should, *ceteris paribus*, perform significantly worse than the post-1994 ones as the devaluation that took place in 1994 adversely impacted credit quality. In fact, default rates for loans made before and after December of 1994 are not statistically different (78.9%

versus 74.5%, respectively) and neither are recovery rates (39.8% versus 38.4%, respectively). The next section further suggests that the *three-state* model would need additional refinements to fit the data.

C. Further Results.

A straightforward prediction of the *looting* view is that the returns that the bank earns on related loans should be lowest for loans to parties in which the insider has a large equity stake. Data on ownership is simply not available except for rare exceptions (e.g., companies with ADRs in the US). As a proxy for ownership, we use a dummy that takes a value equal to 1 if the borrower is a publicly-traded firm and 0 otherwise. We test the prediction of the looting view that related-privately-held firms borrow on very attractive terms despite a high frequency of default and low recovery rate. In contrast, a plausible version of the *information view* would hold that banks will charge higher interest rates on loans to closely-held firms than to publicly-traded ones because the former are more opaque.

Table VI shows the results of regressions that explain the borrowing terms and the performance of the loans using the same control variables of the previous regressions but adding the interaction term between related party and publicly-traded firm. Publicly-traded firms pay lower interest rates than non-publicly-traded firms or individuals. However, among related borrowers, banks offer worse terms to publicly-traded firms! Related publicly-traded firms face higher real interest rates and have higher collateral requirements than related individuals and privately-held firms. Nonetheless, loans to related parties are still 29.4% less likely to be bad when made to publicly-traded firms. Similarly, among related parties, the recovery rate on loans to publicly-traded firms is 0.52 higher than on loans to individuals and privately-held firms. In contrast, borrowing terms and ex-post performance line up much better for unrelated parties. Among the unrelated parties, publicly-traded firms pay lower interest rates and post less collateral than individuals and privately-held firms although the two groups have similar recovery rates.

In summary, among related parties, banks offer better terms to individuals and privately-held firms than to publicly-traded ones. However, loans to individuals and privately-held companies are substantially more risky than loans to publicly-traded firms. Thus, consistent with the *looting* view, the closeness of the relationship between the controllers of the bank and the borrower matters for the terms on which related parties borrow. These results place constraints on the structure of a successful *three-state information* model. Specifically, the version of the *information view* that fits these data is one in which non-publicly traded firms with close ties to the bank are the best performers in the intermediate state of the world and unrelated parties are the worst performers. Furthermore, the *information view* would also need to justify on efficiency grounds the sharp increase in related lending that takes place once banks are in financial distress.

VI. Conclusion.

Banking crises are common. There is widespread agreement among economists that the fragility of the banking system is related to moral hazard problems. There is less agreement on the precise nature of the moral hazard problem that makes banks so fragile. One view is that banking crises result from bad management. Another view is that deposit insurance may create incentives for banks to take excessive risk. Yet another view is that financial crises result from soft budget constraints created by reputational problems. Here we draw attention to perhaps another source of moral hazard: looting or tunneling. We show that related lending is a particularly costly form of moral hazard, and a large feature of banking in Mexico. Looting makes banks inherently fragile since related parties default on their loans to the bank when the economy fails and the continuation value of their equity in the bank is low. Related lending is attractive partly because of deposit insurance and because of incentives to expropriate minority shareholders.

Our results shed light on five issues. First, related lending was a large fraction of the banking business in Mexico in 1995. Second, when the economy slipped into a recession, the fraction of related lending almost doubled for the banks that subsequently went bankrupt and increased only slightly for the banks that survived. Third, the borrowing terms offered to related parties were substantially better than those available to unrelated ones, even after controlling for observable financial characteristics. Fourth, related loans had much higher default rates and lower recovery rates than unrelated ones. Fifth, those who benefitted the most from related lending were persons and companies closest to the controllers of banks. In fact, in most cases, a dollar lent to a related person or a related privately-held company turned out to be a dollar lost. All five findings are consistent with the *looting view* and speak to the relevance of related lending as a source of bank fragility.

The results in this paper may have profound implications for the regulatory design of banking institutions. The Basel rules primarily address the incentives of banks to take excessive risks. The results in this paper show the importance of looting as a key determinant of banking stability. The best way to reduce the fragility of financial systems may be to reduce the importance of related lending. This may be achieved by explicit regulation of related lending as well as by enhanced reporting requirements, better investor protection (such as more scrutiny of self-dealing transactions and directors' liability in bankruptcy) and closer supervision.

References

Akerlof, George A. and Paul Romer, "Looting: The Economic Underworld of Bankruptcy for Profit," *Brookings Papers on Economic Activity*, no. 2 (1993), 1-73.

