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## **The Importance of an Effective Legal System for Credit Markets: The Case of Argentina**

by

**Marcela Cristini\***  
**Ramiro Moya\***  
**Andrew Powell\*\***

\*Foundation of Latin American Economic Research (FIEL)

\*\* Central Bank of Argentina

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## **Abstract\***

Argentina is a Federal country and hence, although laws are national and the central bank has national jurisdiction as a regulator of the financial system, the 24 Argentine provinces have independent judicial authority. In this paper we analyze how variations in the effectiveness of the legal system across the different provinces have affected the development of credit markets. We find strong results. Provinces with poor legal enforcement have less credit available to borrowers and banks' non-performing loans are higher. We conclude that the effectiveness of the legal system remains a highly significant variable in conditioning the development of the Argentine credit market and that improvements in the legal system would result in a significant increase in the availability of credit.

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## Introduction

In the 1990s Argentina set in motion a wide-ranging program of structural reform that involved privatization, economic liberalization, and deregulation (including the establishment of a currency board). These reforms resulted in tremendous achievements in terms of macroeconomic stability, economic activity, and new investment and encouraged the development of the credit market. Credit has grown substantially in Argentina, albeit from a very low base, and is once again an important mechanism for allocating capital to the private sector.

Yet Argentina's financial system remains small relative to GDP, largely because of the gap between the many modern, market-oriented sectors of the economy and the country's legal institutions. This disparity hinders further development of the credit market. Other factors that help keep the market small include the slow pace of judicial proceedings, high legal costs (for procedures, lawyers, and expert witnesses), and an ambiguous system of judicial penalties that lends itself to corruption.

The literature on law and economics and, more recently, the literature on law and finance, emphasize the importance of effective contract enforcement to economic performance (Cooter and Ulen, 1988; La Porta *et al.*, 1996). This paper shares much with the literature. One concept that is particularly important for the present purpose is the notion that legal systems have important implications for the development of the credit market and, more generally, for the economy as a whole. The paper discusses this notion in terms of the performance of Argentina's legal system.

Argentina's 24 provinces have their own constitutions, governments, and independent judicial systems with judges, appeals courts, and supreme courts (Table 1). However, the majority of the provincial constitutions and laws are patterned on the legal principles of the national Constitution and laws, thus assuring the country's legal and political integration. The banking operations of each province are also guided by relatively uniform laws, which the local judiciary interprets and enforces. All banks in Argentina are subject to the Central Bank's prudential regulations and thus operate within a common regulatory framework with homogeneous information. But while the laws and legal codes themselves do not differ across provinces, the speed and cost of judicial enforcement do. This scenario makes Argentina a useful case study for analyzing the effect of institutions on the credit market. Because the laws and

banking regulations are essentially national and the legal institutions provincial, it is possible to identify the implications of legal enforcement separately from the effects of the laws themselves.

Table 1

Argentina: Provincial Structure (Selected variables)					
Provinces	Judicial Index Ranking 1997	Per Capita GDP (dollars)	Provincial GDP (as a % of total GDP)	Unsatisfied Basic Needs Index (NBI)	Deposits (as a % of total deposits)
CAPITAL FEDERAL	1	25,211	24.9	7.0	51.9
TIERRA DEL FUEGO	2	13,936	0.5	25.5	0.5
BUENOS AIRES	3	8,184	36.5	14.7	22.3
CHUBUT	4	9,474	1.3	19.4	0.7
CHACO	5	3,498	1.0	33.2	0.8
SANTA FE	6	7,762	7.6	14.0	5.0
CORDOBA	7	7,639	7.4	12.8	6.2
MENDOZA	8	4,699	2.4	15.3	2.5
ENTRE RIOS	9	5,718	2.0	17.2	1.3
FORMOSA	10	2,355	0.4	34.3	0.2
NEUQUEN	11	12,337	2.0	19.1	0.8
RIO NEGRO	12	6,574	1.2	20.7	0.7
SALTA	13	4,364	1.4	33.9	0.9
CORRIENTES	14	4,044	1.2	26.9	0.5
TUCUMAN	15	4,222	1.7	24.6	1.2
MISIONES	16	5,105	1.5	30.0	0.5
JUJUY	17	3,094	0.6	33.6	0.6
LA PAMPA	18	9,068	0.9	12.0	0.8
SAN JUAN	19	5,689	1.0	17.2	0.7
SANTA CRUZ	20	12,750	0.8	15.2	0.3
SAN LUIS	21	15,722	1.7	18.7	0.7
LA RIOJA	22	9,533	0.8	23.6	0.2
SANTIAGO DEL ESTERO	23	2,516	0.6	33.6	0.7
CATAMARCA	24	6,326	0.6	11.7	0.2
TOTAL	-	8,626	100.0	17.3	100.0

Source: FIEL based on INDEC and BCRA

The analysis focuses in particular on two hypotheses:

- That a negative association exists between judicial effectiveness and the size of the loan market in each province (after controlling for other effects), since differences in judicial effectiveness translate into differences in transaction costs across provinces; and
- That levels of arrears are highest in provinces with poor judicial performance, since inefficient judicial systems negatively affect debtors' willingness to repay or discourage banks from making legal claims (or both).

The results are strong. Legal effectiveness appears to be a very significant determinant of both the development of provincial credit markets and the level of nonperforming loans. These results support the recent literature, which advocates the importance of reforming the judicial system in order to enhance credit market performance and thus economic growth.<sup>1</sup>

## **The Argentine Financial System**

The financial system was reformed in the early 1990s. The reforms put in place a new monetary regime that included a currency board and gave the Central Bank greater autonomy. Further reforms overhauled capital and provisioning standards and improved supervision. The result was improved economic growth and increased capital flows.

### ***The Financial System under the Convertibility Plan***

A central feature of the 1991 Argentine reforms was the adoption of a new monetary regime based on a currency board (the Convertibility Law). Under this regime the exchange rate was fixed to the U.S. dollar, and the Central Bank fully backed the monetary base with foreign reserve assets. This simple rule was aimed at eradicating inflationary expectations, gaining credibility, and reversing the strong dollarization of the preceding years. As a second main step, a new Central Bank charter was enacted in September 1992 that established the bank's independence from the executive branch and made preserving the value of the currency its main objective. The Central Bank would also maintain financial stability by regulating and supervising

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<sup>1</sup> See, for instance, Sherwood, Sheperd, and Marcos de Souza (1994) and Weder (1995).

the banking system. The Convertibility Law and the new charter restricted the extent to which the bank could intervene as a lender of last resort to the financial system.

The Argentine economy grew strongly throughout the 1990s, although disruptions in international capital markets had strong effects, provoking recession in 1995 and again in 1999 (Table 2). In spite of international financial crises, the degree of monetization of the economy increased consistently, and capital did not flee.<sup>2</sup> Moreover after 1995 the banking system underwent significant modernization, including consolidation and the entry of many foreign banks.

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<sup>2</sup> The sequence of the crises was the following: December 1994, Tequila effect; October 1997, Asian crisis, August 1998, Russian crisis; January 1999, Brazilian crisis.

Table 2

## Argentina: Main Economic and Financial Indicators

	1990	1991	1992	1993	1994	1995
GDP real growth (%) 1/	-1.9	10.6	9.6	5.7	5.8	-2.1
M2 (as % of GDP) 2/	-	10.8	11.7	17.4	20.7	19.1
Interest rates (*)						
Libor (international)	8.3	6.1	3.9	3.4	5.1	6.0
Country Risk 3/	-	-	12.0	7.4	6.5	11.0
Documents discount (90 day term) 4/	-	42.6	26.8	21	17.8	11.0
Mortgage in dollars (0-5 years)	-	-	-	17.8	16.5	11.0
Argentine Prime Rate in dollars (30 day term)	-	-	-	7.8	8.2	11.0
Foreign Capital Inflow (in US\$ millions)						
Foreign direct investent (in US\$ millions)	-	-	4,013	2,515	3,432	1,100
Total foreign financing plus international reserves change (in US\$ millions)	-	-	12,064	16,633	13,133	1,100
International Reserves in the Central Bank (in US\$ millions) 5/ 6/	-	4,367	11,056	15,084	16,049	11,000
Deposits (total in US\$ millions)5/	-	14,679	25,198	39,708	45,757	41,000
Deposits in pesos / Deposits in dollars 5/	-	1.2	1.2	1.0	1.1	1.1

## Notes:

1/ GDP rate of growth at constant prices of 1993

2/ M2 composition: Current accounts in pesos and dollars, Saving accounts in pesos and dollars, Time deposits in pesos and dollars, bills and coins

3/ Spread of FRB Brady Bond over US Treasury bonds of the same maturity - BBV Banco Francés

4/ From 1991 to 1993, source: Cronista Comercial

5/ End of year

6/ Gold and Foreign Currency held at the Central Bank

(-) n.a.

