

Impediments to the Development and Efficiency of Financial Intermediation in Brazil

Thorsten Beck

To improve on the low level and low efficiency of Brazil's financial intermediation (and hence economic growth), Brazil needs reforms leading to a more efficient judicial sector, better enforcement of contracts, stronger rights for creditors, stronger accounting standards and practices, and a legal and regulatory framework that facilitates the exchange of information about borrowers.



Summary findings

Reforms to improve both the level and the efficiency of financial intermediation in Brazil should be high on Brazilian policymakers' agendas, because of the financial sector's importance to economic growth.

This means that Brazil must also improve the legal and regulatory environment in which its financial institutions operate. Brazil is weak in important components of such an environment: the rights of secured and unsecured creditors, the enforcement of contracts, and the sharing of credit information among intermediaries.

Recent reforms, such as the extension of *alienação fiduciária* to housing, the introduction of *cédula de crédito bancário*, the legal separation of principal and interest, and improvements in credit information systems, are useful steps in strengthening the framework. But more is needed.

Reforms that will significantly increase the level and efficiency of financial intermediation and have a positive impact on economic growth include:

- A more efficient judicial sector and better enforcement of contracts.
- Stronger rights for secured and unsecured creditors.
- Stronger accounting standards and practices, to improve the quality of information available about borrowers.
- The development of a legal and regulatory framework that facilitates the exchange among financial institutions of both negative and positive information about borrowers.

This paper — a product of the Financial Sector Strategy and Policy Department — is part of a larger effort in the department to better understand the link between financial development and economic growth, with application to Brazil. Copies of the paper are available free from the World Bank, 1818 H Street, NW, Washington, DC 20433. Please contact Elena Mekhova, room MC9-622, telephone 202-458-5984, fax 202-522-2031, email address emekhova@worldbank.org. Policy Research Working Papers are also posted on the Web at www.worldbank.org/research/workingpapers. The author may be contacted at tbeck@worldbank.org. June 2000. (15 pages)

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1. Introduction

The development and efficiency of financial intermediaries are important determinants of economic growth. Countries with higher levels of financial development experience higher productivity and GDP per capita growth rates.² Brazil exhibits both a low level and low efficiency of financial intermediation, as evidenced by the indicators in Table 1. This underdevelopment applies to bank intermediated funds, private bond markets, and stock markets. Liquid Liabilities to GDP are lower than the Latin American and the upper middle income group average. Private credit as share of GDP is at the average Latin American level, but lower than the average for upper middle income countries. Furthermore, half of this credit is provided by state-owned institutions. The ex post net interest margins and the overhead costs of banks are significantly higher than the averages for both Latin American and upper middle income group countries.

Table 1: Financial intermediation in Brazil relative to other countries

	Liquid Liabilities	Private Credit	Net Interest Margin	Overhead Costs
Brazil	28.04	29.70	7.76	7.30
Sample mean	54.00	50.77	3.99	4.03
Latin America	34.90	29.49	5.54	5.81
of which: Argentina	21.67	18.29	4.20	6.74
Chile	42.03	68.17	3.89	2.95
Mexico	26.56	15.79	3.64	6.57
Upper middle income countries	57.56	49.65	4.09	3.87
OECD countries	76.28	88.51	2.68	2.73

Notes: Liquid Liabilities = currency plus demand and interest-bearing liabilities of financial intermediaries as share of GDP; Private Credit = total claims on private nonfinancial sector by financial institutions as share of GDP; Net Interest Margin = accounting value of a bank's net interest revenue as share of total assets; Overhead costs = accounting value of a bank's overhead cost as share of total asset; Net interest margin and overhead cost numbers include both private and public and both domestic and foreign banks. All numbers are for 1997.

Source: Beck, Demirgüç-Kunt and Levine (1999).

In addition to the low level of private credit, the average maturity of loans is low in Brazil. The ratio of long- to short-term debt for the median Brazilian company is 1.23, compared to an average of 2.20 for OECD countries.³ Anecdotal evidence suggests that most small and medium size companies in Brazil only obtain short-term bank credit with maturities of at most 90 days. Sources of long-term finance are very limited and mainly from state-owned development banks, such as BNDES.

