

The Use of Credit Information in Brazil

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1 -- Introduction

Until 1994, the financial system in Brazil was almost entirely geared towards maximizing float income, which answered for close to half of the overall earnings of commercial banks. That required banks to be efficient, above all, in processing transactions, such as the payment of bills and checks. Credit granting activities were, as a consequence, of much less importance, since very little credit flowed to the private sector anyway.¹ Incentives were even more biased for private banks, since almost all medium and long term credit to firms and households was provided by state banks, with most of the credit extended by private banks being concentrated on short term operations such as overdraft facilities and working capital finance. Entry deregulation in the late eighties, although expanding the number of banks, did little to change this scenario.

The dramatic reduction in inflation rates after the Real Plan – from 5154% in the 12 months ending in June 1994 to 28.7% a year later -- produced many changes in the financial system. In particular, it reduced banks' float income, causing many banks to run into serious solvency problems. This was the case of most state banks; and also of many small and some large private ones. Some of the small banks were liquidated, but most the medium and large banks were resolved through purchase-and-assumption transactions, with the government assuming a large share of their bad loans.² In the case of Banco do Brasil, one of the two largest state banks, the government had to make a capital infusion of close to US\$ 8 billion to avoid insolvency.

Surprisingly, though, the reduction in inflation did not increase the overall amount of credit extended by banks to the private sector, which actually decreased as a proportion of GDP (Pinheiro and Cabral, 1998). The only segment of the credit market that showed a significant expansion was that of loans to household consumption, which almost trebled as proportion of GDP from 1993 to 1997. Many creditors were not prepared for this. A study by McKinsey (1998) shows that Brazilian banks had low productivity in credit granting activities and in general used old-fashioned methods for selecting borrowers. Other creditors, such as department stores and other retailers were in even worse situation. Not surprisingly, then, default rates increased dramatically in this market segment, causing the bankruptcy of creditors that just a few months before were posting record sales and interest income. This was the case of two of

¹ Considering a cross-section of industrialized and developing countries, Demirguç-Kunt and Makismovic (1996) obtained that, in 1980-91, the volume credit to the private sector in Brazil averaged 27 percent of GDP, against ratios several times larger in industrialized and Asian developing countries.

² Since the Real Plan, 104 banks were resolved by different means: 42 were liquidated, 7 were incorporated in other institutions, 10 were transformed into non-financial institutions, 11 changed from universal banks to specialized financial institutions, and 34 went through purchase and assumption transactions.

the country's largest department stores, Arapuã and Mesbla. Banks were not immune either. Public, national private and foreign banks all experienced a surge in default rates in their loans to households. Boavista, one of Brazil's most traditional banks, went bankrupt a year after posting the industry's highest profit rate, which was almost entirely based on interest income due on loans to consumers.

Lenders were unprepared to use the available information to select good borrowers, but the quality and nature of the information available to them may also be blamed for those poor results. Credit Information Registries (CIRs) have existed in Brazil for several decades, but have traditionally maintained mostly black information, obtained from judicial and security registries, chambers of commerce and the Central Bank's registry on returned checks. Since after the Real Plan many borrowers were accessing credit markets for the first time, the information available in those CIRs provided biased guidance about the likelihood of borrowers' default. In addition, to some extent the function of CIRs was less to inform creditors than to encourage borrowers to pay, since a bad debtor's name is erased from those registries once payment is done. That is, the emphasis was on enforcement, rather than on building data banks on borrower's payment history.

It is possible then to summarize the situation in Brazil's credit market in the immediate aftermath of the Real Plan as one in which supervision and prudential regulation by the Central Bank was not able to prevent the failure of a large number of financial institutions, banks had little expertise in providing credit and CIRs were ill-equipped to provide the information necessary for adequate credit risk analysis. How much has this changed since then? Are these actors now better prepared for the process of financial deepening and fiercer competition that will eventually result from the consolidation of economic stabilization and the restructuring of the financial sector, with privatization of state banks and an increased participation of foreign institutions?

The objective of this paper is to address these questions, approaching them from the standpoint of the use of credit information by the different actors in the sector: CIRs, banks and the Central Bank. Section 2 describes the credit information industry and analyses how CIRs are adapting to the new environment of price stability and increased competition. Section 3 focuses on the use of credit information by banks in their loan operations. Section 4 looks at the actual and potential roles of credit information for purposes of supervision and prudential regulation of the banking sector. A final section sums up our main conclusions.

2 – The Credit Information Industry³

Banks in Brazil have access to several public and private Credit Information Registries (CIRs). Public registries are managed by the Central Bank -- Returned Check Register (CCSF -- *Cadastro de Cheque sem Fundos*) and Central Register of Credit Risk (CRC -- *Central de Risco de Crédito*) – and the Minister of Finance -- Register of Defaulters (Cadin -- *Cadastro de Inadimplentes*). Private CIRs comprise the Credit Protection Service (SPC – *Serviço de Proteção ao Crédito*) and credit-rating agencies such as Serasa and SCI/Equifax. Upon request, these institutions typically run a credit check on a certain company, its owners and top management. In general, the inclusion of an individual's or firm's name in any of those CIRs is sufficient to exclude him/her from the credit market.

³ This section partly draws on Pinheiro and Cabral (1998).

The most traditional CIR used by creditors is the CCSF, which lists all people who have issued checks with no funds, an information compulsorily supplied by banks. The value of this information for credit analysis stems from the widespread use of checks in essentially any commercial transaction, a practice inherited from the high inflation period. Moreover, predated checks are one of the main sources of retail credit in the country -- it is estimated that about 60 percent of all checks issued in Brazil are predated. If an individual's name is included in the Central Bank's register of returned checks it remains there for five years, a period during which that person is not allowed to have a bank account. In 1997, 56.6 million checks bounced due to insufficient funds, accounting for 2 percent of the total number checks processed in that year and for about 1.4 percent of the total value of these checks. Reflecting the increase in credit to consumers, often extended through the use of pre-dated checks, the number of returned checks substantially increased after the launching of the Real Plan. Of the 104.800 million checks processed by banks in July 1998, only 2,22% were returned due to insufficient funds.⁴

Cadin (Register of Defaulters) was originally intended to be a CIR private to public financial institutions, but afterwards access was open to all public institutions, whether or not related to credit activities. It is not, however, accessible to private creditors. Although public banks used to be forbidden by law to lend to firms in Cadin, this law was revoked and currently public banks use Cadin as one more source of information on borrowers' creditworthiness. Interestingly, the reason for changing the law was that the number of firms included in Cadin had grown "too much", severely limiting the universe of firms to which public banks could lend. Two factors that determined this growth were (i) firms were included in Cadin for many different reasons, ranging from a failure to pay a utility bill to default on a large debt and (ii) although inclusion of a firm's name in Cadin is easy and immediate, the exclusion process is lengthy – it may be done only by a central office in Brasilia and it usually takes a long time to be processed.