(\*) Annual average of monthly interest rates

Sources: Ministry of Economy and Public Works and Central Bank

Despite the country's economic achievements and the strengthening of the banking system in 1991-94 (including capital and provisioning requirements that exceeded international standards), the December 1994 devaluation of the Mexican peso had serious repercussions for Argentina. The sharp fall of Argentine asset prices created doubts about the solvency of certain, mostly small institutions, some of which experienced runs and had no deposit insurance. In 1995 the country's worsening fiscal position and increasing uncertainty about the outcome of the May 14 presidential election caused a more systemic run on the system. The run was halted only by a new agreement with the International Monetary Fund (IMF), together with additional multilateral funds, in mid-March. Deposits recovered strongly after the election. Loans also grew but lagged behind deposits owing to the caution of both banks and potential debtors. Still, by the end of the year the financial system had resumed its rapid growth rate and embarked on an even more rapid period of modernization.

The 1994 Tequila crisis had several significant effects on the Argentine banking sector. First, the crisis led to a considerable refinement of banking regulations. Second, it accelerated the consolidation process that was already under way. Third, the successful resolution of the crisis accelerated foreign investment. Although the banking sector had been liberalized in the early 1990s, the post-Tequila period saw the largest increase in foreign capital inflows.

Through these distinct processes (consolidation and foreign investment), the concentration of lending in the banking sector continued to increase after the Tequila crisis. In 1997 just 20 banks accounted for 80 percent of loans extended through advances and document discounts and 100 percent of mortgages. The concentration of deposits also increased to nearly the same levels. Moreover, some 40 percent of deposits were held in banks with a foreign controlling interest—a figure that rises to 69 percent if only the private banking sector is considered. These structural changes also affected bank performance. Administrative costs fell, albeit from a very high level by international standards, and efficiency ratios improved significantly. Yet profits remained relatively low as high spreads fell in line with high costs. These high spreads and costs reflected both the small scale of the banking sector and legal and other administrative fees. In addition, as a result of economic stability and improved credit risk management (and despite tighter reporting rules), ratios of nonperforming loans declined. Since these ratios remain high compared with international levels, provisioning costs are also a significant factor in explaining the relatively high spreads.

*Prudential Regulations in Argentina.* Prudential regulations in Argentina have been substantially overhauled since the inception of the 1991 and 1992 Central Bank charter. In 1992-94 Argentina adopted capital and provisioning standards that were well above international norms and began improving supervision. Basic minimum capital requirements, for example, had reached 11.5 percent of assets at risk by the end of 1994. At the time Argentina also had a very high level of reserve requirements on sight deposits, which were considered liquidity reserves.

These improvements notwithstanding, the Tequila crisis brought out several weaknesses in the banking system, and after the crisis the government introduced several additional reforms. Capital requirements were tightened, and a set of explicit liquidity requirements replaced traditional reserve requirements. The new liquidity requirements applied to virtually all liabilities with rates that depend on residual maturities rather than on the type of liability. These new requirements were remunerated, thereby lifting a substantial tax from the system. Under the new system liquidity requirements amounted to an average of 20 percent of the deposit base. The reforms have won praise from independent assessors; Moody's (1998) cites the strength of the financial system as the main factor underlying the upgrade of Argentina's bond rating.

*Capital and Provisioning Requirements.* The minimum capital ratio was increased to 11.5 percent of risk-weighted assets. But counterparty capital requirements also depend on the interest rate on each loan and the Superintendency of Banking's CAMELS risk rating.<sup>3</sup> On top of minimum capital requirements, the Central Bank imposed market risk and interest rate capital requirements for total minimum requirements that average over 14 percent for the financial system. But banks' actual capital amounts to about 20 percent of assets at risk (measured according to a Basle methodology). Provisioning requirements depend on the category of the loan. The Central Bank uses five categories ranked from 1 for "normal" to 5 for "nonrecoverable." and applies a compulsory provision of from 1 percent (on all new loans in category 1) to 100 percent (for loans in category 5). Loans are additionally categorized according to their status as commercial or retail. For commercial loans the category is similar to a forward-looking rating, while for retail loans only arrears are taken into account. Commercial loans of less than \$200,000 may be treated as retail in this respect.

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<sup>3</sup> The CAMELS system rates five crucial aspects of banking on a scale of 1-5, with 1 as the top rating. The ratings are based on capital adequacy, asset quality, management capacity, earnings stability, and liquidity sufficiency.

*Disclosure Rules on Borrowers.* The Central Bank collects and disseminates information on virtually all retail and corporate borrowers through a database of some 6 million entries that is available at the Central Bank's website.<sup>4</sup> The website gives the general public as well as banks access to the credit status of private citizens and firms. Data on larger corporate loans (debts of over \$200,000) and on nonperforming loans of more than \$50 (loans to individuals and small firms) are available on a modestly priced compact disk that contains the entire database.<sup>5</sup>

## **The Credit Market**

As discussed above, the structure of the Argentine credit market changed markedly in the 1990s. In the early 1980s the financial system comprised 402 financial institutions and 5,043 branches distributed throughout the country. By the end of 1994 it included just over 200 institutions. In early 1996, in the aftermath of the Tequila crisis, some 50 of those institutions were closed, most of them small and midsize private institutions (private domestic banks, cooperatives, and credit unions). BCRA (1997) distinguishes three stages in this restructuring process. The first stage consisted of small bank mergers at the regional level. The second involved a smaller number of mergers between midsize and large entities. In the third stage foreign banks began to enter the Argentine market by purchasing leading domestic banks.<sup>6</sup> In late 1998 the number of banks fell to 127 (Table 3).

Despite the relatively low profitability of Argentina's banks, the financial system attracted a significant amount of foreign capital. These foreign entrants undoubtedly placed a high value on the banking system's growth potential, since levels of bank penetration were low compared with those of other countries with similar per capita incomes. The existence of this potential market sparked a significant expansion of branches throughout the country. In 1997

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4 The Central Bank's website is <http://www.bkra.gov.ar>

5 A number of private companies (Veraz, Fidelitas, and Serinco, for instance) also provide credit information on potential clients. They take the Central Bank's basic data and construct full client histories that include complementary data from judicial and other sources. These companies may also provide basic scoring services.

6 Among these foreign banks the most important are: Banco Bilbao Vizcaya (Spain), Banco Santander (Spain), Scotia International Ltd. (Canada), O'Higgins-Central Hispanoamericano S.A. (Chile), Abinsa S.A. (Chile); HSBC Latin America BV (Holland). BCRA (October, 1997) points out the advantage of foreign banks operating as liquidity providers to the domestic market under systemic crises. This role is possible due to the existence of central banks in the source country operating as "extended" lenders of last resort. A similar opinion can be found in Gavin and Hausman (1997). According to Cañonero (1997), while the concentration process may have improved the efficiency of domestic financial intermediation, it may also have contributed to the contraction in bank lending observed during 1995, due to the presence of information asymmetries. He identifies a loss of information due to the

some 269 branches were opened in a single year (a total of 4,060 were functioning in December 1996). In the same year the financial system's deposits grew by approximately 30 percent.

In 1997 the service sector continued to receive the greatest proportion of credit (some 40 percent of total loans), although loans to households (23.9 percent) and the manufacturing industry (18.1 percent) were also significant. In 1993 the housing mortgage market had begun to grow after a long period of economic instability that depressed home buying. Mortgages constituted one of the fastest-growing markets in the years after the Tequila shock, although this market started from a very low base. Loans to the manufacturing sector were granted mainly to large companies. A breakdown of loans by amount indicates that 50 percent were for amounts of more than \$1,000,000. Within the consolidated banking system, 50 borrowers accounted for almost 10 percent of credit.