² See Beck, Levine and Loayza (2000) and Levine, Loayza and Beck (2000).

³ These numbers are for 1997 and from a firm-level database for 46 countries. The database only includes listed firms. Any debt that is due in six months or less is considered short-term. The average for Latin American countries in the sample is 1.30.

There are many explanations for this low-intermediation trap in Brazil. The adverse macroeconomic environment is an important cause, but not the only. This note analyzes the importance of legal and regulatory impediments in explaining the level and the efficiency of financial intermediation in Brazil. Using cross-country experiences, it quantifies the negative effects of impediments in the Brazilian legal system on the development and efficiency of the financial sector and therefore on economic growth. Section 2 discusses the institutional framework (creditor rights, their enforcement, accounting standards and credit information systems) in Brazil. Section 3 uses international evidence to stress the importance of these institutional features for financial intermediation. Section 4 shows the importance of the institutional framework for the size of net interest margins. Section 5 discusses policy implications for Brazil and areas for reforms.

2. Creditor Rights, Contract Enforcement and Information Sharing in Brazil

The ability of creditors to enforce claims is key to the development of an efficient financial system. On an international comparison, Brazil's creditor rights are neither specifically weak, nor specifically strong (Table 2). In reorganization and liquidation, Brazil compares favorably on some dimensions; there is no automatic stay on secured assets upon filing of a reorganization petition, thereby not preventing secured creditors from taking possession of collateral, and there are restrictions when debtors file for reorganization: unsecured creditors representing a minimum share of claims can oppose the petition for reorganization on certain grounds, and secured creditors are not bound by the reorganization plan. On the other hand, the claims of secured creditors are not ranked first in the case of liquidation, but rank after claims of workers and tax authorities. Finally, management stays in charge of the operation of their business during reorganization, thus decreasing the power of creditors.

Table 2: Creditor rights and contract enforcement in Brazil relative to other countries

	Creditor rights	Contract enforceability
Brazil	2	2.02
Sample mean	2.32	2.50
Latin America	1.38	1.92
Of which: Argentina	1	2.07
Chile	2	2.42
Mexico	0	1.83
Upper middle income countries	2	2.14
OECD countries	1.82	2.99

Creditor rights: index of secured creditor rights, with values between 0 (worst) and 4 (best). Source: La Porta et al. (1997). Contract enforceability: indicator of the degree to which contracts are honored, with values between 1 (worst) and 4 (best)-. Source: Business International Corporation.

Regardless of the presence of creditors rights, these rights need to be enforced, and in this dimension, Brazil's judicial system scores considerably below countries in the upper middle income group and OECD countries, as evidenced by a cross-country indicator of contract

enforceability (see Table 2). This inefficiency of the legal system is confirmed by a recent World Bank study on the efficiency of court systems in 11 countries.⁴ The study shows that there are 2,975 and 3,129 cases pending per judge in Brasilia and Sao Paulo, respectively, compared to only 58 in Singapore and 244 in Hungary. The congestion rate, i.e., the ratio of caseloads to resolved cases per judge is 277% in Sao Paulo and 302% in Brasilia, compared to 111% in Singapore and 164% in Peru. The time to resolve a case, the number of cases pending at the start of the year divided by the number of cases resolved during this year, is 1.6 years for Sao Paulo and 1.9 years for Brasilia, compared to 0.04 years in Singapore and 0.5 years in Germany.

The evidence on actual bankruptcy cases in Brazil paints an even more inefficient judicial system. According to an estimate by Pinheiro and Cabral (1999), a judicial execution to recover a creditor claim can take between 1 and 10 years. Since recognition and collection of debt are adjudicated in separate proceedings, the debtor has many additional possibilities to delay payment. The inconsistent application of law due to the very limited role of binding precedent, a high degree of discretionary power for judges and the possibility of several levels of appeal up to the highest courts further undermine efficient contract enforcement in Brazil and negatively affect the resolution of credit disputes in courts.