The Central Register of Credit Risk (CRC – Central de Risco de Crédito) is a CIR managed by the Department of Bank Supervision (Departamento de Fiscalização) of the Central Bank.⁵ It began to operate in August 1998 and has two main objectives: (i) to inform financial institutions about the overall debt burden of firms and individuals, so that they may improve the management of their loan portfolios; and (ii) to help the Central Bank with its supervision and regulation tasks.

Every month financial institutions must inform to the CRC the value of their loan exposures with all clients to whom they have extended credit (including guarantees and credit allowances) totaling R\$ 50,000 or more. This corresponds to about 270,000 individuals and 215,000 firms,⁶ accounting for 90% of the overall volume of credit to the private sector. For all other credit operations, institutions must report the overall volume of credit, separately for firms and individuals, and the number of debtors in each category. Financial institutions have up to the 20th of the month to inform balances at the end of the previous month. Sanctions apply in case of delay, but these are rare. The information is provided broken down according to loan

⁴ A study by Serasa. shows that default rates increase with the value of the check (respectively, 0.23%, 0.89%, 1.94%, 3.20%, 5.25% and 10.39% for checks in the intervals of up to R\$25, R\$25 to R\$ 50, R\$50 to R\$100, R\$100 to R\$200, R\$200 to R\$500 and more than R\$500). Default rates also go up depending on how long the creditor has to wait to cash it: respectively, 0.31%, 0.63%, 1.60%, 4.82%, 8.14% for periods of up to 5 days, 6 to 20 days, 21 to 40 days, 41 to 70 days and more than 70 days. Default rates for immediately cashable checks is just 0.20%. (Gazeta Mercantil, December 31, 1998, p. B-1)

⁵ The main pieces of legislation on concerning the CRC include Central Bank Resolution 2390, *Circular 2768*, and *Cartas Circulares 2752* and *2777*.

⁶ The Central Bank estimates that if all loans of R\$ 20,000 or more were identified, the number of entries would increase by a factor of five.

maturity and payment status. More specifically, banks inform: (a) the volume of loans with maturities of up to 180 days, from 180 to 360 days, and above 360 days; (b) Debts overdue for up to 60 days, between 60 and 180 days, between 180 and 360 days, and for more than 360 days; (c) Loans accounted for as losses during the previous and current terms; and (d) Co-obligations and risk commitments.

Information in the CRC is made available at different levels to different “customers”, but not to the public at large, as in Argentina, which the law does not allow. Financial institutions access the CRC through a computer system (Sisbacen), where they learn the consolidated value of the debt of firms and individuals and the number of institutions that informed credit operations with each debtor. This information may be shared with other companies in the financial institution’s conglomerate. To consult a client’s record, the financial institution needs to obtain written authorization from the client, what is usually done during the credit application. The Central Bank charges a fee for the access to the Sisbacen, but not for the information in the CRC. Anyone can ask the Central Bank for information on all individual debts reported by financial institutions in his or her name, including the identification of the institutions and the value of the debts. However, if the debtor disagrees with the information in the CRC, it is up to him or her to go to the financial institution and ask for a correction.

The data available at the CRC is perceived to be in general of good quality – discrepancies between figures consolidated by financial institution and those reported in the respective balance sheet tend to be minor -- but there is room for improvement. There are problems, for instance, with the non-uniform criteria used to determine the value of non-performing loans, with some institutions including the value of penalties and others not. Some of the values informed are absolutely unrealistic. In addition, some creditors, such as credit card and factoring companies, are not included in the CRC. Moreover, the CRC does not have information of where the loan was contracted or of the occupation/sector of activity of the debtor, which limits its use to assess market risk.

The Central Bank plans to upgrade the CRC by improving the quality and increasing the quantity of the information it contains. In this way, financial institutions will be asked to provide information on overdue loans according to narrower intervals of payment delay, and to use standard methods to evaluate non-performing loans. They will also be asked to include risk assessment of debtors, according to a standard classification the Central Bank is working on. An effort will be made to consolidate debt exposure of business conglomerates. There are also requests from financial institutions to lower the minimum required level of debtor identification and to completely eliminate this floor when the loan is defaulted.

The SPC – Credit Protection Service – is another major source of information used by creditors in Brazil. The SPCs are private non-profit institutions established at the municipal level and organized by the local Associations of Retailers. The SPCs are relatively old institutions; the one operating in Rio de Janeiro, for instance, was established in 1955. Currently, there are about 1.200 of them operating in all of Brazil. Information coverage is in general municipal (i.e. at the city level), but the SPCs from different cities exchange information forming a national network, in effect.

SPCs’ databank contains information collected from retailers, banks, credit card administrators, financial firms, etc. and is used by most creditors essentially as veto register: individuals included in the SPC data bank find it almost impossible to obtain credit in formal markets. In order for a member of the CDL to be able to include or exclude default registries in the SPC data bank it must sign a contract with the CDL that specifies duties and responsibilities for both

sides, as well as the rules to be followed. For example, the contract stipulates that default registries must be made with a delay of at most 30 days and only registries of debts that have originated in a commercial or trading relationship may be included (not debts to schools, landlords, etc.).

The inclusion as well as the exclusion of names is a responsibility of the CDL member; when a debt is paid the member who included the debt must clear it within 5 days. In practice, however, while quite effective in including names, members are not as efficient in excluding them. In this case, individuals have to prove that they have settled their debts so as to “clear” their names from the SPC. A consumer may then obtain a written statement that his/her name is not in the SPC; a fee of R\$ 0.15 is charged for such a statement.