<b>Table 3.</b>		
<b>Argentina: Financial System Structure, December 1998</b>		
	Number of institutions	Share in deposits
All financial institutions	127	100.0
All banking institutions	104	99.5
Public banks	17	35.0
Nationwide	3	15.2
Provinces/local governments	14	19.8
Private banks	87	64.5
Commercial banks	66	46.6
Cooperatives	4	2.0
Foreign branch banks	17	15.9
All nonbonding institutions	23	0.5
Financial companies	15	0.4
Credit unions	8	0.1
<i>Source:</i> Central Bank data.		

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contracting of small (well-informed) institutions and the expansion of large institutions during the concentration process.

### *Types of Contracts and Collateral*

Although the available information on loan contracts and other bank services in Argentina is fairly good, information on the use of credit and the precise nature of credit relations is at times sketchy. A 1995 survey of the manufacturing industry gives an overall picture of firms' use of credit in the 1990s. The survey classifies companies' size both by number of employees and total sales (FIEL, 1996a). According to survey data, an average of 25 percent of all firms did not use bank loans.<sup>7</sup> (The actual proportions ranged from 36 percent for small firms to zero for large firms.) On average each firm was associated with 3 banks (1 bank for most small firms but 14 for large businesses). This feature is consistent with the prevalent pattern among small businesses and is confirmed by Central Bank figures showing that some 15 percent of commercial borrowers operated exclusively with one bank.

In conjunction with the changes in the banking structure in the 1990s, banks altered their business strategies. Several banks focused on lending to top companies, a very competitive segment, while other banks moved down the corporate chain seeking higher margins by establishing strong customer relationships with medium-size companies. Powell, Broda and Burdisso (1997) develop a simple theoretical model of customer relations in which companies may face a search cost when moving to another bank, giving banks a degree of local monopoly power. The authors argue that this scenario may account for relatively high interest rates (especially on overdrafts) and heterogeneous interest rates (which reflect search costs), even though competitive entry drives profits to low levels.

Banks also developed special departments for different types of collateral, or pledges (such as automobiles, manufacturing machinery, and agricultural machinery) and for housing mortgages. Several institutions began developing warrants for agricultural producers and made leasing a distinct product line.

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<sup>7</sup> This figure is impressive considering that the information was collected among formal enterprises before the Tequila crisis. In many cases the interest rate was considered too high relative to what the business would earn, or the entrepreneur did not ask for a loan for fear of being rejected. Bankers indicated that many formal firms presented deficient balance sheets or unsuitable projects. Bankers' fears were in part based on poor repayments rates among small and medium-size firms.

### *Interest Rates*

Despite a marked decline after the Tequila crisis, the average lending rate in Argentina remained high by international standards throughout the late 1990s, reflecting rates on personal loans and overdraft facilities (Table 4). Vicens (1997) concludes that excessive administrative costs (including legal expenses) and heavy charges for default risk explained the high average rates. He finds that administrative costs fell in 1996 due to bank restructuring. According to Buera and Nicolini (1997), the risk implicit in these lending contracts could explain the high spreads, though only approximately. Rates on loans secured by collateral, mortgages, and loans advanced on documents (bill discounted) were all substantially below the average. Mortgage lending and loans backed by collateral were associated with lower rates owing to the presence of guarantees and in spite of the shortcomings of the Argentine judicial system.

<b>Table 4.</b> <b>Argentina: Interest Rates and Lending by Type of Contract, 1997 (percent)</b>			
Type	Proportion of total lending	Interest rates <sup>a</sup>	
		Pesos	Dollars
Overdraft	17.0	26.0	13.5
Bill discount	29.7	10.7	10.5
Mortgages	17.7	14.6	13.1
Pledges	5.7	16.4	14.1
Personal loans	10.5	35.4	20.1
Others	19.4	—	—
Total/average	100.0	18.4	13.2

— not available.  
a. Annual average of monthly interest rates. The spread between lending rates in pesos and dollars reflects the devaluation risk on loans and collateral.  
*Source:* Central Bank data.

### *Nonperforming Loans and Legal Loan Recovery*

In December 1994 nonperforming loans net of provision accounted for 25.9 percent of banks' net worth. This proportion grew to 38 percent after the Tequila crisis but diminished to 23.6 percent by mid-1997. Public banks continued to have significantly higher proportions of nonperforming loans than private banks, reflecting the allocation decisions of public institutions, which do not necessarily aim to maximize profits. But the number of nonperforming loans held by private banks is also high by international standards.

The Central Bank categorizes all borrowers in one of six risk categories (Table 5). Toward the end of 1997, some 11 percent of commercial debtors and 21 percent of household borrowers were faced with repayment difficulties or more serious credit risks (categories 2-6). For loans secured by some guarantee or collateral (around 38 percent of all loans), only 2 percent presented repayment problems, suggesting that the existence of guarantees clearly and positively affects loan performance. The value of the guarantees covered 39 percent of all secured loans and 12 percent of total loans.

Loan classification	Type of borrower		Loans with collateral
	Commercial	Household	
1- Normal	89.5	79.2	97.8
2- With arrears	2.5	6.2	0.4
3- Potential default	2.1	3.4	1.0
4- High risk of default	3.0	5.2	0.7
5- Unrecoverable	2.6	5.7	0.1
6- Technically unrecoverable <sup>a</sup>	0.3	0.1	-
Total	100.0	100.0	100.0

a. Borrowers holding loans with bankrupt banks.  
*Source:* Central Bank data.

The existence of guarantees also has a strong impact on banks' loan recovery strategies. Because no published evidence is available on this issue for Argentina, a survey was carried out specifically for this analysis (Table 6). The survey showed that the vast majority of court cases (almost 80 percent) involved unsecured loans. Banks confirmed that when a loan reached category 3 (Table 6), they frequently threatened and then took legal action. However the percentage of such legal actions that ended up as actual lawsuits was relatively low and was even lower for loans with collateral, because these borrowers were clearly more willing to repay than unsecured borrowers. Among the lawsuits involving secured loans, pledges were the most significant (11 percent of total lawsuits). Most of these loans financed car purchases, and recovery rates for these loans were probably the highest for any type of secured lending.

Type of loan	Average
Unsecured loans	78.2
Personal loans	21.4
Current accounts	24.4
Credit cards	26.4
Others	6.0
Pledges	11.0
Mortgage for housing	6.9
Other mortgage loans	3.9
Total debt claims in court	100.0

*Note:* Banks provided the number of cases, broken down by type. Total loans by bank and type were used as weights for aggregation.  
*Source:* Foundation for Latin American Economic Research.

The distribution of loans in litigation differed across banks and in areas with different credit structures. Banks reported considerable differences in loan-recovery strategies. Some were willing to use legal action as a sign of toughness, while others were more reluctant to bring legal action without first exhausting all other possibilities for negotiation and refinancing. Because of the problems banks reportedly faced in taking legal action, many opted for strategies other than litigation.<sup>8</sup>

### ***Characteristics of Provincial Credit Markets***

Argentina is a large and extremely diverse country. In terms of total land area, it is larger than Western Europe, with many climatic variations and divergent income levels. The GDP of Argentine provinces differs markedly as well, as does the composition of provincial GDP in terms of sectors and the size of productive enterprises. Not surprisingly, credit markets also differ substantially.

Between 1992 and 1997 deposits as a percentage of GDP grew in all provinces, with some provinces experiencing increases of over 20 percent of GDP. Loans rose sharply in 15 jurisdictions and fell in nine, in some cases substantially. The nonperforming loan portfolio also

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<sup>8</sup> Catão (1997) notes that legal limitations on seizing collateral and the costs and lengthiness of judicial procedures have hindered efforts to bring debtors into compliance. The result is higher potential costs to borrowers and incentives to reduce lending. Even if there is excess demand for loans, then, high interest rates will not clear the market, resulting in some type of credit rationing.

declined nationwide, although a group of 17 provinces recorded an increase in the ratio of nonperforming loans. Commercial loans predominated in the overall portfolio, accounting for the largest proportion of the decrease in nonperforming debt. An analysis of loans to households showed a worsening in nonperformance in all provinces.<sup>9</sup>

In mid-1998, however, some aspects of regional credit markets remained much as they had been in the past. Bank branches, deposits, and loans were heavily concentrated geographically in the capital city of Buenos Aires and the surrounding area, largely because of income and demographics. The city of Buenos Aires alone accounts for 25 percent of GDP and 8.5 percent of total population, and it is the headquarters of most large companies doing business in Argentina.