Sharing information about borrowers is an important way for lenders to learn more about current and potential customers. It helps reduce frictions in the credit market by (i) allowing lenders a better assessment of borrowers, (ii) reducing informational rents and thereby increasing competition between lenders, and (iii) disciplining borrowers. In Brazil, there are several public and private data banks on borrowers. Most of them, however, contain only negative information about debtors that have defaulted and then only during the default period. There are no comprehensive credit record systems as in the U.S. and other countries yet. Due to the lack of positive debtor information, such as financial data, debt exposure, guarantees, etc., banks are restricted in their use of credit scoring models to in-house information about debtors. Regional fragmentation and the lack of sharing information between different institutions constitute further weaknesses in credit information sharing in Brazil.

In addition to the sharing of information, accounting standards that simplify the interpretability and comparability of firms' balance sheets and income statements are important for the development of efficient financial intermediaries.⁵ Information about firms is more reliable, can be more easily processed and contracts between firms and banks better enforced with better accounting standards. The Center for International Financial Analysis and Research (CIFAR) has developed an indicator based on the inclusion or omission of 90 items in companies' annual reports which allows a comparison of the quality of financial statements across countries. On this accounting standards index, Brazil (54) scores better than other Latin American countries (46)

⁴ The following countries were included in the study: Brazil, Chile, Colombia, Ecuador, France, Germany, Hungary, Panama, Peru, Singapore, and Ukraine. Sao Paulo and Brasilia were listed separately. For specific results, see Dakolias (1999).

⁵ See Levine (1999) and Levine, Loayza, and Beck (2000).

and at the average for upper middle income groups (54). Its accounting standards, however, are below the average for OECD countries (65).⁶

3. The Importance of Creditor Rights, Contract Enforcement and Information Sharing for Financial Development

Financial intermediary development has a causal impact on economic growth. Creditor rights, their enforcement and the information that creditors can obtain about debtors in turn are important determinants of financial intermediary development.⁷ In the following, we analyze cross-country and Brazil-specific evidence to underline the importance of these policy areas for the development of the financial sector in Brazil.

Cross country evidence shows that creditor rights—in particular the absence of an automatic stay on assets and required replacement of management—are important determinants of a well-developed financial system. The lack of the right to replace management explains partly the low level of financial intermediation in Brazil. More important than the presence of these rights, however, is the general level of contract enforcement. Table A1 presents the results of a simple regression of private credit on contract enforceability, controlling for other determinants of financial development, including the negative impact that high inflation has on financial intermediation.⁸ As can be seen from Table A1, contract enforceability exhibits a statistically significant and economically large impact on the level of private credit. If Brazil had achieved the average rank in contract enforceability for OECD countries, a strong assumption, private credit as share of GDP would have been more than twice as high—55% instead of 25%—over the period 1980-95, even when controlling for the adverse macro-economic conditions in Brazil. Considering the regression results reported in Table A2, this higher level of financial intermediary development would have resulted in 1.19 percentage points higher annual GDP growth rate over the period 1980-95, i.e., 1.51% instead of 0.32%.⁹

Table A3 presents additional evidence on the importance of efficient judicial systems for financial sector development at the industry level. Previous research has shown that industries that depend more heavily on external finance grow faster in countries with a higher level of financial development.¹⁰ The results in Table A3 indicate that industries with a higher need of external finance grow faster in a legal and institutional environment in which contracts and creditor rights are enforced more effectively. Given an average dependence on external finance of 21 percent (the ratio of external financing relative to investment) across Brazilian industries,

⁶ The index of accounting standard has been created by the Center for International Financial Analysis and Research and assesses the quality of income statements and balance sheets in 1990 for 41 countries. This index takes has possible maximum value of 90 and a possible minimum of 0.

⁷ See Levine, Loayza and Beck (2000) and Japelli and Pagano (1999).

⁸ For a methodologically more rigorous analysis of the link between finance and growth and between the legal environment and finance, see Levine, Loayza, and Beck (2000). For an exploration of the link between inflation and financial development, see Boyd, Levine, and Smith (2000).

⁹ Both scenarios control for other determinants, including macroeconomic conditions, of financial development and GDP per capita growth, respectively. The data are averaged over 1980-95.