The SPC database may be accessed by any associated member of the CDL (through the use of an individual password), by a consumer or his legal representative, and by the judiciary. CDL members have the information available by telephone, by entering into the general computing network, or on-line through intra-net. Alternatively, users may request information using forms that are sold at the CDL counter for R\$ 44.00 for a set of 10 forms, or R\$ 100.00 for a set of 25 forms.

Another product provided by the CDL is the videocheque, through which members may check whether there are restrictions on the checks. The videocheque data bank can be accessed with the same technology as the SPC and includes: (i) a magnetic tape with an updated version of the Central Bank’s Returned Check Register; (ii) information from CDL members on returned checks not yet entered on the Central Bank’s register, including checks without funds, closed accounts and spurious practices (e.g., the issuer tells the bank not to pay the check); and (iii) an alert file, including information on stolen and lost checks, etc., which can originate either from the consumer or from the banks (some private firms also supply this sort of information).

While SPC includes information on individuals only, the CDL manages another data bank, known as SIAC, with similar information about firms. Forms used by CDL members to obtain information about firms in the SIAC cost R\$ 58.00 for a set of ten, or R\$ 136.00 for a set of 25; information takes two days to be returned, after forms are submitted. SIAC data banks also provide information on *protestos* and on debtors against whom judicial actions have been initiated. Information on *protestos* and judicial executions is available from the public registers, which are private institutions that receive a public concession to operate this service.

Here, again, while creditors are efficient in including names in these registers, this is not so much so as far as their exclusion goes after payment has been settled. As a result, it is up to the debtor that has fulfilled a credit obligation to “clear” his/her name from these registers. After the name of a debtor is included in the register of *protestos*, it is excluded if the debtor proves that the debt was paid or automatically after 5 years (even though the obligation to pay the debt only prescribes after 20 years). In the register of judicial executions, a court order is necessary to exclude a name from the register and this requires proof of payment (whether negotiated or not between the parties). Otherwise, the name of the debtor stays in this register (Register of Distribution) for 10 years.

The two main CIRs in Brazil are, in this order, SERASA and SCI/Equifax. Both operate nationwide. Other similar but smaller firms, such as Seta and Asteca, service only the main markets, especially São Paulo, where the largest banks are located. Their main advantage is being more agile, which results in the provision of more updated information.

SERASA was created in 1968 by three of Brazil’s main banks. Currently all medium and large Brazilian banks are shareholders of Serasa. In 1996 it absorbed the local businesses of Dun & Bradstreet, the largest credit bureau agency in the world, which was not successful in Brazil.

Through Serasa clients may also access information on firms and individuals in other countries. The company itself counts with a staff of 1400 employees and has offices in all state capitals and all main cities in Brazil, totaling 130 offices spread throughout the country. In 1996 it posted operating revenues and profits of, respectively, 114.1 and 28.9 million reais, having distributed R\$ 4.6 million in dividends. It has thousands of clients all over Brazil. In São Paulo and Rio de Janeiro, the country's two largest cities, Serasa has approximately 1500 and 3000 clients, respectively.

SERASA is specialized in building up databases on firms and on individuals (identification, address, personal and professional information, financial commitments, negative records and financial and economic analysis). It also has information on economic groups (on firms in the group and on the consolidated balance sheet) and on the economic environment (macroeconomic and sector information). It relies essentially on two sources of information: (i) information collected at other data banks, such as the Central Bank, SPC and public registers; (ii) information supplied directly by the banks.

SERASA's information is available on-line, through a host to host computer connection, by modem or by fax. SERASA has access to an on-line/real time connection with the various sources responsible for the supply of information to its database. In this way, it tries to provide just-in-time information for risk classification, both for individuals (score) and for firms (rating). Some of Serasa's clients have argued, however, that often Serasa failed in keeping its data banks up to date, especially in the case of *protestos*.

Creditors may choose from a menu of products offered by Serasa, which go from simple checks on the presence or not of a potential client on any negative list to more sophisticated information on credit limits and risk of default. Among the most popular services provided by Serasa are ACHEI/RECHEQUE, CONCENTRE, FICA, RELATO and CREDIT BUREAU.

ACHEI and RECHEQUE are two related products that centralize information on insufficient funds checks, cancelled, stopped, stolen and lost checks at the national level directly in the SERASA computers. Each bank has immediate access to information provided by other institutions. This service allows retailers and service providers to obtain information on stolen and lost checks as soon as these are reported. They can also know if the check they are about to accept originates from a person with a history of writing checks with insufficient funds. These products are essentially an extension of the Central Bank's Returned Check Register, with the advantage that information is entered much faster into the system.

CONCENTRE supplies information on *protestos*, checks with insufficient funds, bankruptcies, *concordatas*, judicial actions (executive actions, search and seizure actions, Federal Justice fiscal execution actions), tax debts (with 'Secretaria da Receita Federal', the Brazilian equivalent to the Internal Revenue Service), and participation in bankruptcy processes.

FICA is a data bank with a wide variety of record and financial/economic information. It highlights the main points that have influenced firm's performance and provides an indicative evaluation of credit risk. FICA data is obtained mostly from banks: when a bank accepts a firm as a new customer, the data about the client collected by the bank is passed on to SERASA, which makes it available to all other banks. Information can also be obtained with the firm itself - firms usually attend requests for information from SERASA. According to SERASA, FICA is the most widely used instrument for the evaluation of credit in Brazil.

An offspring of FICA is FICA AVANÇADA, a product developed by Serasa after the boom in credit (and default rates) that took place after the Real Plan. It supplies: (a) The firm's CGC

number,⁷ firm name and possible variations of the name, date the firm was established, previous names, address, telephone, telex and fax numbers, number of subsidiaries and their location. (b) Balance sheets, income statements and internal cash generation, including both their current values and the position on December 31 of the two previous years. (c) Working capital needs, its variation, cash balances and the firm's operational cash flow. (d) Sources and uses of funds. (e) The firm's the main economic and financial indicators, including resource composition, liquidity and results for the period under analysis. (f) A brief conclusion summarizes the most important features that influenced the performance of the firm in the period under consideration, with an indicative evaluation of the credit risk.