As has been noted, the economic reforms taking place at the time prompted important changes in the banking structure of half the provinces as a result of the privatization of public banks. Between 1993 and 1996 some 15 banks were privatized, including 1 national bank, 13 provincial banks, and a municipal bank. These banks had worked as provincial government financial agencies, administering public funds as well as granting loans to the private sector. In general this allocation of lending was highly inefficient, and many of the projects the banks had financed were risky or simply economically unfeasible. In essence, this lending mechanism had allowed local governments to subsidize certain economic activities.

The number of head offices and branches of banks per inhabitant varied widely across provinces. Some provinces had as few as 0.4 branches per 10,000 inhabitants, while the province with the largest number had almost 10 times as many (3.7 per 10,000 inhabitants). In some provinces the leading lenders were regional institutions.<sup>10</sup> The importance of these regional lenders is reflected in the fact that in 1997 their participation in total financing in 10 provinces exceeded 40 percent, and in 5 provinces it was over 50 percent.

What is the significance of the strong presence of these regional private banks? First, these banks operate primarily within one province, in some cases extending into others but remaining strongest in their home province. Second, the monetary authority did not issue explicit

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<sup>9</sup> This increase probably reflects tighter regulatory standards rather than an actual deterioration in loan quality.

<sup>10</sup> Whether a bank is a regional entity depends largely on two interrelated criteria. The first is that the entity's loan portfolio is concentrated in a given province (50 percent or more). The second is that it should not have branches in more than four jurisdictions.

regulations governing the establishment of these banks or protecting them. Some of these banks originally belonged to provincial governments but were privatized between 1992 and 1996.

Third, regional banks (both public and private) have a number of unique features. They grant more of their loans in local currency than other banks, particularly personal loans. They further depend heavily on current account deposits and borrow less from abroad. They concentrate on consumer lending and thus ask for fewer guarantees; their nonperforming portfolios are consequently larger. Public regional banks have nonperforming portfolios on the order of 35 percent of total loans, while private regional banks record rates higher than those of their nonregional peers. Regional banks are also less efficient than other financial institutions, with higher-than-average administrative expenses in relation to their assets. Such institutions are also smaller on average than their peers (measured in assets per branch), and cater to those seeking smaller loans, but they pay higher returns on deposits. As part of the banking structure, these banks are significant for at least two reasons: they tend to develop closer relationships with their clients than other banks, and to a certain extent their presence suggests a segmentation of the provincial financial market.

In addition, the size of the credit market (loans as a percentage of GDP) differs significantly across provinces. Loans granted in the city of Buenos Aires in 1997 represented 60 percent of provincial GDP, the highest percentage for the country, while in the province with the smallest ratio of loans to GDP that figure was only 4.4 percent. The proportion of lending to households also differed widely among jurisdictions, ranging from a minimum of 17.3 percent to a maximum of 55 percent. The variations are slightly smaller for bank deposits, ranging from 6.5 to 46 percent of GDP.

The proportion of nonperforming loans was also significantly higher in some jurisdictions than in others. Nationwide nonperforming loans accounted for 13.8 percent of total loans in 1997, but in 15 of the 24 provinces loans in arrears exceeded 20 percent of total lending, rising to a maximum of more than 35 percent. Significantly the nonperforming portfolio showed far greater variation for commercial loans than for loans to households. Five provinces had a nonperforming portfolio of commercial loans in excess of 40 percent, while the nonperforming loan ratio for household credit was between 31.5 and 12.4 percent of total loans.

Clearly, Argentina's provincial credit markets display a marked heterogeneity. Some provinces have relatively high levels of deposits as a percentage of GDP and relatively high

credit penetration, while others have very low levels of both deposits and credit. From 1992 to 1997 credit increased in some jurisdictions, but in others credit intermediation actually declined, even though deposits rose in all provinces.

## **Creditors' Rights: Legal Protection and Judicial Enforcement**

Legal regulations defining the credit contract and the rights and obligations of debtors and creditors influence credit market operations (volumes and costs). In Argentina this contractual relationship has a solid grounding in law. Many of these contracts, such as sureties, pledge loans, mortgages, warrants, and letters of credit have been covered by legislation since the end of the nineteenth century. In some cases the laws have been modified to reflect new market developments. Other laws, such as those regulating trusts and leasing, have emerged in the context of recent economic reforms.

Argentine legislation specifically protects the rights of creditors. Such rights, however, are not absolute. The Civil Code and corresponding legislation restrict the proportion of debtors' assets that can be seized or sold, including wages (established by the Employment Contract Law) and items that are considered family property. In addition the legislation specifies the legal actions creditors can take to preserve their rights in the event of default and special procedures for executing instruments in support of their rights.

FIEL (1996a) developed a comparative analysis of regulations on mortgage lending and consumer loan recovery in the United States and Argentina. Comparing the body of legislation restricting loan agreements and creditor remedies in the case of debtor default in the two countries, it concludes that restrictions on remedies for default are less severe in Argentina.<sup>11</sup> This result is encouraging, implying reduced costs for borrowers (lower explicit interest rates and lower potential for quantitative restrictions on loans) and creditors.<sup>12</sup> Thus the financial sector's collection problems must have other causes. Possible explanations include high credit risk

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<sup>11</sup> In only one instance (the maximum percentage of workers' salaries that can be garnished) are the restrictions to the remedies more severe in Argentina. The rate is 5 percentage points lower in Argentina (20 instead of 25 percent). This difference is significant, as this remedy is one of the most effective for the recovery of unpaid debt.

<sup>12</sup> Coinciding with these results, La Porta *et al.* (1996) examine legal rules covering protection for corporate shareholders and creditors in 49 countries. According to these researchers Argentina's shareholder and creditor rights are similar to those in the United States. Even though Argentina's legal system is based on the civil law tradition, which typically provides less protection for investors, regulations governing public companies and bankruptcy were substantially reformed in 1971 and 1995, respectively. The new legislation introduced modern features that were in line with international experience.

stemming from macroeconomic volatility, incentives for banks to take on excessive risk, and lack of judicial enforcement.

### ***Judicial Enforcement of Loan Contracts at the Provincial Level***

In Argentina national codes and laws define and regulate bank loan contracts. As discussed above, the country's federal structure places responsibility for enforcing these regulations in the hands of independent judiciaries. Local courts take a variety of approaches to enforcement, leading to regional differences in access to credit. Costs may also vary if the parties anticipate difficulties in resolving the conflicts arising out of the loan contracts. Such difficulties may take the form of excessive costs for legal procedures, slow or partial debt recovery, a general increase in uncertainty regarding the results of the lawsuit, or any combination of the above.

Several types of regulations establish legal costs for each province. These are:

- Basic national law, which contains procedural regulations. The law is applicable in all jurisdictions and covers matters such as the general principles of creditor protection, bankruptcy, and pledges (seizure or enforcement). The laws may be applied differently across provinces, however, because of the criteria judges use to interpret the regulations.
- Codes of procedure issued by the various provinces. Provincial codes of procedure do not differ substantially from those for federal courts.
- Laws on professional fees, which regulate the costs of lawyers, procurators, notaries, courts, witnesses, auctioneers, and others. These laws differ across jurisdictions. Judges award fees as a percentage of the total lawsuit, taking into account not only the amount of the suit but such factors as the outcome, work involved, and social impact. In calculating fees some jurisdictions emphasize the amount claimed and others the amount awarded. As a result several provinces have high maximum limits relative to the fees set in the capital and other provinces (Table 7). Mandatory contributions to lawyers' professional associations represent an additional cost for plaintiffs. Certain court procedures (such as lifting injunctions or recovering deposits) cannot be undertaken unless these contributions have been paid.

- Court tax regulations, which are also local, with wide disparity among provinces.