Aoki, Masahiko, Hugh Patrick, and Paul Sheard, "The Japanese Main Banking System: An Introductory

Overview," in Masahiko Aoki and Hugh Patrick, eds.: *The Japanese Main Banking System* (Oxford University Press, Oxford, U.K,, 1994), 3-50.

Backman, Michael, "Asian Eclipse: Exposing the Dark Side of Business in Asia,"(John Wiley & Sons (Asia) Pte Ltd, Singapore, 1999).

Barth, James R., Gerard Caprio, J.r, and Ross Levine, "The Regulation and Supervision of Banks Around the World. A New Database," World Bank Mimeo, 2001.

Bernanke, Benjamin, "Non-monetary Effects of the Financial Crisis in the Propagation of the Great Depression," *American Economic Review* 73:3 (1983), 257-276.

Beim, David O., and Charles W. Calomiris, "*Emerging Financial Markets*," (McGraw-Hill Irvin, New York, 2001).

Burkart, Mike, Denis Gromb, and Fausto Panunzi, Why higher takeover premia protect minority shareholders, *Journal of Political Economy* 106 (1998), 172-204.

Cameron, Rondo, "*Banking in the Early Stages of Industrialization. A Comparative Study*," (Oxford University Press, New York, 1967).

Edwards, Sebastian and Alejandra Cox Edwards, "*Monetarism and Liberalization: The Chilean Experiment*," (The University of Chicago Press, Chicago, 1991).

Faccio, Mara, Larry H.P. Lang, and Leslie Young, "Debt, Agency Costs and Institutions," Mimeo, 2000.

Garcia-Herrero, Alicia, "Banking Crises in Latin America in the 1990s: Lessons from Argentina, Paraguay, and Venezuela," IMF working paper, WP/97/140, 1997.

Gerschenkron, Alexander, *Economic Backwardness in Historical Perspective, A Book of Essays* (Harvard University Press, Cambridge, Mass, 1962).

Gil-Díaz, Francisco and Augustín Carstens, "Pride and Prejudice: The Economics Profession and Mexico's Financial Crisis," in Sebastian Edwards and Moisés Naím, eds, "*Mexico 1994: Anatomy of an Emerging Market Crash*," (Carnegie Endowment for International Peace, 1997).

Hoshi, Takeo, Anil Kashyap, and David Scharfstein, "Corporate Structure, Liquidity, and Investment: Evidence from Japanese Industrial Groups," *Quarterly Journal of Economics*, Vol. 106:1 (1991), 33-60.

Johnson, Simon, Rafael La Porta, López-de-Silanes, and Andrei Shleifer, "Tunneling," *American Economic Review Papers and Proceedings* 90 :2 (2000), 22-27.

Kang, Jun-Koo, and René Stulz, "Is Bank-Centered Corporate Governance Worth it: A Cross-Sectional Analysis of the Performance of Japanese Firms During the Asset Price Deflation," Working Paper 6328, National Bureau of Economic Research, 1997.

Koike, Kenji, The Ayala Group During the Acquino Period: Diversification Along with a Changing

Ownership and Management Structure," The Developing Economies XXXI-4 (1993), 442-464.

Lamoreaux, Naomi R., "*Insider Lending. Banks, Personal Connections, and Economic Development in Industrial New England*," (Cambridge University Press, New York, 1994).

Laeven, Luc, "Insider Lending and Bank Ownership: The Case of Russia," *Journal of Comparative Economics*, 29 (2001), 207-229.

La Porta, Rafael and Florencio López-de-Silanes, "The Benefits of Privatization: Evidence from México", *Quarterly Journal of Economics*, 114:4 (1999), 1193-1242.

La Porta, Rafael, Florencio López-de-Silanes, and Andrei Shleifer, "Government Ownership of Banks," *Journal of Finance*, forthcoming 53:2 (February 2002).

La Porta, Rafael, Florencio López-de-Silanes, Andrei Shleifer and Robert Vishny, "Legal Determinants of External Finance,"*Journal of Finance*, 52:3 (1997),.1131-1150.

La Porta, Rafael, Florencio López-de-Silanes, Andrei Shleifer and Robert Vishny, "Law and Finance,"*Journal of Political Economy*, 6:106 (1998), 1113-1155.

La Porta, Rafael, Florencio López-de-Silanes, Andrei Shleifer and Robert Vishny, "Investor Protection and Corporate Valuation," *Journal of Finance*, forthcoming 53:3 (June 2002).

Lindgren, Carl-Johan, Gillian Garcia, and Mathew Saal, "Bank Soundness and Macroeconomic Policy," International Monetary Fund, 1996.