RELATO is a report generated using record and negative information, as well as information on the payment history of the firm, obtained from suppliers and banks. It is a recently developed product (1995-96) that offers, in addition to the data provided by ACHEI/RECHEQUE and CONCENTRE, specific information on: (a) The correct identification and address of the firm in question, its main line of business and information on its imports and exports; (b) The name and CGC number of its 5 main suppliers, as well as the total number of suppliers along with the length of their relationship with the firm. It also shows how many consultations were done about that firm in the month and in the 12 previous months, with information on the date and name of the firms responsible for the 4 last consultations; (c) How the firm has behaved in its business relationships in the last 13 months. For each month, due payment values are displayed and classified as "on time" and by intervals of the number of days the payment was late. Cash payment values are also displayed together with the total of payments for the month. It also shows the average delay, in days, of the payments already done; (d) The evolution of firm's debt to suppliers in the last 13 months; (e) The date and value of the last purchase, of the largest invoice and the largest cumulate value of purchases, information to be used in determining credit limits; (f) Due and not paid financial obligations. It also gives the consolidated position of bank and supplier credit.

CREDIT BUREAU, also a post-Real Plan product, includes positive information on more than 80 million people. This type of information is needed for the application of techniques such as *Credit Scoring* and *Behavior Scoring*, used to manage mass credit. The main users and sources of information are credit card, financial, leasing, factoring and insurance companies, as well as other organizations that are in any way related to individual credit. To receive the information firms have to agree to provide feedback into the system (reciprocity regime). CREDIT BUREAU includes: (a) Name, date and place of birth, spouse's and parent's names, address, telephone, how long at the current address, if residence is owned or rented, etc., and professional information, such as main activity, employer and time at the job; (b) Negative information about the individual, such as delays in paying credit obligations, judicial actions, insufficient funds checks, irregular checks, etc.; (c) Number and dates of recent credit consultations; (d) Positive information such as occupation, work address, schooling, other addresses and professional activities, existing financial obligations and payment behavior. A separate page is shown for each credit contract assumed by the individual with each of the participating institutions; (e) Describes credit obligations taken in the market, such as loans, credit cards, pre-dated checks, leasing, insurance, etc.; (f) Credit scoring, calculated using risk predictive models.

As with the Register of Returned Checks and the SPC, inclusion of one's name in Serasa's data banks is a main issue, since it closes one's access to credit markets. For this reason, whether or not a name may be included is in some cases an issue taken to courts. As pointed out above, an important issue is that while inclusions are easily and rapidly made, they are not as easily

⁷ The CGC number identifies the registration of each firm with the tax authorities. It is used in all major data banks in Brazil to identify firms.

cleared, once the debt is settled (either paid at the public register or paid to the creditor and then informed to the public register). This happens in spite of the fact that it is the obligation of whom included a name in SERASA's listings to clear that name after the debt is settled. Because of this problem, SERASA has an agency in each state where people can bring proof of debt settlement and get their names out of SERASA's listings. Many people are not, however, aware of the existence of these offices.

The other major private credit bureau in Brazil is SCI. SCI's products cover both individuals and firms, domestic and foreign. Differently from Serasa, SCI is not based on reciprocity: a client may obtain information without the obligation to provide any. However, SCI tries to make clients provide some information back, and has an incentive system that gives a reduction in prices for clients that share their information about potential borrowers. The number of SCI's requests for information has grown 118% between 1994 and 1997, and the number of customers increased from 17.000 to 24.000 in the same period. In these recent years, SCI has added some new information to its records, in face of the growing market demand. For example, it now supplies specific systems that help in the detection of fraud. It has also intensified the training of professionals for the area of credit concession, an area still much underdeveloped in Brazil. Overall, however, SCI is much less important than Serasa, functioning as a subsidiary source of information for creditors.

3 – On the Use of Credit Information by Brazilian Financial Intermediaries

3.1. Introduction

As mentioned earlier, up to 1994 private Brazilian banks were not very active in credit granting activities and therefore were not careful in implementing credit decision policies and processes. In the high inflation period, from 1974 to June 1994, with full indexation of wages, rents, contracts, foreign exchange and financial assets, monetary policy was generally aimed at controlling the nominal interest rate, therefore providing liquidity to sustain increasing levels of aggregate demand. Defaults ratios by both firms and individuals were low, loan-losses reserves were a small share of banks' total expenditures, and credit income answered for an equally small fraction of their overall revenue. Under those circumstances, credit policies were almost non-existent, being limited to maintaining internal customers' files (cadastros) to store particularly negative information. Banks exchanged information about their customers with other lenders (both banks and non-banks) through a completely informal network of informers (the so-called "informantes") whose sole function was to crosscheck restrictive data about the bank's borrowers. Hence, such informers were the predecessors of the present credit registry information systems.

Credit activities became important only after the stabilization plan led financial institutions to try to expand their lending operations, particularly in financing the sale of durable consumer goods. In fact, there was an incipient credit bubble beginning with the stabilization plan in July 1994 and lasting up to March 1995. Expense and income associated with credit assumed a significant proportion of total expenditures and revenues. However, both banks and borrowers were not prepared to operate in the new environment of price stability. The default ratio on banking loans increased faster than total performing loans during such period, which is, among other factors, an indication of the generally poor quality of credit management in the country. In January 1995, on average, for each "real" of performing loans, banks posted R\$ 0.08 of non-performing loans; in January 1997, the corresponding figure was R\$ 0.18, with a 125% increase in the ratio between non-performing and performing loans in that time interval. Therefore, the credit boom

in the early phase of the stabilization plan has generated a decline in the quality of credit portfolios of the Brazilian banking industry, as revealed by the previous ratios. This unsuccessful experience prompted many banks to start restructuring their credit areas, trying to introduce new policies and procedures to cope with credit risk.

Data in Table 3.1 tries to estimate, in a rather rudimentary way, the observed probability of loan default based on a simple calculation of a default risk premium, that is, the difference between the realized yield on a loan and the observed risk-free interest rate. The latter is taken to be represented by the Selic rate, the overnight rate at which banks lend/borrow reserves in the interbank market taking as collateral government bonds or bills. This simple calculation abstracts all other components of a bank's lending cost, such as its real resource costs (wages, processing cost, and other non-interest expenses), as well as costs associated with the prevailing high reserve requirements on demand and time deposits plus taxes on financial intermediation (such as profit tax, tax on financial assets and tax on banking transactions). Housing loans, leasing operations and loans with foreign exchange exposures were not considered in the calculation below, either because they have to follow strict regulations concerning rates, funding, caps, or else they introduce risks different from credit risks. Therefore, the table indicates a proxy for the observed probability of default for each specific line of business and consumer credit at market interest rates and with funding in domestic currency.