<b>Relatively less expensive</b>	Federal Capital, Chubut, Neuquén, La Rioja, Tierra del Fuego, Santa Cruz, Tucumán, Chaco, Catamarca, Jujuy, Corrientes
<b>Intermediate</b>	Formosa, Buenos Aries, San Luis, Río Negro, Santiago del Estero, Entre Ríos, Salta, La Pampa, Misiones, San Juan,
<b>High</b>	Córdoba, Mendoza, Santa Fé

Court costs vary not only across jurisdictions but also in terms of the how they are calculated—that is, whether they are based on the amount of the claim, the nominal principal, or the restated principal. Some jurisdictions (7 out of 24) impose no costs for seizing pledges, and in 3 provinces the maximum in such cases is \$90 for court and filing costs together. Contributions to the lawyers’ associations vary according to jurisdiction from nothing to a fixed amount that ranges between \$4 and \$17.50. Other jurisdictions impose a surcharge on the court tax that in some cases is significant (up to 2 percent of the principal). Property registry costs are also significant in some jurisdictions, and delays in processing registrations can run to several months. Publishing an edict in the Official Gazette or newspaper of a jurisdiction can cost between \$120 and \$600. Finally, professional fees also differ considerably. In some provinces awards can total up to 30 percent of the amount claimed, while in others fees are capped at 16 percent.

As an example, Table 8 considers two types of transactions: mortgage loans and pledge seizures. The court costs are calculated from the three categories in Table 7.<sup>13</sup>

	<b>Mortgage (\$200,000)<sup>a</sup></b>	<b>Pledge seizure (\$20,000)<sup>b</sup></b>
<b>Jurisdiction</b>	<b>Costs</b>	<b>Costs</b>
<b>Capital Buenos Aries (province)</b>	4.11	4.10
<b>Córdoba</b>	5.27	7.80
<b>Mendoza</b>	5.93	8.83
	5.91	4.11

*Note:* Does not include cost of transfers, professional fees, judicial delays or interest rate caps administered by courts.  
a. The lower amount for bank disclosure set by the Central Bank in the case of company debt.  
b. The average value banks assign to pledges of vehicles and machinery.  
*Source:* Foundation for Latin American Economic Research (FIEL).

If auction costs are added to the above costs, total expenses as a percentage of the amount of the claim range between 8 and 13 percent for mortgages and 16 and 21 percent for pledge seizures.<sup>14</sup>

### ***Obstacles to Effective Judicial Recovery***

A survey of leading local banks (FIEL 1997) summarizes the obstacles financial entities face in their role as creditor plaintiffs.<sup>15</sup> The major points are highlighted here.

*Delays in Recovery.* In most cases lawsuits are excessively drawn out, so that banks often accept settlement proposals involving high discounts rather than pursuing a lengthy legal

13 A more detailed discussion can be found in FIEL (1997).

14 The law states that the purchaser of the asset bears this cost. However, from an economic point of view these costs can be defined as transaction costs for the banks. In an extreme case in which the bank decides to purchase the property or the item being sold off to protect its price, the total cost of intermediation falls fully on the bank.

15 This survey included a questionnaire and an interview with each entity and was performed in the third quarter of 1997. The information has been updated for this study. Banks were selected for interview on the basis of the size of their loan portfolios, the variety of instruments they used, and the distribution of their business over different jurisdictions. The data represent almost 40 percent of the commercial loan portfolio of the financial system, 30 percent of the consumer and housing loan portfolio, and more than 20 percent of all bank branches nationwide. It should be noted, though, that in the case of Banco de la Nación, the possibility this bank has of bringing action in the Federal Courts (which it does in 73 percent of cases) means that the relevance of its experience is limited for the purposes of this discussion. The banks surveyed show better-than-average performance for nonperforming loans in categories three to five (6.6 percent of the total amount financed as opposed to 11.1 percent for the system as a

procedure and running certain risks—for instance, that the debtor will disappear. In addition guarantees become obsolete in many cases, such as loans involving automotive pledges. In several jurisdictions courts admit actions by debtors that delay trials, in spite of the existence of strict procedural rules. Delays in the Property Registry also have a direct impact on the security and collection of loans. Finally vacancies in some courts because of leaves, lack of appointments, and resignations further impede speedy resolution.

*Risks Arising from Unfavorable Rulings.* These risks include being required to pay the opposite parties' fees for attorneys and expert witnesses. Proceedings may also be declared null and void, or the judge may award total or partial payment exemptions.

*Legal Caps on Interest Rates.* In certain jurisdictions magistrates set a cap on interest rates (a percentage not exceeding compensatory and punitive interest together) that affects the agreement between the parties.

*Lack of Legislation or Jurisprudence to Ensure that Adequate Procedural Structures Exist for New Systems for Trading in Credit.* Credit cards are a good example. In some jurisdictions legal proceedings to recover credit card debt involve a lengthy and uncertain process.

*Technical Difficulties in Treating Matters of Commercial Banking Law.* Banks often indicate that judges are overcautious owing to the complexity of the financial problems involved. In some provinces, for example, admission of the procedure for automatically seizing pledges is relatively new. Other new regulations on matters such as the reform of the mortgage foreclosure regime or the changes to the regime for creditor protection and bankruptcy have encountered resistance in provincial courts (particularly mortgage foreclosure reforms).

*Political Risk.* In addition to the technical difficulties, banks mentioned problems deriving from the political influence that is exerted on courts in certain jurisdictions. Table 9 shows the frequency of replies that describe excessive costs and judicial obstacles in each province. The percentages reflect the share of each item in total replies for the 24 jurisdictions. Thus “fees and contributions to professional colleges” (excessive costs), which is mentioned 8.7 percent of the time, heads the ranking. It is followed in importance by “suspension of auction because the debtor files for creditor protection or bankruptcy” and “court costs.”

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whole). The banks also record a lower percentage of guaranteed loans compared with the system total, partly because of the lower volume of housing loans in the cases analyzed.

<b>Table 9. Excessive Legal Costs and Obstacles to Judicial Effectiveness, by Province</b>		<b>Total (%)</b>	<b>Ranking</b>
<b>1- Court tax</b>	<b>1.1 – Ordinary</b>	7.5	3
	<b>1.2 – Enforcement</b>	7.5	4
	<b>1.3 – Pledge seizures and applications for bankruptcy</b>	7.2	5
<b>2 – Other procedural costs</b>		6.0	6
<b>3 – Fees and contributions to professional colleges and councils</b>		8.7	1
<b>4 – Professional fees</b>	<b>4.1 – Lawyers</b>	3.9	11
	<b>4.2- Procurators</b>	3.6%	12
	<b>4.3- Auctioneers</b>	3.3	13
	<b>4.4 – Expert witnesses</b>	3.3	13
	<b>4.5 – Notaries Public</b>	3.6	12
<b>5 – Registry expenses</b>	<b>5.1 Property</b>	4.5	10
	<b>5.2 – Pledges on vehicles</b>	2.4	15
	<b>5.3- Pledges on other movable property</b>	2.1	16
<b>6- Edicts</b>		5.7	8
<b>7- Notary public fees for deed registration</b>		1.2	17
<b>8 – Jurisdiction favoring trial proceedings for enforcement</b>		6.9	7
<b>9 – Impossibility of enforcement on basis of third-party guarantees</b>		3.0	14
<b>10- Delays from court vacancy</b>		4.5	10
<b>11- Suspension of auction because debtor files for creditor protection or bankruptcy</b>		8.4	2
<b>12- Possibility of enforcing loans under Law 24,441</b>		5.4	9
<b>13- Others</b>		1.2	17
<b>Total replies</b>		<b>100</b>	

*Source:* Foundation for Economic Research in Latin America.

Table 10 compares the provinces declared by the banks to have the worst performance with those considered to have the best performance. The criteria include the length of procedures and the number of claims recovered in full (net of court costs and fees).

**Table 10. Judicial Performance by Province (average, in months)**

PROVINCE	Worst Performance			Best Performance		
	Start to ruling	Start to auction	Recovery (%) <sup>a</sup>	Start to ruling	Start to auction	Recovery (%) <sup>a</sup>
<b>Enforcement action for items such as checks, and discount bills</b>	10.8	21.8	20	4.0	11.8	42
<b>Pledge seizures</b>	2.3	8.6	55	15	4.7	67
<b>Foreclosures</b>	9.5	18.4	67	4.0	9.8	75
<b>Enforcement of other loans</b>	12.5	24.0	56%	3.5	11.5	63
<b>Other actions</b>	36.0	48.0	10%	18.0	24.0	40

a. Claims recovered in full, net of court costs and fees.