¹⁰ See Rajan and Zingales (1998). The dependence on external finance is defined as the share of investment that cannot be financed through internal cash flow and is calculated from a sample of U.S. firms.

the unweighted average industrial growth rate over the period 1980-89 would have been 4.3% instead of 3.7%, if Brazil had achieved the average rank in contract enforceability of OECD countries, again a strong assumption. The effect is even stronger for industries that depend heavily on external finance. The plastic product industry, for example, with an external dependence of 114% would have grown by 0.1% instead of -2.9%, if Brazil had achieved the level of contract enforcement of OECD countries.

Table A4 reinforces the previous results using firm-level data. A recent study by Demirgüç-Kunt and Maksimovic (1998) shows that in countries with a more efficient legal system, a higher share of firms use long-term financing. They analyze the proportion of firms in countries that grow faster than predicted by internal cash flow and short-term credit availability using an indicator of the rule of law, and controlling for other firm-specific and country characteristics. The results indicate that the legal environment has a statistically significant and economically large impact on the proportion of firms whose growth rate exceeds the growth that could have been supported by internal cash flow and short-term debt only. If Brazil had achieved the average level of rule of law as the OECD countries, a very significant improvement, more long-term finance would have been available, and 50% instead of 37% of Brazilian firms would have been able to grow beyond the constraints imposed by internal cash flows and short-term debt.

While the evidence presented so far relies on cross-country studies, the results from a recent Brazil study by Pinheiro and Cabral (1999) confirm these findings. Their analysis relies on the variance in private credit and the efficiency of the judicial system across Brazilian states. They show that states with more efficient judicial systems have a higher share of private credit to their GDP. To assess the economic significance of these results, consider the state of Sergipe in North East Brazil, which had the lowest level of judicial efficiency and a share of credit to GDP of 11.15% in 1996. An increase to the average judicial efficiency in the North East would triple the credit activity in Sergipe to 31.11%.¹¹ Additional anecdotal evidence suggests that banks try to avoid certain states with weak judicial systems in their credit activity.¹²

The quality and amount of information creditors can obtain about potential borrowers is also an important determinant of financial development. To assess this impact quantitatively, we regress private credit on two dummies that indicate whether a country has a negative (black) information system only or a positive (black and white) information system.¹³ The results in Table A1 indicate that the existence of a black and white information system increases private credit by about 21 percentage points of GDP, whereas the existence of a black information system only does not have any significant impact on financial development. If Brazil moved from its current system of mostly negative information to a system with both positive and negative information, its level of private credit over the period 1980-95 would have been 45% of GDP instead of 25%.

¹¹ The indicator of judicial efficiency is constructed from two surveys conducted in 1996 and 1997 among Brazilian businessmen. The surveyed were asked to evaluate the state judiciary along the dimensions cost, speed and fairness.

¹² See Pinheiro (1998).

¹³ This regression uses data collected by Japelli and Pagano (1999). Although these data do not correspond to the same time period as the data on Private Credit, we continue using data over 1980-95 to make our results comparable to column 1 in Table A1.

This in turn would have raised growth by about one percentage point, similar to the gains from the improvement in the enforceability of contracts.

4. The Determinants of Net Interest Margins

Brazil exhibits not only a low level of financial intermediation, but also one of the highest net interest margins in the world (Table 1): over the 1988-95 period, margins in Brazil were twice as high compared to other middle-income developing countries. Overhead costs and taxes were also much higher in Brazil than in other comparable countries. In the following we analyze the relationship of the determinants of the level of financial intermediation and net interest margins.

Net interest margins can be measured in different ways, by either considering the ex-ante spread between deposit and lending rates, or by focusing on the ex-post difference between actual interest revenue and cost. There are methodological advantages and disadvantages of both measures. Ex-ante spreads partly reflect credit risk, which varies significantly across classes of firms and countries. Furthermore, it is unclear to what extent quoted rates reflect actual transactions. Ex-post spreads capture actual net interest income, and thus reflect actual transactions and correct for the differences in rates charged to borrowers. While ex-post margins also include the actual degree of defaults, they can be distorted if interest income and loan loss reserving associated with a particular loan occurs in different periods. Neither measure takes into account fee-based income, which is gaining in importance for banks both in developed and developing countries. And both measures depend on accurate reporting and good quality financial information.