Table 3.1
A proxy for the observed probability of default in credit risk
(in %)

Types of loans	1994	1995	1996	1997	1998
1. Loans to firms					
Hot money	1.04	3.00	2.15	2.44	
Discount of "duplicatas"	1.27	4.07	3.33	2.72	
Discount of promissory notes	2.98	4.51	3.77	2.81	
Working capital	1.27	4.15	2.58	2.16	
Overdraft accounts	0.15	5.13	3.77	2.81	
Credit for acquis. of goods	0.31	5.47	3.32	1.78	
Vendor	2.29	1.80	1.06	0.82	
2. Loans to individuals					
Overdraft accounts	4.55	6.92	6.51	5.87	
Personal credit	2.83	5.64	4.76	4.18	
Cconsumer credit	3.13	5.56	4.31	2.72	

Source: Central Bank

Although these numbers tend to underestimate the true probability of default by bank borrowers (they are in fact lower in absolute value than the overall default rates reported by Pinheiro and Cabral (1998) based on accounting data), they can provide an approximation to the true probabilities of default. Moreover, they can differentiate the probabilities by the kind of credit operation, the type of borrower, the structure of the operation, including its maturity and the quality of the collateral. The following conclusions can be drawn from the above table:

- a) There are large differences in the probabilities of default by types of loan;
- b) In general, consumer lending is riskier than business lending;

- c) Overdraft accounts for individuals show the highest probability of default. That is also the line of credit where some banks earn the highest rate of return;
- d) The probabilities went up in 1995 for all types of lines of credit, thus confirming the incipient credit bubble in that year;
- e) Secured loans are less risky than non-secured ones. Compare for instance the default probabilities for business lines of credit based on the discount of “duplicata” (the most common receivable for firms) with the discount of promissory notes, a truly “clean” lending for firms;
- f) Shorter-term and variable rate loans are less risky than loan at fixed interest rates. Note the difference between the numbers for hot-money operations (tied to the variable interbank rate) with the figures for working capital lending (a loan with a 30 days maturity at a fixed interest rate).

3.2. The Credit Decision Process

Brazilian banks are currently at different stages of organizational development, as far as the formulation, implementation, monitoring, controlling and evaluation of credit policies, procedures and practices. On the one hand, there are some banks with relatively strong credit culture, which tend to make intensive use of internally generated information as well as external data (that is to say, mainly data provided by the various CIRs) as inputs in their credit decision process. On the other hand, banks with a loose or ill-formulated credit policy in most cases do not make use of formal criteria to allocate credit (other than the traditional method of establishing fixed credit limits to customers) and therefore use information less-intensively, including CIRs data, to decide on lending operations. In between these two types, and this might be the case of most banks, there are many institutions trying to introduce formal policies, procedures and practices of credit management, including purchase of foreign methods and models of credit analysis and scoring.

The credit decision process follows different procedures according to the type of bank and the characteristics of the loan. For loans to consumers and to small business, the general trend is towards the introduction of a highly decentralized process of credit management, according to which all loan requests are treated automatically by statistical methods (credit scoring, for instance) and a decision is reached at the branch level in a very short period of time. Taking into consideration the borrower’s characteristics, the statistical model assigns him/her a quantity of points and the corresponding automatic credit limit. Exceptions are dealt with at higher levels of the credit bureaucracy, generally by credit committees. This asset allocation process is mostly used in the following lending operations: overdraft facilities, consumer installment credit, leasing, credit card loans and secured or unsecured personal loans. That seems to be the most efficient way to guarantee speedy decisions in large retail banks, which can receive as much as 2000 loan applications per day. Some retail banks have developed or are engaged in developing their own credit scoring models. For loans to small business, the decision process is very similar with branches having their own credit limits for secured operations (based on discounting of pre-dated checks and “duplicatas”).

For loans other than to the retail market (loans to the middle market and to the corporate sector), the traditional method of credit management has been the establishment of credit limits per customer in order to restrain the lender’s exposure to a particular obligor. A recent trend in the

banking industry is to transform the credit decision into a group decision, that is to say, a decision made by formal credit committees which are generally organized according to various criteria, such as the value of the loan, the collateral, the type of operation. Each application is treated in a case-by-case basis by the corresponding credit committee, taking into consideration such variables as the customers's files ("cadastro"), its economic and financial situation, its relationship with the bank, its business tradition and the its industry's prospects. In some large banks, branches do not extend business loans (except to small business mentioned earlier), with loan applications being decided by these committees or by the bank's credit department. Some small wholesale banks with relatively large loan value per business customer have rather formalized rules for the credit committees' organization, including such variables as its composition, size of the exposure, maximum and minimum loan maturity, types of collateral, rules for functioning and also for voting on loan requests.

3.3. The use of information provided by CIRs

In general, CIRs provide two types of information about borrowers' financial conditions: black or negative information and white or positive information. The intensity of utilization of both types of information by financial institutions varies according to the core business of each financial institution (retail versus wholesale; medium-sized versus large retail; commercial banks, finance and leasing companies versus investment banks; local, regional or national coverage, in terms of branch location; and other relevant characteristics of each financial institution), as well as with the degree of adherence to credit policies at the level of individual intermediaries.

The aforementioned differences in credit policies across banks revealed distinct patterns in the utilization of CIRs information in the credit analysis process. As a general rule, it can be said that all banks use negative information provided by CIRs as a first instance or as a filter in the credit decision-making process, that is to say, in order to decide whether or not to continue with the analysis of the credit application. Therefore, that type of information is the relevant barrier to discriminate between potential borrowers and applicants with no access to credit markets. Of course, the larger the geographical coverage of the CIR databases the better the quality of the information. There are two other important considerations concerning the relevance of the CIR data bases. First, the timeliness and accuracy of the information, that is to say, the time lag between any event affecting borrowers' behavior and its transmission to the creditors' files. The shorter this time interval the more rapidly the credit registry traces the changes in the borrower's economic and financial conditions. Second, the degree of completeness of the information in terms of its market coverage, meaning by that the CIR capacity to provide information on the borrower's behavior in other segments of the credit market, such as trade finance, consumer credit, real estate markets, capital markets, and so on.