López-de-Silanes, Florencio, "Determinants of Privatization Prices," *Quarterly Journal of Economics*,112:4 (1997), 966-1028.

López-de-Silanes, Florencio, and Guillermo Zamarripa, "Deregulation and Privatization of Commercial Banking," *Revista de Análisis Económico*, 10:2 (1995), 113-164.

Mackey, Michael W., "Report of Michael W. Mackey on the Comprehensive Evaluation of the Operations and Functions of the Fund for the Protection of Bank Savings 'FOBAPROA' and Quality of Supervision of the FOBAPROA Program 1995-1999," Mimeo, 1999.

Morck, Randall and Masao Nakamura, "Banks and Corporate Control in Japan," *Journal of Finance*, 54:1 (1999), 319-339.

Nagel, Mark Steven, "Supplicants, Robber Barons, and Pocket Banks," Harvard University, Ph.D Thesis in Political Science, 1999.

Patrick, Hugh T., "Japan, 1968-1914," in Rondo Cameron, "*Banking in the Early Stages of Industrialization. A Comparative Study*," (Oxford University Press, New York, 1967).

Rajan, Raghuram, "Insiders and Outsiders: The Choice Between Informed and Arm's Length Debt," *Journal of Finance* 47:4 (1992), 1367-1400.

Stiglitz, Joseph, and Andrew Weiss, "Credit Rationing in Markets with Imperfect Information," *American*

Economic Review, 71:3 (1981), 393-410.

Verbrugge, James A. and Cavit Yantac, "Bank Privatization in Turkey," University of Georgia Mimeo, 1999.

Wenger, E., and C. Kaserer, "The German Model of Corporate Governance: A Model that Should Not be Imitated." In: S.W., Moersch, M. (Eds.), "*Competition and Convergence in Financial Markets*," (Amsterdam, Elsevier, 1998), 41-78.

Table I

The Size of Related Lending

	Event period	Related Loans/private sector loans: December 1993	Related Loans/private sector loans: Twelve months before the Event	Related Loans/private sector loans: At the date of the Event	Related loans / Value paid in privatization (%)	Non-performing loans / private sector loans: Six months after the Event
				Panel A: Bankrupt banks taken over		
Cremi	6-1994	0.28	0.25	0.43	5.47	0.47
Union	6-1994	0.17	0.13	0.37	7.05	0.49
Oriente	12-1995	0.15	0.09	0.22	1.42	0.14
Banpais	3-1995	0.21	0.17	0.30	1.67	0.62
Probursa	6-1995	0.05	0.04	0.21	0.59	0.20
Centro	6-1995	0.14	0.20	0.31	1.33	0.36
Inverlat	6-1995	0.22	0.24	0.37	1.17	0.28
Mexicano	12-1996	0.04	0.06	0.07	0.56	0.06
Banoro	1-1997	0.05	0.10	0.13	0.39	0.11
Confia	5-1997	0.15	0.17	0.24	1.35	0.27
Atlantico	12-1997	0.14	0.21	0.26	0.41	0.52
Bancrecer	12-1997	0.14	0.12	0.21	2.72	0.35
Promex	12-1997	0.15	0.19	0.27	0.54	0.29
Serfin	6-1999	0.11	0.18	0.35	0.72	0.26
Mean		**0.14**	**0.15**	**0.27**	**1.81**	**0.32**
Median		**0.14**	**0.17**	**0.27**	**1.25**	**0.29**
				Panel B: Survivor banks		
Bancomer	6-1997	0.10	0.20	0.17	0.46	0.10
Banamex	6-1997	0.16	0.20	0.18	0.31	0.25
Citibank	6-1997	0.00	0.00	0.00	-	0.00
Bital	6-1997	0.10	0.15	0.20	0.71	0.08
Banorte	6-1997	0.15	0.13	0.10	0.19	0.06
Mean		**0.10**	**0.14**	**0.13**	**0.42**	**0.10**
Median		**0.10**	**0.15**	**0.17**	**0.38**	**0.08**
				Panel C: All banks		
Mean all banks		**0.13**	**0.15**	**0.23**	**1.50**	**0.26**
Median all banks		**0.14**	**0.17**	**0.22**	**0.72**	**0.26**
				Panel D: Tests of difference in means (t-stats) and medians (z-stats)		
Bankrupt vs. survivor means		**-1.18**	**-0.49**	**-2.79[b]**	**1.35**	**2.81[b]**
Bankrupt vs. survivor medians		**-0.98**	**-0.23**	**-2.59[a]**	**2.23[b]**	**2.69[b]**

a=significant at 1%; b=significant at 5%; c=significant at 10%. Source: Sam-300 and Senicreb databases.