Source: Foundation for Economic Research in Latin America.

Enforcement actions and commercial mortgages in the slowest jurisdictions take three times as long as they do in the fastest—almost one year. Other forms of legal action can take almost twice as long in some jurisdictions they do in others. Measuring the length of proceedings from start to action generally doubles the time involved in both high- and low-performing provinces. In the slowest jurisdictions, then, proceedings take on average more than two years, compared with less than one year in high-performing provinces. Net recovery levels are lower in provinces that record the worst performance, as costs are higher and there are more obstacles to full recognition of creditors' rights. But these differences are not as great as they are for the length of time involved, except in the case of enforcement actions.

### ***Developing a Judicial Performance Indicator***

A judicial performance indicator was constructed based on the information presented in Table 9. This index allows for the testing of hypotheses on the importance of judicial effectiveness to the operation of credit market. The indicator was constructed in two stages. First, the estimated legal

costs based on provincial regulations and laws were reconciled with the banks' opinion (as reflected in the survey). Second, the frequency with which each province was mentioned in terms of total costs and obstacles was taken as an approximate indicator of the costs and obstacles in that province.

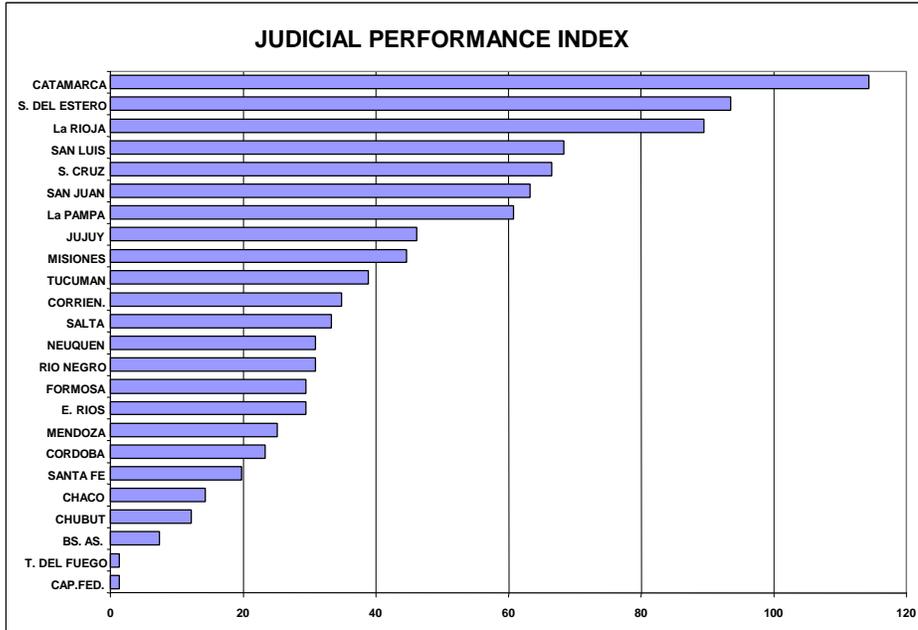
The analysis of mandatory legal costs had already allowed for the classification of provinces in broad groups (high, intermediate, and low cost) shown in Table 7. The information from the survey of banks was used to check the classifications and widen the scope of the analysis to include other judicial obstacles such as court delays, suspended auctions because of debtor bankruptcy, and a preference for trial proceedings.

In order to compare the overall judicial efficiency of the various provinces, it was necessary to produce a ranking based on all costs and obstacles banks face. The judicial indicator was based directly on the frequency of the banks' assessment of obstacles by province. No weights were applied to reflect the importance of each bank in the jurisdiction or the relative importance of each type of obstacle and legal cost. This simple method was preferred to attaching weights to the various items owing to the lack of exact information about legal costs and obstacles.<sup>16</sup> Finally, a bias toward the overrepresentation of provinces with the most financial activity was corrected by adjusting the ranking using alternative measures of credit market size (total loans and number of banks for each province).

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<sup>16</sup> A rational basis for weighting each item would be the costs banks incur as a percentage of any legal claim. Although this approach may sound simple, it is in fact complex. During 1998 a legal team put together by the Central Bank under the direction of the authors revised 2,500 claims on loan recovery filed in the provincial courts and sentenced in 1997. Analysis of these data has generally confirmed the ranking presented here and will allow a more rigorous construction of the judicial index in future research.

**Figure 1.**



*Note:* The provinces have been ordered according to their degree of judicial effectiveness. Higher values represent poor judicial performance. Because of the lack of data for Tierra del Fuego, it has been considered similar to the capital.

*Source:* Foundation for Economic Research in Latin America.

## **The Banking System in the Provinces: A Study of Judicial Enforcement in the Loan Market**

The previous sections have discussed the two primary developments in the Argentine banking system. First, economic liberalization, stability, and growth prompted a significant restructuring process in the banking system, significant increases in the levels of on-shore credit intermediation, and decreases in the lending rates. Second, although levels of nonperforming loans declined, they remain high by international standards, and the issue of willingness to repay clearly remains important. However such problems are not necessarily connected to the design of legal instruments themselves but rather to their effective judicial enforcement. This section presents a more rigorous analysis using econometric techniques, specifically indices of judicial effectiveness by province. Data from the indices for the provinces and over time are used in the creation of panel data models to test hypotheses concerning the implications of judicial effectiveness for credit market performance.

### *The Hypotheses*

The evidence on banking regulations, loan contracts, and the operating methods of financial institutions detailed in the previous sections provides a basis for the construction of the following hypotheses:

- A negative relationship is anticipated between the development of the credit market (loans outstanding/provincial GDP) and judicial costs, since these may discourage the supply of credit. Interviews with executives of banks nationwide confirm that costly and ineffective judicial enforcement discourages lending. Some banks report setting targets for loans in various provinces based on judicial experience. These targets are lower in provinces where courts have proved unreliable in providing redress once the normal recovery and negotiation process for loan repayment is exhausted.
- A positive relationship is expected between legal transaction costs and the stock of nonperforming loans. Judicial effectiveness impacts the portfolio of nonperforming loans in two distinct ways. First, low judicial costs provide borrowers with incentives to repay, because debtors know that nonperformance is likely to meet with legal action. Second, effective courts deal with arrears swiftly, reducing the steady-state stock of nonperforming loans on bank balance sheets.
- Additional hypotheses relate to the structure of the local financial system. In particular, the models test whether the presence of a public provincial bank increases the stock of loans outstanding and the level of nonperforming loans. Many public provincial banks essentially acted as treasuries that channelled loans for development, in some cases to politically favored groups. For this reason provincial public banks were often weak financially compared with private banks and had a larger proportion of nonperforming loans. The privatization of provincial banks changed their market environment drastically and prompted them to screen customers more carefully. In addition their nonperforming loan portfolios were cleared out before privatization. Therefore the existence of public provincial banks should be linked to relatively large stocks of nonperforming portfolios, and privatization should result in relatively low levels of arrears. In turn the increase in borrowing requirements that comes with privatization should result in a reduced volume of financing to the private sector.

- Lastly, the models test whether the presence of private regional banks increases the availability of credit. This hypothesis is related to the notion that in Argentina banks have increasingly sought to deepen customer relations. According to this view, local banks should know local clients best, and provinces with more local (private) banks should have more loans outstanding. In contrast provinces where only national banks operate, supposedly on the basis of poor information, should exhibit more rationing and thus less credit. Local banks may use their close client relationships to substitute for ineffective legal systems, thus increasing willingness to repay.

### ***Econometric Results***

Two equations are estimated using a panel of provincial data for 1992-97. The first equation explains the behavior of the stock of credit to the private sector. The second equation illustrates the behavior of the nonperforming portfolio.