In the retail market, where a large number of low-value loan operations takes place, the restrictive information provided by third parties (namely, the CIRs) is probably the most relevant and maybe the only data used in the credit decision process for lending either to small firms or to individuals. In fact, given the precarious quality of accounting and other financial information on small business, where the firms' and the owners' banking accounts do mix together, lenders might as well consider them as just one entity for credit granting purposes. Therefore, for loans to small businesses for working capital needs (based on discounting of both pre-dated checks and "duplicatas") and to individuals, the discriminating variable is the borrowers' credit records (cadastro), which is heavily biased towards weighting the importance of restrictive information. In other words, the credit-decision process relies basically on information which records the borrower's past history as reflected in its present economic and

financial conditions. There is even a recent trend in some of the largest commercial banks to replace their own business records by similar information gathered and processed by the Serasa, the largest CIR in the country. (That seems to be the case for the following banks: Itau, BCN, and probably Bradesco).

For the largest Brazilian retail commercial banks, there is no other way to manage the credit massification process than to decentralize those low-value operations to the branch level, where the local loan officer can decide on loan applications based on the general credit policy and considering his/her credit exposure limit. In fact, in this type of retail operation, banks compete with each other with respect to the speed at which they can decide on loan applications, with speed in this case being measured in number of seconds.

However, after having selected the borrower, information provided by CIRs becomes also crucial in monitoring borrowers' financial situation, to prevent the occurrence of events leading to default. In other words, both upgrades and downgrades in the borrower's credit quality can be anticipated by monitoring changes in his/her economic fortunes as recorded in those registries. This is not a trivial consideration, considering that the Brazilian economy has been subjected recently to enormous macroeconomic shocks, which have deeply affected borrowers' capacity to pay. High interest rate and exchange rate volatility, varying restrictions on terms and conditions for lending, and trade liberalization are examples of macroeconomic outcomes that have made banks face large swings in market as well as credit risks. A large private bank stated recently that its high profit rate was due, among other factors, to a very conservative credit policy, which was in turn based on an intensive use of information supplied by CIRs.

The importance of negative information in credit analysis decreases as the size and complexity of the loan operation increase. Its role is therefore less important in the so-called middle-market, which seems to be the most profitable and risky business lending activity in Brazil. Banks use two types of information to make loan decisions to this credit segment: firstly, black and white information provided by CIRs and by other lenders and secondly, data collected by the bank itself through balance-sheet analysis and on-site visits to firms. In most cases, lenders use the CIR information either to check or to complement their own private information and analysis. There are financial institutions that even maintain their own in-house credit rating facility. Some more aggressive banks in this market segment almost disregard the usual published balance-sheet data on account of their misrepresentation of the actual economic and financial position of companies. Instead, they replace the formal accounting information with an internally created managerial information system to trace the actual changes in the company financial conditions. One important part of such a system is to monitor the liquidity of the borrowers's receivables (mainly "duplicatas") since the latter are the most commonly accepted collateral for business loans in Brazil. Naturally, the data and analysis gathered by internally developed management information system on borrowers remain private to the bank and are not shared with credit bureaus.

In the case of loans to large firms (private corporations, Brazilian and multinational, and some state-owned firms), information provided by CIRs have a very limited role in the credit analysis process, in comparison to the research and analysis conducted by the lender itself, coupled with whatever private information has been previously gathered by the financial intermediary. Audited balance sheets and other financial statements are also valuable in such cases because they are more reliable than for smaller firms. In particular, many of these borrowers, being public corporations (with shares quoted in domestic stock markets, or having raised funds abroad through issuance of eurobonds or through debt instruments in Brazilian markets, such as debentures and commercial papers) have to provide investors with a regular flow of information

on their economic and financial conditions. The credit process takes longer and is obviously more costly, relatively to other lending operations. Anyway, lending to the so-called corporate sector accounts for the largest proportion of the total credit portfolio of Brazilian retail banks, though its client-base is very small. Spreads are also rather narrow in this type of credit operations (they can vary from 0.5% to 5.0% yearly, according to recent press reports-GM, Sept.22th), with the lending rate following closely the changes in the basic domestic interest rate.

4 – Use of Credit Information in Bank Regulation and Supervision

The very high inflation prevailing in Brazil until June 1994 complicated bank supervision and regulation, because it reduced the actual information contained in balance sheets and bank accounts in general. But, at the same time, it reduced the need for supervision and regulation by allowing even poorly run banks to be profitable. Moreover, it discouraged credit activity, particularly by private banks, so there was little credit risk to speak of. This encouraged a policy of regulatory forbearance, which was particularly pronounced in the case of public banks. As already remarked, as inflation came down, the inadequacy of supervision and regulation practices was evidenced by the insolvency of a number of banks. It was not a coincidence, therefore, that the reduction in inflation rates coincided with an effort to improve supervision and regulation.⁸

Price stability brought other changes to credit markets. For one thing, sector average productivity increased substantially, as most inefficient banks were either closed or sold, and as surviving banks underwent substantial restructuring programs. In particular, banks invested in the upgrade of their credit risk analysis. For another, the credit bureau industry became more competitive, with the entry of foreign firms (e.g., Equifax and Standard & Poor’s) leading to product diversification and an upgrade in the quality of services. It is fair to say, therefore, that credit markets became more sophisticate after price stabilization. Interestingly, though, this did not reflect in an expansion of the overall volume of credit to the private sector. As a proportion of GDP, the total volume of performing loans to the private sector at year-end declined from 28.2% in 1993 to 24.3% in 1998.

Two reasons for the continued narrowness of credit markets after the Real Plan have been the lack of adequate legal protection to creditors and the instability stemming from high public and current account deficits.⁹ Creditors continued to face high market risk, as reflected in high and volatile interest rates (Table 4.1), while at the same time being offered the possibility of making significant gains in dealing with relatively liquid and low-risk public debt securities. So credit markets have remained segmented, with state banks enjoying a virtual monopoly in long-term financing (housing, infrastructure and industrial investment) and the private sector concentrating on short-term operations.