The table presents summary statistics on the size of related loans in Mexico for several periods. We group banks into two categories. The first group of thirteen banks ("*bankrupt banks*") includes those that were either taken over by the government or acquired by other banks to avoid a government takeover. The remaining five banks ("*survivor banks*") did not experience changes in control during the sample period. Panel A presents summary statistics for bankrupt banks taken over while Panel B presents summary statistics for survivor banks. The first 3 columns include data on related loans scaled by total private sector loans, one year before the *event period* and at the *event period.* For the banks in Panel B, we use June 1997 as the event date since they were not intervened by the government and survived the period. Panels A and B also include the mean and the median values for bankrupt and survivor banks. Panel C shows the mean and median for all the 19 banks. Finally, Panel D, reports t-statistics and z-statistics (Wilcoxon rank sum) as the test for significance on the difference in mean and median values between bankrupt and survivor banks. The exact definition of related loans can be found in the appendix.

Table II
Terms of the loans for the sample of unrelated and related loans

Variable	*Unrelated loans* N	*Unrelated loans* Mean / Median	*Related loans* N	*Related loans* Mean / Median	Difference	t-statistic / z-statistic
		Panel A: Real interest rates				
Flexible rate & domestic currency	381	0.0956	264	0.0675	0.0281	5.28[a]
		0.0987		0.0736	0.0251	7.67[a]
Flexible rate & US dollars	185	0.1247	173	0.1022	0.0225	6.44[a]
		0.1294		0.0981	0.0313	8.59[a]
Fixed rate & domestic currency	181	0.0438	123	-0.0250	0.0688	4.83[a]
		0.0744		-0.0367	0.1111	5.87[a]
Fixed rate & US dollars	111	0.1200	119	0.0792	0.0408	6.36[a]
		0.1197		0.0732	0.0465	6.69[a]
		Panel B: Interest rate spreads				
Flexible rate & domestic currency	381	0.0654	264	0.0344	0.0310	6.42[a]
		0.0700		0.0400	0.0300	12.36[a]
Flexible rate & US dollars	185	0.0687	173	0.0412	0.0275	10.75[a]
		0.0700		0.0388	0.0312	10.55[a]
Fixed rate & domestic currency	181	0.0461	123	-0.0865	0.1326	10.40[a]
		0.0518		-0.1032	0.1550	9.39[a]
Fixed rate & US dollars	111	0.0691	119	0.0217	0.0474	7.67[a]
		0.0609		0.0145	0.0464	7.77[a]
		Panel C: Collateral				
Collateral dummy	858	0.8380	679	0.5272	0.3108	14.02[a]
		1.0000		1.0000	0.0000	13.21[a]
Collateral value / loan	847	2.8950	671	1.1878	1.7072	10.09[a]
		1.8399		0.5209	1.3190	14.51[a]
		Panel D: Guarantees				
Personal guarantees dummy	858	0.6632	679	0.4772	0.1860	7.47[a]
		1.0000		0.0000	1.0000	7.34[a]
		Panel E: Maturity				
Maturity (months)	858	45.6241	679	48.7284	-3.1043	-1.27
		36.0000		36.0000	0.0000	0.98
		Panel F: Grace period				
Grace period (months)	858	4.8077	679	12.1845	-7.3768	-10.83[a]
		0.0000		6.0000	-6.0000	-11.89[a]

a=significant at 1%; b=significant at 5%; c=significant at 10%.

The table presents raw results for the random sample of unrelated and related loans. The table presents, for each empirical proxy, the number of usable observations, the mean, and the median values for unrelated and related loans. We report t-statistics and z-statistics (Wilcoxon rank sum) as the test for significance for the change in mean and median values, respectively. Definitions for each variable can be found in the appendix.