Table 3 presents the net interest margins and fee based income as share of total assets for the past years for the three largest banks in Brazil, which account for more than 50% of the private banking sector. While net interest margins have come down recently, fee income as share of assets has increased. Increasing the fee-based income has been one way for Brazilian banks to replace the float income they lost as inflation has come down in recent years. But by standards of most countries, these margins are still very high. Contributing factors include the very volatile macro-economic environment in which Brazilian banks have had to operate, the high reserve requirements and obligatory lending Brazilian banks have been subject to, the weak judicial systems, a protected banking system, and high financial intermediation taxation.

Table 3: Net interest margins and fee income for Brazilian banks

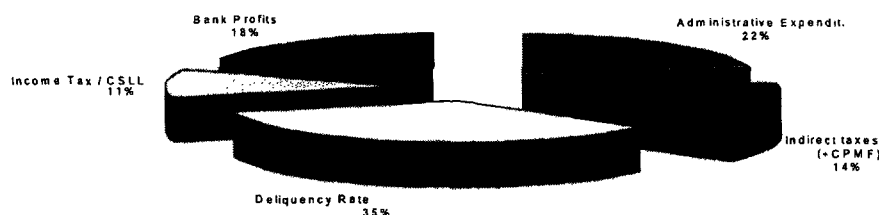
	1995	1996	1997
Net interest margin / Assets	14.5%	10.5%	9.5%
Fee income / Assets	3.3%	4.5%	4.4%

Note: The numbers are unweighted averages for Unibanco, Bradesco and Itau, the largest three private banks.
Source: ABN-AMRO

The recent Central Bank study has identified credit risk, taxes and overhead costs as the main determinants of the high ex-ante spreads in Brazil. Delinquency was identified as the largest component of the interest rate spread, with direct and indirect taxes constituting the second largest component (Figure 1). These results confirm the importance of legal and judicial reform

to reduce the costs of financial intermediation in Brazil and the need to (gradually) reduce financial intermediation taxation and obligatory lending requirements.

Figure 1: Composition of the interest rate spread in Brazil.



Source: Banco Central do Brasil (1999)

Using ex-ante spreads, however, does not allow one to analyze the incidence of particular reserve requirements or taxes. It might well be, for example, that banks compensate high financial intermediation taxation on particular instruments (e.g., demand deposits) through lower interest rates on other liabilities. Overhead costs might not be passed onto lenders or borrowers, but rather to bank shareholders. And using ex-ante spreads risks ignores the importance of macro-economic variables: banks will, for example, hold more capital in a volatile macro-environment, raising the costs of financial intermediation. Analysis of the contributing factors for ex-ante spreads might thus presume direct relationships, whereas in reality one needs to consider the whole operation of the bank. Ex-post spreads, the difference between banks' actual interest revenues and interest expenses, on the other hand, allows us to analyze the determinants of interest margins in a more general equilibrium setting and to quantify the net effects of a broad set of specific distortions imposed on banks, depositors and borrowers.

Using bank-level data for 80 countries over the 1988-95 period, Demirgüç -Kunt and Huizinga (1999) identify the importance of a number of factors determining ex-post interest margins and the incidence of intermediation costs imposed on banks. Their empirical analysis controls for country-specific and time specific effects and for the variation in the number of banks across countries. Although cross-country analysis does not allow us to include the richness of institutional details, such as tax codes, it enables us to compare the determinants of interest margins in Brazil relative to other countries. Applying their findings to Brazil, the following main factors can explain the high interest margins in Brazil:

- *Overhead costs.* In general, about one sixth of a bank's overhead is at the margin passed onto its customers. Since Brazilian banks' overhead costs (10 percentage points of assets over 1988-95) were almost double Latin American average, and triple upper middle income group

average, these costs add substantially to the margins. These high overhead costs in Brazil can be partly explained by a low leverage of banks (as high macro-economic risks has required banks to hold large capital) and limited competitive pressures within the banking system. The judicial inefficiency in Brazil may also have added to costs, as banks have needed large collection and legal departments.¹⁴