Table 4.1: Basic Price Indicators in Credit Markets (Monthly rates, %)

Period	August 94 – December 96		January 97 - June 99	
	Mean	Std. Dev.	Mean	Std. Dev.
Inflation	1.15	0.97	0.57	0.91
Banks’ borrowing rates	2.91	0.95	1.85	0.36
Spread on loans to firms	3.80	0.92	2.43	0.18

⁸ See, in particular, Central Bank Resolution 2099 of 1994.

⁹ See Pinheiro and Cabral (1998).

Spread on loans to individuals	6.35	0.95	4.57	0.35
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Source: Central Bank (1999).

Substantial financial deepening is likely to occur, however, if the government succeeds in consolidating economic stability and moving ahead with tax and institutional reforms. For one thing, because financial institutions will look for ways to compensate for the loss in earnings resulting from lower interest rates on public debt. For another, because a reduction in interest rates and in their volatility and, possibly, a more creditor-friendly legal environment, will make lending to firms and individuals less risky. Such an outcome will probably also result in more competition in credit markets. It is likely, for instance, that private banks start to compete with state banks in the long-term credit market. The upgrade observed in recent years in the volume and quality of credit information and the increased ability of creditors to use such information will also help to foster competition.¹⁰ So will the increasing participation of foreign institutions in Brazilian banking sector and a possible expansion of the privatization process to large state banks.¹¹

Financial deepening and increased competition in credit markets will benefit consumers by lowering bank spreads and increasing product diversity,¹² but it may also cause banks' credit risk to increase. First, because banks will be entering for the first time in new market segments. Second, because increased competition reduces banks' incentive to properly screen projects. As noted by Riordan (1993), the effort dedicated to select good projects depends on the probability of being chosen to finance the project and on the expected return from doing this. Both are reduced when competition increases, "so more competition might harm market performance, even as prices draw closer to marginal cost." These two effects were at play in the process of expansion and then contraction of credit to consumption by retail stores and banks in 1994-96.

An increase in competition might also encourage riskier lending by banks because it would reduce their market power, which in turn would lower their charter values. High charter values have been found to act as an endogenous deterrent to excessive risk taking.¹³ According to Keeley (1990), an increase in competition resulting from changes in the institutional environment explains the reduction in capital-asset ratios and the increase in asset risk that eventually led to the S&Ls and bank crises of the eighties in the USA. A similar argument is used by Besanko and Thakor (1993) to argue that changes in the competition environment that reduce the importance of relationship banking, and of the valuable private information it generates, lowers bank charter values and encourages risky lending.¹⁴

We may argue, therefore, that in the future the demand on Central Bank's regulation and supervision skills will continue to increase, while changing in scope, as banks lend more, enter new market segments and possibly take more risk. In this section we discuss the potential use of credit information to improve prudential regulation in Brazil. We first give a brief overview of how is prudential regulation of financial institutions currently structured. Next we analyze how

¹⁰ See Jappelli and Pagano (1993) and Lopes (1999) for a discussion on the role of publicly available credit information in fostering competition.

¹¹ The number of branches of foreign banks increased from 360 in 1995 to 2395 in 1998.

¹² In fact, the figures in Table 4.1 suggest that this process might have already begun.

¹³ For instance, Weisbrod et al. (1992) show that the reduction in charter values has contributed to increase risk-taking by banks in the USA and Japan.

¹⁴ Note that making this private information publicly available is exactly what is expected from CIRs. Whether the gains from having access to the information in CIRs outweigh the losses from providing information about its own clients is what determines the incentives for banks to voluntarily participate in CIRs. See Pagano and Jappelli (1993) for a more detailed analysis of this issue.

the regulatory framework could be improved through the use of credit information. We conclude with a discussion about where is the relevant information to use for regulation and how regulators may access it.

Current Prudential Regulation Practices

Prudential regulation of banks in Brazil relies on standard instruments. Entry is regulated through rules concerning minimum capital requirements and good reputation of owners and managers, and is determined on a case by case basis by the Central Bank (and the President of the Republic in the case of foreign banks). In recent years, decisions about entry have been tuned to facilitate purchase and assumption of banks with solvency problems and the privatization of state banks. Banks are supposed to be closed or intervened by the Central Bank when their net worth turns negative.

Banks are also required to keep both minimum absolute levels of capital (that vary according to type, size and region) and capital-asset ratios that follow the rules established by the Basle Agreement (Cooke ratios), adopted in Brazil in August 1994 (Central Bank Resolution 2099). According to these, banks' own capital (net worth) has to be equal to or larger than 11% of their risk-weighted assets, plus 20% of the credit risk in swap operations. These values have been in place since November 27, 1997, when in the aftermath of the Asian Crisis the Central Bank raised capital requirements.

Solvency regulations also include the requirement of provisions for loans in arrears. Unsecured credits in local currency can remain in arrears for up to 60 days, partially secured credits for up to 180 days and fully secured credits for up to 360 days before being fully provisioned. Upon becoming 60 days in arrears, partially secured credits must be provisioned as to 50 percent of the recorded value of the credit and fully secured credits as to 20 percent of the recorded value of the credit. Further provisioning must be made every 30 days thereafter (up to the 180th day or, as the case may be, the 360th day) to ensure that the provision remains at the required level of 50 percent or, as the case may be, 20 percent of the recorded value of the loan.

The Central Bank also restricts the composition of banks' loan portfolios. These restrictions are intended both to guarantee a minimum level of diversification and to prevent connected lending. A cap equivalent to 25% of the bank's net worth applies to all lending to individual borrowers. Lending to owners, managers and their relatives is forbidden.

Deposit insurance, established after the post-Real bank crisis, is managed by the Deposit Guarantee Fund (FGC – Fundo Garantidor de Créditos), a private nonprofit organization that guarantees deposits and certain financial investments up to R\$ 20,000 per depositor in case of bankruptcy or closure by the Central Bank.¹⁵ This insurance covers demand and term deposits, savings accounts, letters of exchange, real state and mortgage letters (letras imobiliárias e letras hipotecárias) issued or guaranteed by the financial institution. All financial institutions, except for credit cooperatives, participate in the FGC, paying a monthly flat premium of 0,025% on the value of its outstanding balances on the accounts insured.