Table III
Loan terms regressions

Independent variables:	Interest Rates: Real interest rates	Interest Rates: Interest rate spreads	Collateral: Collateral dummy (Probit)	Collateral: Collateral value / loan (Tobit)	Personal guarantees (Probit)	Maturity in months (Tobit)	Grace period in months (Tobit)
Related dummy	-0.0415[a] (0.0036)	-0.0515[a] (0.0037)	-0.2992[a] (0.0250)	-2.9842[a] (0.2477)	-0.2286[a] (0.0277)	6.0365[b] (2.3681)	20.2374[a] (1.6612)
Log of assets	-0.0061[a] (0.0012)	-0.0040[a] (0.0011)	-0.0358[a] (0.0084)	-0.2372[a] (0.0754)	-0.0280[a] (0.0089)	-1.3380[c] (0.7214)	-1.0094[b] (0.5033)
Total debt / total assets	0.0015 (0.0090)	0.0100 (0.0085)	0.0158 (0.0568)	1.7421[a] (0.5262)	0.0413 (0.0620)	-13.5593[a] (5.1138)	-6.4817[c] (3.4959)
Domestic currency dummy	-0.0564[a] (0.0041)	-0.0309[a] (0.0038)	-0.0612[b] (0.0278)	-0.3994 (0.2599)	-0.0638[b] (0.0299)	2.7273 (2.5095)	-0.0459 (1.7268)
Fixed interest rate dummy	-0.0422[a] (0.0048)	-0.0385[a] (0.0052)	-0.2318[a] (0.0299)	-1.3471[a] (0.2795)	0.0416 (0.0317)	-27.9162[a] (2.6349)	-16.4636[a] (1.9197)
Individual dummy	0.0042 (0.0052)	0.0065 (0.0054)	-0.0798[c] (0.0429)	-0.6483[c] (0.3816)	-0.3719[a] (0.0399)	-7.7577[b] (3.7026)	-9.6037[a] (2.5244)
Constant	0.2035[a] (0.0283)	0.1166[a] (0.0304)		5.6623[a] (1.7884)		58.4428[a] (17.6659)	-2.6504 (11.6765)
Bank dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	1470	1470	1418	1451	1470	1470	1470
Adjusted R^2 / Pseudo R^2	0.29	0.25	0.20	0.05	0.13	0.02	0.05
Log - likelihood			-707.40	-3145.93	-870.20	-7608.91	-3121.96

a=significant at 1%; b=significant at 5%; c=significant at 10%.

The table presents OLS and Probit regressions for the cross-section of loans. OLS regressions have robust standard errors. In the case of the continuous regressors, probit derivatives are calculated based on the average of the scale factor. In the case of binomial regressors, probit derivatives are computed as the average of the difference in the cumulative normal distributions evaluated with and without the dummy variable. Standard errors are shown in parenthesis. Definitions for each variable can be found in the appendix.

Table IV
Panel A: Loan performance for the sample of unrelated and related loans

	Unrelated loans		*Related loans*			
	N	Frequency	N	Frequency	Difference	t-stat
			Performance of the loans			
Loans that defaulted	317	0.3695	451	0.6642	-0.2947	-11.99[a]
Other bad loans	15	0.0175	24	0.0353	-0.0178	-2.21[b]
All bad loans	332	0.3869	475	0.6996	-0.3127	-12.81[a]
			Breakup of bad loans by outcome			
Restructured	44	0.1325	59	0.1242	0.0083	0.35
Sold to FOBAPROA	10	0.0301	19	0.0400	-0.0099	-0.74
Sent to court	205	0.6175	256	0.5389	0.0786	2.22[b]
Sent to collection department	35	0.1054	72	0.1516	-0.0462	-1.03
Other loan outcomes	38	0.1145	69	0.1453	-0.0308	-1.27

Panel B: Recovery rates for the sample of unrelated and related bad loans

	Unrelated loans		*Related loans*			
	N	Mean Median	N	Mean Median	Difference	t-statistic z-statistic
			All bad loans			
All bad loans	332	0.4624 0.4475	475	0.2721 0.1500	0.1903 0.2975	7.62[a] 6.49[a]
All bad loans & no collateral	53	0.4206 0.4299	204	0.2580 0.1000	0.1626 0.3299	3.08[a] 2.14[b]
All bad loans & collateral<median	95	0.3705 0.1800	315	0.2694 0.1200	0.1011 0.0600	2.52[b] 1.56
			All loans			
All loans	858	0.7920 1.0000	679	0.4908 0.4000	0.3012 0.6000	15.07[a] 13.94[a]

a=significant at 1%; b=significant at 5%; c=significant at 10%.

The table presents data on the incidence and recovery rates of non-performing loans in the random sample of loans. "Other loan outcomes" include: (1) bad loans that were later fully or partially liquidated without requiring court intervention or internal collection; (2) loans for which the required reserve was applied and the bank assumed a complete loss; and (3) loans for which negotiations between the bank and the borrower are still undergoing at the time of writing. N is the number of loans in each category. The table reports t-statistics and z-statistics for differences in means and medians, respectively. Definitions for each variable can be found in the appendix.