*Definition of Variables.* The variables used in the econometric analysis are defined in the Appendix. Unfortunately, no data on interest rates by province are available.<sup>17</sup>

*Structural Differences among Argentina's Provinces.* A number of factors are responsible for the large differences in levels of credit among provinces. This analysis relates provincial credit levels to judicial performance indicators, controlling for macroeconomic shocks and the structural characteristics of the provincial banking market. The results are strong, in that the judicial performance indicators (which are constants for each province) are all highly significant.

However, like any econometric analysis, this one does not provide a full explanation of all variations—in this case regional variations in the size of provincial credit markets. The analysis does not control for other factors that affect the dependent variable. For example it does not include variables that capture differences in the structure of production (such as whether an activity is credit intensive) or population differences (including such factors as age).<sup>18</sup>

*The Effect of Judicial Performance on Lending.* The following reduced form equation was used to test for the influence of judicial transaction costs on the size of the loan market in each province:

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<sup>17</sup> Bankers pointed out that the differences in interest rates by type of loan clearly dominated the differentials by locality and in some cases even declared that there were no differentials based purely on province.

<sup>18</sup> These differences could be captured by a fixed-effects specification, but that exercise would prevent the inclusion of the JUS variable because of collinearity problems.

$$(CRP/GDP)_{it} = \alpha + \beta_1 PUB_{it} + \beta_2 DES_{it} + \beta_3 RP95 + \beta_4 CALL_t + \beta_5 JUS_i + \varepsilon_{it} ,$$

where  $JUS_i = JUS1$  or  $JUS2$  or  $JUSMR$ .

Table 11 shows the results of estimations of three separate specifications that use different variables to measure judicial performance in Argentine provinces. In equation 1 credit behavior (as a percentage of provincial GDP) is related to the *JUSMR* ranking of the judicial system and a series of variables that control for other significant effects. Equation 2 differs from the previous one only by the *JUS1* variable (the index of judicial performance divided by the share of each province's loans in total countrywide loans). The index varies between 0 and 1, with the highest value corresponding to the poorest judicial performance. Equation 3 relates the dependent variable with the alternative *JUS2* judicial system index (the index of judicial performance divided by the share of branches).

The results are consistent with the hypothesis that poor judicial performance has a negative effect on the credit market. When measured by the ranking of provinces (the variable *JUSMR* in equation 1), judicial efficiency accounts for a difference of nearly 11 points in the loan/GDP ratio between the provinces with the best and worst ratings. Judicial efficiency also accounts for a difference of 5.6 points between the average province and that with the worst rating. Regression 2 is based on the *JUS1* indicator, which takes into account not only the ranking but also the level of judicial performance. The results are consistent with those of regression 1. If the worst province were to move to the position of the best in terms of legal performance, the resulting increase in credit market size would be virtually the same as that estimated by regression 1. If it were to increase to the average value of judicial performance, its loans outstanding would rise by an estimated 7.7 percentage points of GDP—a somewhat larger value than what was obtained from regression 1.

**Table 11. Credit Equation**

Dependent variable is CRP/PBG			
Sample: 1992–97, 24 Provinces			
White Heteroskedasticity-Consistent Standard Errors & Covariance			
Variable	Equation 1 Coefficient t-Statistic	Equation 2 Coefficient t-Statistic	Equation 3 Coefficient t-Statistic
<b>C</b>	<b>0.3250</b> 7.5088	<b>0.3060</b> 7.5514	<b>0.2698</b> 7.1643
<b>PUB</b>	<b>-0.0267</b> -2.6283	<b>-0.0320</b> -3.0806	<b>-0.0342</b> -2.9941
<b>DES</b>	<b>-0.0048</b> -2.5893	<b>-0.0044</b> -2.4495	<b>-0.0033</b> -1.7866
<b>CALL</b>	<b>-0.0500</b> -1.8179	<b>-0.0509</b> -1.8228	<b>-0.0463</b> -1.6234
<b>RP95</b>	<b>-0.0366</b> -1.1481	<b>-0.0413</b> -1.2463	<b>-0.0289</b> -0.8555
<b>D95</b>	<b>0.0211</b> 1.0919	<b>0.0198</b> 1.0084	<b>0.0161</b> 0.8149
<b>JUSMR</b>	<b>-0.0049</b> -3.8713		
<b>JUS1</b>		<b>-0.1190</b> -3.7355	
<b>JUS2</b>			<b>-0.0661</b> -2.5840
<b>R-squared</b>	0.2127	0.1870	0.1175
<b>Adjusted R-squared</b>	0.1783	0.1514	0.0788
<b>F-statistic</b>	6.1704	5.2514	3.0387
<b>Prob(F-statistic)</b>	0.0000	0.0001	0.0080

*Note:* The variance-covariance matrix is estimated by White's method to correct for heteroskedastic errors.

With the *JUS2* variable the effect of judicial performance is slightly lower, as shown by the estimated coefficients of regression 3, but still highly significant. If all Argentine provinces had the judicial performance of the top province, the increase in the level of credit in terms of national GDP would be close to 2 percent. If below-average provinces converged to the average level, total loans would increase by 0.3 of a percentage point of GDP.<sup>19,20</sup> The conclusion is

19 These figures are influenced by the concentration of credit in Buenos Aires, which is considered the jurisdiction with the best judicial performance.

20 The construction of *JUS1* includes the inverse of total loans by province, allowing for an intuitive interpretation of this index as a proxy of provincial transaction costs owing to judicial ineffectiveness per dollar of loan in each province. However the fact that loans to the private sector by province are the numerator of the dependent variable and that total loans by province appear as a denominator in the index in the right-hand side of the equation may

clear: judicial performance is a highly significant variable affecting credit growth in Argentina and in fact constrains it.

Moreover, the signs of the control variables suggest the following interpretations. A province that has privatized its provincial bank has a lower volume of private-sector credit. In terms of GDP the effect is a decrease of between 2.7 and 3.5 percent (see the variable *PUB*). Taking into account that in 1992-97 average private sector credit in Argentine provinces was 16.5 percent of GDP, the privatization of provincial banks during this period can be considered an important explanation for the change in total credit to the private sector. The coefficient of the unemployment rate variable (*DES*), which is used as a proxy for the level of local economic activity, indicates that an increase of one percentage point in the unemployment rate causes a reduction in private-sector credit of approximately 0.45 percent in terms of GDP.

The coefficient of the interest rate for interbank loans, *CALL*, captures the impact of the cost of credit on credit volumes. This coefficient shows that an increase of one percentage point in interest rates reduces credit to the private sector by 0.5 percent of GDP. Contrary to expectations, the share of loans granted by regional banks (*RP95*) has a negative if imprecisely estimated coefficient. Finally, 1995 (the year of the Tequila crisis) was not particularly different relative to other years, in that the coefficient of the corresponding dummy variable (*D95*) does not differ significantly from zero. The effects of that critical year may be captured by other variables, such as the interest and the unemployment rates.

*Judicial Performance and the Quality of the Loan Portfolio.* The analysis next tests the hypothesis that legal performance affects the stock of nonperforming loans through factors affecting willingness to pay (the second hypothesis). The estimate is expressed in the following reduced form equation, which relates the proportion of credit in arrears with the performance of the judicial system, again controlling for macroeconomic fluctuations and structural changes within the banking system. To capture changes in the regulations that affect how nonperforming loans are calculated, the equation includes a dummy variable for 1992.<sup>21</sup>

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affect the results. In particular it may bias the sign of the coefficient of the judicial ineffectiveness variable. However, the results obtained with the *JUS1* variable are consistent with those obtained with the *JUS2* variable, in which the scaling variable is the number of provincial branches rather than total provincial loans. (The inverse of the number of branches is not significantly correlated with the regression's dependent variable.) Together with the natural interpretation of the coefficient of the *JUS1* variable, this point made it advisable to keep this result. The authors wish to thank Marco Pagano for raising this point.

21 Other changes in the relevant regulations at other dates did not appear significant to the analysis.

$$(CRPA/CRP)_{it} = \alpha + \beta_1 PUB_{it} + \beta_2 DES_{it} + \beta_3 RP95_i + \beta_4 CALL_t + \beta_5 D92 + \beta_6 JUS_i + \varepsilon_{it},$$

where  $JUS_i = JUS1$  or  $JUS2$  or  $JUSMR$ .

The results are shown in Table 12. As in the previous table, they are very robust. The judicial performance indicator is statistically significant and has the expected sign.