- *Inflation and high real interest rates.* Inflation and high real interest rates raise margins as banks try to compensate for the erosion of their real capital and maintain a competitive return on equity. Furthermore, high inflation also increases the costs of banking, as the number of transactions increases. Inflation rates and high real interest rates have been important factors underlying the high spreads in Brazil. Brazilian banks extended their branch network and payroll significantly during the high-inflation period to collect deposits and obtain float revenues. Although inflation rates have decreased considerably since the Real plan, the fear of resurgence of inflation might explain partially the high net interest margins that can still be observed.
- *Reserve requirements.* Reserve requirements with less than market remuneration lower net interest income, but the degree to which depends on the possible pass-through to bank customers. In general, un-remunerated reserves have lowered banks net interest income, suggesting less than full pass-through to depositors and borrowers.
- *Income taxes* are typically completely passed onto bank customers and therefore constitute an important distortion for the financial system. Brazil's taxes on banks (1.1 percent of assets over 1988-95) are more than double the Latin American and upper-middle income country average, thus raising margins significantly.
- *Poor legal and institutional development*, including the lack of judicial efficiency, poor contract enforcement and high levels of corruption tends to increase bank margins, since banks have greater difficulty collecting on loans. A better legal and institutional framework, on the other hand, tends to lower interest margins. As Brazil scores quite poor on indicators of legal and institutional development, its margins are higher.

Other determinants of net interest margins are the quality of accounting standards and degree of credit information sharing. Both affect the ability of intermediaries to assess and monitor borrowers and their projects. Deficiencies in these areas increase both bad loan decisions and losses. Again, as noted before, Brazil scores poorly in these dimensions.

Of all the factors, the legal deficiencies are the most important in explaining the high ex-post margins in Brazil. The importance of a more efficient legal system for lowering net interest margins is underlined by the following policy experiment (see also the results of the regression reported in Table A5). If Brazil would increase contract enforceability to the OECD average, net interest margins could decline by 3.5 percentage points, a 40 percent reduction from the average margin of 8.9 percent over the period 1988-95. Further reductions in margins can result from lowering the high level of financial intermediation taxation.

¹⁴ For anecdotal evidence see Pinheiro (1998).

5. Areas of Policy Emphasis for Brazil

Authorities are aware of the need to lower the costs of financial intermediation and have been moving actively. Measures have been adopted to assure the legality for compound interest in operations (previously an interested party in a contract argued against such procedure based on an outdated law which forbade charging compound interest in loans lasting less than one year). The National Congress is examining a measure that creates a Bank Credit Bill, *cédula de crédito bancário*, a credit instrument with a smoother and faster track in judicial disputes. Other regulatory reform efforts to reduce the cost of financial intermediation include the extension of *alienação fiduciária* to housing and mobile goods, and the legal separation of principal and interest.¹⁵ These are important measures to increase the enforceability of contracts in Brazil by minimizing reliance on courts. Since they are fairly recent reforms, however, the full effects of the legal reforms, their practical enforceability and the degree to which they avoid use of the courts, cannot be assessed yet.

The government has also recently moved in several areas to reduce the direct costs of financial intermediation. It has lowered the costs by reducing tax and reserve requirement (the reserve requirement for demand deposits has been lowered, for example, from 75% to 55%). A further lowering of the level of financial intermediation taxation is planned. A broad reform of Brazilian payments system will increase its reliability and reduce the costs of financial intermediation. And information availability has increased. The Central Bank operated Credit Risk Data Center (*Central de Risco*) now makes available standardized information on credit operations and financial institutions will report monthly their classification of credit operations above R\$ 20,000 (from R\$ 50,000 previously). And greater transparency is achieved since the Central Bank started making credit operations rates available on its web site (interest rates published are highest, lowest and average for each type of operation, degree of arrears and average operation term, all discriminated by financial institution).