Table V
Loan performance regressions

	Dependent variables:					
	Default		Recovery rates			
Independent variables:	All bad loans (Probits)		All bad loans (Tobits)		All loans (Tobits)	
Related dummy	0.3303[a] (0.0315)	0.3509[a] (0.0287)	-0.2768[a] (0.0461)	-0.2840[a] (0.0429)	-0.6991[a] (0.0664)	-0.7796[a] (0.0635)
Log of sales	-0.0572[a] (0.0096)		0.0170 (0.0132)		0.0919[a] (0.0176)	
Log of assets		-0.0466[a] (0.0100)		0.0263[c] (0.0155)		0.0874[a] (0.0199)
Net income / sales	-0.6273[a] (0.0933)		0.1403 (0.1154)		1.0442[a] (0.1594)	
Total debt / total assets	0.1833[b] (0.0732)	0.2884[a] (0.0678)	-0.0484 (0.0994)	-0.0227 (0.0932)	-0.2301[c] (0.1380)	-0.4537[a] (0.1327)
Domestic currency dummy	0.0788[b] (0.0360)	0.0482 (0.0331)	0.1691[a] (0.0503)	0.1229[a] (0.0462)	0.0048 (0.0685)	-0.0167 (0.0645)
Fixed interest rate dummy	0.0434 (0.0379)	0.0445[b] (0.0345)	-0.0329 (0.0515)	-0.0443 (0.0472)	-0.0883 (0.0703)	-0.1075 (0.0662)
Individual dummy		0.1328[a] (0.0470)		-0.1058[c] (0.0579)		-0.2742[a] (0.0878)
Constant			0.4317[b] (0.2075)	0.3817[c] (0.2331)	0.6188[b] (0.2883)	0.9430[a] (0.3146)
Bank dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year of loan dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	1307	1470	665	791	1307	1470
Log-likelihood	-629.10	-730.70	-523.07	-620.48	-993.69	-1174.78
Adjusted R^2 / Pseudo R^2	0.31	0.28	0.16	0.15	0.23	0.22

a=significant at 1%; b=significant at 5%; c=significant at 10%.

The table presents probit and tobit regressions of the cross-section of loans. In the case of the continuous regressors, probit derivatives are calculated based on the average of the scale factor. In the case of binomial regressors, probit derivatives are computed as the average of the difference in the cumulative normal distributions evaluated with and without the dummy variable. Standard errors are shown in parenthesis. Definitions for each variable can be found in the appendix.

Table VI
Publicly-traded debtor regressions

	Dependent variables:					
	Interest rates		Collateral		Default	Performance
Independent variables:	Real interest rates	Interest rate spreads	Collateral dummy (Probit)	Collateral / loan (Tobit)	All bad loans (Probit)	Recovery rate (Tobit)
Related dummy	-0.0450[a] (0.0039)	-0.0547[a] (0.0040)	-0.3295[a] (0.0268)	-3.1174[a] (0.2653)	0.4064[a] (0.0301)	-0.8442[a] (0.0656)
Publicly traded	-0.0339[a] (0.0098)	-0.0198[b] (0.0089)	-0.3069[a] (0.0671)	-1.6776[a] (0.5277)	-0.0955 (0.0710)	0.2570 (0.1731)
Publicly traded and related	0.0302[a] (0.0118)	0.0248[a] (0.0105)	0.1838[a] (0.0425)	1.4215[b] (0.7051)	-0.2943[a] (0.0808)	0.5209[b] (0.2072)
Individual dummy	0.0031 (0.0052)	0.0004 (0.0054)	-0.0895[b] (0.0436)	-0.7141[c] (0.3818)	0.1131[b] (0.0484)	-0.2177[a] (0.0861)
Log of assets	-0.0048[a] (0.0013)	-0.0034[a] (0.0012)	-0.0237[a] (0.0087)	-0.1738[b] (0.0779)	-0.0361[a] (0.0102)	0.0634[a] (0.0200)
Total debt / total assets	-0.0037 (0.0089)	-0.0087 (0.0084)	-0.0017 (0.0570)	-1.6537[a] (0.5255)	0.2994[a] (0.0683)	-0.4528[b] (0.1295)
Domestic currency dummy	-0.0574[a] (0.0041)	-0.0314[a] (0.0038)	-0.0713[b] (0.0278)	-0.4517[c] (0.2298)	0.0429 (0.0337)	0.0322 (0.0632)
Fixed interest rate dummy	-0.0417[a] (0.0048)	-0.0381[a] (0.0051)	-0.2289[a] (0.0301)	-1.3169[a] (0.2791)	0.0392 (0.0352)	-0.0971[a] (0.0648)
Constant	0.1933[a] (0.0281)	0.1103[a] (0.0301)		5.1223[a] (1.7938)		1.0783[a] (03096)
Bank dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year of loan dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	1470	1470	1418	1451	1470	1470
Adjusted R^2 / Pseudo R^2	0.30	0.25	0.21	0.05	0.30	0.23
Log - likelihood			-697.08	-3140.80	-708.75	-1152.98

a=significant at 1%; b=significant at 5%; c=significant at 10%.