**Table 12. Nonperforming Loans Equation**

Dependent Variable is CRPA/CRP			
Sample: 1992-97, 24 Provinces			
White Heteroskedasticity-Consistent Standard Errors & Covariance			
Variable	Equation 1 Coefficient t-Statistic	Equation 2 Coefficient t-Statistic	Equation 3 Coefficient t-Statistic
<b>C</b>	<b>-0.3771</b> -3.5174	<b>-0.3595</b> -3.2935	<b>-0.3213</b> -2.7366
<b>PUB</b>	<b>-0.0448</b> -1.7236	<b>-0.0385</b> -1.4911	<b>-0.0338</b> -1.2181
<b>DES</b>	<b>0.0016</b> 0.5358	<b>0.0014</b> 0.4752	<b>-0.0006</b> -0.1790
<b>CALL</b>	<b>0.9495</b> 5.3889	<b>0.9550</b> 5.3145	<b>0.9918</b> 5.0467
<b>RP95</b>	<b>0.0315</b> 0.8356	<b>0.0410</b> 1.0654	<b>0.0196</b> 0.4468
<b>D92</b>	<b>-0.7038</b> -6.1238	<b>-0.7063</b> -6.0176	<b>-0.7356</b> -5.7390
<b>JUSMR</b>	<b>0.0070</b> 3.8001		
<b>JUS1</b>		<b>0.1835</b> 3.4706	
<b>JUS2</b>			<b>0.0881</b> 2.2546
<b>R-squared</b>	0.2967	0.2921	0.2335
<b>Adjusted R-squared</b>	0.2659	0.2611	0.2000
<b>F-statistic</b>	9.6351	9.4250	6.9592
<b>Prob(F-statistic)</b>	0.0000	0.0000	0.0000

Note: the variance-covariance matrix is estimated by White's method to correct for heteroskedastic errors.

Regression 1, which includes the ranking  $JUSMR$  as an indicator of judicial performance, shows that the province with the worst performance has arrears averaging 16 percent more than the top-performing province and 8 percent more than the average. The corresponding estimates in regression 2, which relates arrears to the variable  $JUS1$ , are 18 and 12 percent, respectively. In

contrast to the results shown in the credit equation, the results of the judicial performance ranking (*JUSMR*) differ significantly from those obtained with the indices *JUS1* and *JUS2*. This finding indicates that the absolute differences in judicial performance and not just the ranking of provinces affect the amount of arrears. For the allocation of credit among provinces, only the relative position is important.

The response of arrears to the control variables is also interesting, although not directly relevant to the judicial system. The existence of a public provincial bank increases the proportion of the portfolio that is in arrears. The *PUB* variable indicates that privatizing a bank implies a 4 percent reduction in arrears (as a fraction of the total private loan portfolio).<sup>22</sup> At the same time, and contrary to what might be expected, the more important regional banks there are in a province, the greater the provincial arrears. The participation of regional banks in the local credit market (*RP95*) indicates that a province where regional banks have a share of local credit that is 10 percent higher than it is in other provinces has a higher incidence of arrears (approximately 0.3 percent). The statistical significance of the relevant coefficient is low.

With cyclical variables the nonperforming loan ratio is positively related to the unemployment rate (*DES*) and to the interbank interest rate (*CALL*). While the coefficient of unemployment is imprecisely estimated, that of the interest rate is highly significant and indicates that an increase of 1 percentage point in the interest rate increases private sector arrears by almost 10 percent. This coefficient captures the increased difficulty debtors confront in repaying their debts when the interest rate increases unexpectedly, because the rate of interest on bank loans is correlated with that on interbank loans. This coefficient may also capture an adverse selection effect induced by the increase in the interest rate, even though this effect cannot be separately identified in the estimates.

The statistically significant effects can be described as follows:

- The credit/GDP regressions suggest that loans outstanding are lower in provinces where judicial enforcement is less effective;
- The arrears regressions show that judicial ineffectiveness and interest rate hikes increase the proportion of nonperforming loans; and

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<sup>22</sup> This result is explained in part by the privatization process and clean-up of the portfolio in arrears, which was retained by the state.

- Privatizing a provincial bank increases the availability of credit and reduces the amount of nonperforming loans.

Table 13 summarizes the results in terms of the elasticities of credit and the ratio of the nonperforming portfolio to judicial performance.

**Table 13. Elasticities**

	JUS variable	CRP/PBG		CRPA/CRP		Mean of JUS variable
		Coeff.	Elasticity	Coeff.	Elasticity	
Eq. 1	JUSMR	-0.0049	-0.3703	0.0069	0.3174	12.5000
Eq. 2	JUS1	-0.1190	-0.2518	0.1835	0.2327	0.3494
Eq. 3	JUS2	-0.0661	-0.1401	0.0880	0.1119	0.3502

According to these elasticities, the average province would benefit substantially from even relatively small improvements in judicial institutions.<sup>23</sup> A 10 percent improvement in judicial efficiency is associated with an expansion of the credit-to-GDP ratio of between 1.4 and 3.7 percent and with a decrease in nonperforming loans of between 1.1 and 3.2 percent.

## Concluding Remarks

The efficacy of contractual regulations depends not only on the norms they contain but also on how courts interpret and apply them. In Argentina both legal costs and judicial effectiveness vary greatly among provinces. The data used here cover a number of provinces and time periods in order to test the implications of variations in the performance of the legal system that could affect the credit market.

Overall it is clear that improving the effectiveness of the legal system would yield significant economic benefits for Argentina. Judicial effectiveness plays an important role in increasing the total amount of credit available and in reducing the stock of nonperforming loans. For example, if the effectiveness of legal enforcement nationwide reached the level of the province with the best judicial enforcement (the city of Buenos Aires), credit would grow by some 2 percent of GDP at the national level. For those provinces with the worst judicial performance, the improvement could be as much as 11 percent of provincial GDP. Instituting the needed reforms remains an important challenge that needs to be addressed if Argentina is to enjoy the benefits of fully developed financial markets.

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<sup>23</sup> A 10 percent decrease in each judicial indicator may be interpreted as moving up to the next position in the ranking.

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## Appendix: Definition of Variables

**CRP/GDP (credit to the private sector as a percentage of GDP):** Total credit to the private sector, including loans in arrears, for the 23 jurisdictions and the capital for 1992-97. GDP for the period 1996-97 is estimated on the basis of the electricity consumption of each province.

*Source:* Credit to the private sector: Central Bank, *Statistical Bulletin*, various issues;  
GDP: Ministry of Domestic Affairs estimates.

**CRPA/CRP (loans in arrears as a percentage of total credit to the private sector):** Available for the whole period (1992–97) for the 24 provinces (including the capital).

*Source:* Central Bank, *Statistical Bulletin*, various issues.

**PUB (public provincial banks):** Binary variable that equals 1 at the moment the provincial bank is privatized and 0 otherwise. It is available for all 24 provinces (including the capital) for the whole period under analysis.

*Source:* Estimate based on Central Bank information.

**DES (unemployment rate):** Number of unemployed as a percentage of the total active population (employed and unemployed). It is available for all 24 provinces (including the capital) for the period analyzed (1992-97)

*Source:* Institute of Statistics and Census.

**CALL (interest rates on interbank loans):** Interest rate charged for bank-to-bank loans in national currency for nominal monthly periods nationwide (no variance among jurisdictions).

*Source:* Central Bank, *Statistical Bulletin*, various issues.

**RP95 (participation of regional banks in the respective jurisdictions):** Share of loans by regional banks in each province's total loans for all 24 provinces (including the capital), but only for 1995.

*Source:* Central Bank.

**JUSMR, JUS1, or JUS2 (index of effectiveness of provincial judicial systems):** Constructed on the basis of a survey of banks nationwide.<sup>1</sup> Both the index and ranking do not vary over time but only among provinces. JUSMR is the ranking of the JUS1 variable, 1 being the province with the best performance and 24 the province with the poorest performance.

*Source:* FIEL.

1. The replies were divided by the total amount of loans in each province (JUS1) or the number of bank branches, including headquarters (JUS2). The indices JUS1 and JUS2 assume continuous values from zero (the province with the highest judicial effectiveness) to 1 (the least judicial effectiveness).