The early evidence of the degree to which these benefits will be passed on to banks' customers is favorable with lending rates currently near a five-year low. Although the difference between bank lending rates and government borrowing rates has decreased by 10 percentage points, further reform will be necessary to lower the costs of financial intermediation. Importantly, this will have to involve further improvements in the efficiency of the legal system. Reforms could include a limitation on the availability or the levels of appeal, the creation of special courts, increasing the precedent value of higher court decisions and educating judges in economic and financial areas. While these are politically sensitive issues and can only be addressed over the long run, improvements in the enforceability of contracts have high pay-offs for increasing financial intermediation and growth in Brazil and should have high priority.

The judicial changes should be complemented by changes in the creditor rights. While, as in other Latin American countries, bankruptcy reform has been on the agenda in Brazil for much of

¹⁵ *Alienação fiduciária* is the transfer of ownership of an asset from the debtor to the creditor, as guarantee. This should facilitate recovery of the asset in the case of default by the debtor. The *cédula de crédito bancário* allows the collection of debt under Commercial Law instead of Civil Law. Commercial Law does not, unlike Civil Law, require proof of existence of the debt, and therefore increases the speed with which a loan can be executed.

the past decade, little progress has been made. In the mean time, important reforms have been undertaken in Argentina (1995) and are being considered in Mexico. Brazil needs to accelerate its efforts and learn from reform efforts elsewhere, particularly Argentina. Important necessary reforms in Brazil include a re-ordering of the priority of claims in liquidation and introducing a workable process for restructuring troubled, but viable companies (under trustee administration, not debtor-in-possession).

Reforms in creditor rights need to adopt international best practice—ranking secured creditors first and automatic replacement of management—and a more flexible bankruptcy law. Changes in the bankruptcy law should allow for more flexibility in restructuring and reorganization, while protecting the rights of creditors. During the reorganization period, creditors or a third party (receivership) should manage the company. Reforms also need to allow for market mechanisms for trading and consolidating claims, and procedures to accommodate repossession of collateral in secured finance. To date, possible advocates for bankruptcy reform—creditors (largely state-owned) and *potential* borrowers—have not proven successful. It means reform will require greater public education about the link between certainty of treatment of creditors in bankruptcy and the availability (and cost) of finance in order to reverse the general tendency in Brazil to favor debtors at all costs. Efforts in this direction are already underway in Argentina and legislation is under consideration in Mexico.

This need for reform applies equally to Brazil's laws on security interests, which are fragmented among the civil code, the commercial laws, financial sector legislation and special laws for certain kinds of instruments (e.g., mortgage securitization). Recent legal innovations, such as the use of trust-type mechanisms (*alienação fiduciária*) to increase the prospects for effective enforcement, are a (useful) stopgap measure. But Brazil still needs to move to a uniform code governing the creation, perfection and enforcement of securities interests. A "Secured Transactions Code", as it is being considered in Argentina and in Mexico, can facilitate the creation, perfection and enforcement of security interests in financial transactions. Such a law should include the easy and inexpensive registration of security interests and a repossession procedure that involves a minimum of court intervention. Without improvements in the enforceability of contracts, however, these reforms might not be as effective as desired.

Recent improvements in credit information systems can be observed—such as the *Central de Risco* -, but more efforts should be made to make positive as well as negative information available to creditors. An appropriate legal and regulatory framework has to be developed to facilitate the sharing of information on borrowers between financial institutions, private credit information agencies and possibly the Central Bank—building on existing institutions -, while at the same time providing borrowers with adequate protection. This might involve reviewing existing laws on consumer protection and banking secrecy. The Central Bank might also consider how it can use its regulatory and supervisory power to encourage more information sharing among financial institutions. Other dimensions along which the credit information systems can be improved include the speed with which credit information is processed—such as the bad check information—and the quality and accuracy of the information.