The table presents OLS, probit and tobit regressions of the cross-section of loans. OLS regressions have robust standard errors. In the case of the continuous regressors, probit derivatives are calculated based on the average of the scale factor. In the case of binomial regressors, probit derivatives are computed as the average of the difference in the cumulative normal distributions evaluated with and without the dummy variable. Definitions for each variable can be found in the appendix.

Appendix
Description of the variables

This appendix describes the variables collected for the terms and performance of a random sample of loans made by 17 Mexican banks circa 1995. The first column gives the name of the variable and the second column describes it. Sources: SAM-300 database (largest 300 loans of each bank together with their size and the names of the borrowers behind each of them), SENICREB database (complete list of loans made by each of the privatized banks), and each bank's database as reported at the request of the Mexican Banking Commission.

Variable	Description
Related loans	Article 73 of the Mexican Code of Mercantile Institutions stipulates that a related loan is a loan for which the borrower is either: (1) a shareholder with 1% or more of the voting rights of the bank; (2) a person who has family ties—by marriage or blood up to the second degree—with a shareholder of 1% or more of the voting rights of the bank; (3) a director, officer, or employee of a company or trust fund that holds 1% or more of the voting rights of the bank or a director, officer, or employee of the bank itself with the power to engage into contracts or transactions under the name bank; or (4) a person holding 10% or more of the voting rights of a company that holds 1% or more of the shares in the bank.
Unrelated loan	An arms-length loan given to a borrower who is not a shareholder, director, officer, or employee of the bank nor a relative of any of the previous groups of persons.
Real interest rate	The average real interest rate paid during the duration of the loan. The average real interest rate is computed as: $\frac{1}{T}\sum_{t=1}^{T}\frac{(1+i_t+s)}{(1+\pi_t)}$, where *i* is the reference interest rate assigned to the loan, *s* is the spread above the interest rate and π the inflation rate. For loans in Mexican pesos the inflation rate was calculated using the Producer Price Index (INPP) excluding oil products. For loans in US dollars and other foreign currencies the inflation rate was calculated using the US Producer Price Index (PPI) of finished products.
Interest rate spread	The average interest rate spread of the loan above the benchmark risk-free security rate. The average interest rate spread is computed as: $\frac{1}{T}\sum_{t=1}^{T}(i_t+s-r_t^f)$, where r^f is the risk-free security rate and *s* is the spread agreed in the contract between the bank and the borrower above the loan reference rate *i*. For loans in Mexican pesos the risk-free security is the 28-day Treasury bills (CETES) rate. For loans in US dollars and other foreign currencies, the risk-free security rate is the 1-month LIBOR rate.
Collateral dummy	Dummy that takes a value equal to 1 if the loan is backed up by collateral; the variable is 0 otherwise. Definitions for collateral include physical tangible assets, financial documents (e.g., title documents, securities, etc.), intangibles, and business proceeds pledged by the borrower to ensure repayment on his loan. Collateral does not include personal guarantees such as obligations backed only by the signature of the borrower or the submission of wealth statements from guarantors to the bank—a standard practice in Mexico.
Collateral value / loan	The ratio of collateral value to loan when the loan was first granted.
Personal guarantees dummy	Dummy that takes a value equal to 1 if the loan is secured by a personal guarantee; the variable takes a value equal to 0 otherwise. A personal guarantee is defined as the obligation to repayment by a letter of compromise. Usually, the debtor must submit wealth statements from a guarantor who is willing to backs his loan.
Maturity	The number of months to maturity of the loan starting from the moment in which the loan is given. Maturity varies according to debtor characteristics, loan type, and terms established in the loan contract..
Grace period	The number of months beyond maturity given to a debtor in order for her to repay her due balance with the bank. A grace period is granted to a debtor on an individual basis. A loan may have no grace period at all but, if granted, the grace period may vary according to the loan type and terms established in the loan contract.
Related dummy	Dummy that takes value of 1 if the loan is related; the variable is 0 otherwise.