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Table A1: The Impact of Contract Enforcement and Information Sharing on Financial Development

Dependent variable	Private credit, 1980-95	Private credit, 1980-95
Contract Enforceability	0.308 (0.002)	
Black information		-0.031 (0.766)
Black-and-white information		0.207 (0.008)
Adjusted R ²	0.58	0.53
Number of observations	43 countries	40 countries

Source: Own calculations. Column 1 reports the results of the following regressions: Private Credit = $\beta_0 + \beta_1$ Contract Enforceability + $\beta_2 \log(1 + \text{Inflation}) + \beta_3 \log(\text{Initial real per capita GDP})$. Higher values of the contract enforceability variable indicate a higher degree of contract enforceability. Column 2 reports the results of the following regressions: Private Credit = $\beta_0 + \beta_1$ Black information dummy + β_2 Black and white information dummy + $\beta_3 \log(1 + \text{Inflation}) + \beta_4 \log(\text{Initial real per capita GDP})$. The two dummies take the value one if a country has a black (black and white) credit information system. Both regressions are estimated using Ordinary Least Squares (OLS). P-values for heteroskedasticity robust standard errors are reported in parentheses.

Sources of data: Private credit: Beck, Demirgüç-Kunt and Levine (1999); contract enforceability: Business International Corporation; black and black-and-white information: Japelli and Pagano (1999)

Table A2: The Impact of Financial Intermediation on Real Per Capita Growth

Dependent variable	Average real per capita growth, 1980-95
Private Credit	1.501 (0.023)
Adjusted R ²	0.42
Number of observations	43

Source: Own calculations. The regression reported is: Average real per capita growth = $\beta_0 + \beta_1 \log(\text{Initial real per capita GDP}) + \beta_2 \log(1 + \text{average years of schooling}) + \beta_3 \log(\text{exports} + \text{imports as share of GDP}) + \beta_4 \log(\text{Government Expenditures as share of GDP}) + \beta_5 \log(1 + \text{Inflation rate}) + \beta_6 \log(1 + \text{Black market premium}) + \beta_7 \log(\text{Private Credit})$. P-values for heteroskedasticity robust standard errors are reported in parentheses. The regression is estimated using Ordinary Least Squares (OLS). Sources of data: Beck, Demirgüç-Kunt and Levine (1999) and Levine, Loayza, and Beck (2000).

Table A3: The Impact of Contract Enforcement on Industrial Growth

Dependent variable	Industrial growth rate in value added, 1980-90
Contract Enforceability*	0.038 (0.001)
External Dependence	
R ²	0.34
Number of observations	1042 (34 countries)

Source: Own calculations. The regression includes both country and industry fixed effects and the industry's share of total value added in manufacturing in 1980. The P-value for heteroskedasticity robust standard errors is reported in parentheses. The regressions are estimated using Ordinary Least Squares (OLS). Source of data: External dependence and industrial growth rates: Rajan and Zingales (1998). Brazil's level of contract enforceability was 2.13 over the period 1980-89, while the OECD average was at 2.82.

Table A4: The Impact of Rule of Law on Firm Growth

Dependent variable	Proportion of firms that growth faster than predicted by firm characteristics, 1986-91
Rule of Law	0.070 (0.023)
Adjusted R ²	0.48
Number of observations	26 countries

Source: Demircug-Kunt and Maksimovic (1998). The dependent variable is the proportion of firms in a country that grow faster than predicted by internally available cash flow and short-term credit. Rule of Law is an indicator of the degree to which citizens of a country are able to use the legal system to mediate disputes and enforce contracts. The regression is estimated using Ordinary Least Squares (OLS) and controls for other country and firm-specific characteristics. Heteroskedasticity robust standard error is reported in parentheses. Brazil's level of Rule of Law was 3.7 for the sample period, while the OECD average was at 5.5.

Table A5: The Impact of Contract Enforcement on Net Interest Margins

Dependent variable	Net interest margins, 1988-95
Contract Enforceability	-0.042 (0.007)
Contract Enforceability * GDP per capita (in \$1,000)	0.003 (0.001)
Adjusted R ²	0.63
Number of observations	4497

Source: Demircug-Kunt and Huizinga (1999). The regression reported controls for bank characteristics, macroeconomic indicators, taxation measures, a deposit insurance dummy, measures of financial development and structure, other institutional variables, such as corruption and law and order, and country and time specific effects. The regression is estimated using weighted least squares. The number of banks in each country and each period is used to weight the observations. Standard errors are given in parentheses. Brazil's level of contract enforceability was 1.9 during the sample period and its real GDP per capita \$2,113, while the OECD average for contract enforceability was 2.8.

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