Variable	Description
Log of assets	The natural logarithm of total assets in millions of US dollars deflated to December 1995. Total assets are equal to the total value of current assets, long term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets. Total assets figures are from 1989-1998 (the first available) and are deflated to December 1995 using Mexico's Producer Price Index and then converted to US dollars using the average 1995 exchange rate.
Total debt/total assets	The ratio of total debt to total assets. Total debt is equal to the sum of all interest bearing obligations of the debtor plus all other liabilities. Total assets is equal to the total value of current assets, long term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets. Total debt and total assets figures are from 1989-1998 (the first pair available) in millions of Mexican pesos that were deflated to December 1995 using Mexico's Producer Price Index and then converted to US dollars using the average 1995 exchange rate.
Domestic currency dummy	Dummy variable that takes a value equal to 1 if the currency is domestic, that is, Mexican pesos or the inflation-adjusted currency units UDIs (*Unidad de Inversión*); the variable takes a value equal to 0 otherwise.
Fixed interest-rate dummy	Dummy variable that takes a value equal to 1 if the loan pays a fixed interest rate; the variable takes a value equal to 0 otherwise. A fixed interest rate loan pays an annual percentage rate on a fixed basis without being updated during the duration of the loan.
Individual dummy	Dummy variable that takes a value equal to 1 if the debtor is an individual—not a firm; the variable takes a value equal to 0 otherwise.
Bank dummies	Seventeen bank-fixed effects dummy variables.
Loan year dummies	Six fixed-year effect dummy variables. We generated a year of origination dummy variable for the years of 1990, 1991, 1992, 1993, 1994, 1995, and 1996. The year of loan dummy takes a value equal to 1if the loan was originated in that year; the variable takes a value equal to 0 otherwise. The year of origination of the loan is the year when the loan was contracted and granted.
Industry dummies	Twelve industry dummy variables. We classified every debtor in one of 12 broad sectors of the economy. The following are the industries captured: (1) agriculture, fishery, and forestry; (2) mining; (3) manufacture of food, beverages, and tobacco; (4) construction; (5) electricity, gas, and water; (6) commerce, hotels, and restaurants; (7) transportation; (8) financial services; (9) community services; (10) civil and mercantile associations; (11) government, defense, public security; and (12) foreign and international organizations.
Loans that defaulted	Loan that has stopped payment on principal and interest and has defaulted on the original terms of the borrower's loan agreement, as of the moment we drew the sample of random loans. In Mexico, the general rule for the classification of a loan as non-performing is after 90 days of missing a payment, or in the case of a one-payment loan, after 30 days of missing the payment.
Other bad loans	Loans that were not non-performing but still were sent to Fobaproa or had a recovery rate of less than 100%.
All bad loans	Sum of other bad loans and non-performing loans. Total bad loans are the loans that: (1) were non-performing; or (2) were sold to Fobaproa; or (3) had recovery rates of less than 100%.
Restructured loans	Loan for which the original terms have been altered due to the deterioration of the debtor's financial condition. A restructure is generally undertaken in order to avoid complete default or uncollectibility from the debtor. In most cases, a restructure involves the extension of the maturity of the loan, a change of the interest rate terms, and/or the rescheduling of interest payments.
Loans sold to FOBAPROA	Non-performing loan sold to the deposit insurance agency Fobaproa (Fondo de Protección al Ahorro Bancario).
Loans sent to court	Non-performing loan for which the bank initiated a judicial proceeding (generally civil lawsuit) against the debtor in a Mexican court of law in order to recover the debtor's due balance with the bank, either by taking over the assets put forward as guarantee or by achieving a court injunction favorable to the bank.

Variable	Description
Loans sent to collection department	Non-performing loan for which the bank filed an internal payment collection procedure. The procedure works on a borrower-by-borrower basis and is intended to make the borrower resume payments on her defaulted loan, either by negotiating a restructure, a forgiveness of her debt, or both. This is procedure functions as a warning for the borrower with due payments and is less stringent than a court procedure. Generally, if administrative collection fails the bank will then file a lawsuit against the debtor in a Mexican court of law.
Other loan outcomes	Other loan outcomes include: (1) bad loans that were later fully or partially liquidated without requiring court or internal collection; (2) loans for which required reserve was applied and the bank assumed a complete loss; and (3) loans for which negotiations between the bank and the borrower are still undergoing.
Log of sales	The natural logarithm of sales in millions of US dollars deflated to December 1995. Sales are equal to the total value of products and services sold, nationally and internationally, minus sales returns and discounts. Sales figures are from 1989-1998 (the first available) and are deflated to December 1995 using Mexico's Producer Price Index and then converted to US dollars using the average 1995 exchange rate.
Net income / sales	The ratio of net income to sales. Net income is equal to operating income minus interest expenses and net taxes paid, as well as the cost of any extraordinary items. Sales are equal to the total value of products and services sold, nationally and internationally, minus sales returns and discounts. Net income and sales figures are from 1989-1998 (the first pair available) in millions of Mexican pesos that were deflated to December 1995 using Mexico's Producer Price Index and then converted to US dollars using the average 1995 exchange rate.
Publicly traded	Dummy variable that takes a value equal to 1 if the borrowing company was listed and publicly traded in the Mexican Stock Exchange during the year of 1995; the variable takes a value equal to 0 otherwise.
Publicly traded and related	Dummy variable that takes a value equal to 1 if the borrowing company was both publicly traded and related; the variable takes a value equal to 0 otherwise.