Bank supervision is done by the so-called direct and indirect modes. Direct supervision is done through the periodic on-site audit of the bank's accounts, including balance and off-balance sheet operations, and covers not only the bank itself but also the entire business conglomerate to

¹⁵ The value of R\$ 20,000 was applied in all cases of banks liquidated before the establishment of the FGC.

which it belongs. Indirect supervision is done through a large set of accounting indicators reported monthly by the banks to the Central Bank. A system of red flag indicators based on balance sheet data and inputs from supervision teams helps the Central Bank to identify institutions and activities requiring more intense supervision.

In the past, political pressure and the risk of contagion through interbank loans have at times forced a policy of regulatory forbearance that limited the full enforcement of some of these rules, that to some degree extended into the transition period during which the financial sector adjusted to a low inflation environment. For instance, the closure of two large state banks with serious solvency problems – Banespa and Caixa Econômica Federal – was avoided through the expedient of delaying the publication of their balance sheets until they could be re-arranged to show a positive net worth. Another earlier example is provided by the lax application of the limits on connected lending.¹⁶ The resolution of insolvent banks in recent years also revealed a “too big to fail” policy, and a practice of *de facto* complete insurance by the government of all creditors of large banks.¹⁷

Potential Uses of Credit Information in Prudential Regulation

Inasmuch as past bank solvency problems may have resulted from weak supervision and less than full enforcement of prudential regulation, the above description also suggests that another problem with bank regulation was the almost exclusive reliance on backward-looking information, mostly obtained from banks’ balance sheets. This has started to change with the establishment of the CRC, which provides a more dynamic view of the credit market. But the Central Bank makes a limited use of the CRC, using it essentially before making supervisory visits to banks (for instance, to gauge the total credits extended to clients who ran in arrears with other institutions).

Except in the rules defining loan loss provisions, which also reflect ex-post debtor performance, almost no information outside that collected from balance sheets, supervision visits or the CRC is used in bank regulation and supervision. In particular little use is made of credit information collected or generated by CIRs or the banks themselves (e.g. internal credit ratings). The only noteworthy exception seems to be the use of information gathered by private CIRs in banking supervision. The Central Bank is not a direct user of CIRs data but it takes into consideration the borrowers’ “cadastro” provided by them when analyzing a bank’s credit portfolio in its on-site supervision. This type of information is particularly relevant when the lender provides credit to borrowers with negative status in the CIRs database.

This situation contrasts with what is recommended by the literature on prudential regulation, which stresses the need to make it more forward looking and risk sensitive.¹⁸ Credit information can be used to adapt four of the above regulatory instruments in that way: reserves for loan

¹⁶ A Central Bank document describing the Program for the Restructuring of the Public State Financial System (PROES) observes that “Like the private banks, official banks have also been forced to adjust to the new reality of a stable economy. However, in this case, their problems are more complex, not the least due to the excess of loans extended to controlling shareholders (in this case, the government of the respective state) and related firms, in disagreement with a basic prudential rule of the financial system.” (Banco Central, “A Supervisão Bancária no Brasil”).

¹⁷ State banks, in particular, are perceived as *de facto* fully insured by the public sector. This explains why, despite showing default rates much above the industry’s average, these banks have experienced an increase in their shares of total deposits in recent years.

¹⁸ See, for instance, Dewatripont and Tirole (1994), Freixas and Rochet (1997) and BIS (1999).

losses, capital adequacy requirements, insurance premiums and closure rules. Two of these instruments have received most of the attention in the academic and applied literature: risk-adjusted deposit insurance premiums and capital adequacy ratios.

The idea to use risk-sensitive deposit insurance premiums goes back to the view that the main purpose of bank regulation is to protect small, largely unsophisticated depositors.¹⁹ In the presence of limited liability, a bank's capital structure gives an incentive for owner-managers to follow an investment policy that carries more risk than its depositors would like to. This is explained by the fact that equityholders typically benefit more in favorable states (the project succeeds) than depositors, whereas the two groups share losses proportionately in very bad states (the bank closes down). A flat rate deposit insurance premium, even if actuarially balanced, does not correct these perverse incentives. But this could be done, under certain conditions, through risk-adjusted deposit insurance premiums. In fact, Rochet (1992) shows that if the objective of bank owners is to maximize the market value of their future profits, risk-based deposit insurance is the only way to prevent them to choose very risky portfolios. However, there are both conceptual and practical problems to implementing fairly priced deposit insurance.²⁰ One of them is how to measure risk and determine risk premiums in an efficient and timely way.²¹

This perhaps explains the general preference of regulators for the use of minimum capital requirements as the main instrument to discourage excessive risk-taking by banks. In fact, the risk-related deposit insurance premiums adopted in the US in 1991, when the Federal Deposit Insurance Improvement Act (FDICIA) was enacted, uses a bank's capital-asset ratio to measure its risk.²² Minimum capital requirements provide a cushion for bank losses, but their main regulatory purpose is to increase owners' stake when deciding how much risk to take. For this regulation to be efficient, though, it is necessary that capital requirements be risk sensitive, that is, that the average cost of capital goes up when risk increases.²³

The best known effort to adapt capital adequacy rules to reflect credit risk is the Cooke ratio included in the Basle Accords of 1988. The Cooke ratio has been criticized, however, not only for disregarding other types of risk, but also for not adequately weighting different types of credit risk.²⁴ A recent document of the Basle Committee on Banking Supervision, while reinforcing the view that minimum regulatory capital requirements, adjusted for credit risk, should remain the main "standardized" approach to promote safety and soundness in the financial system, acknowledges that "[t]he current risk weighting of assets results, at best, in a crude measure of economic risk, primarily because degrees of credit risk exposure are not sufficiently calibrated as to adequately differentiate between borrowers' differing default risks" (BIS, 1999, p. 9).²⁵ Feixas and Rochet (1997) suggest that a better way to make banks' capital-asset ratios dependent on their asset risk is to use borrowers' ratings, produced by independent

¹⁹ Dewatripont and Tirole (1994) call this justification for bank regulation the "representation hypothesis".

²⁰ For a summary of the main issues see Freixas and Rochet (1997).

²¹ Benston and Kaufman (1997, pp. 143-4) go a step further to argue that: "In theory, it is clear that risk-based insurance premiums would, at least partially, discourage institutions from following a high-risk loan strategy. But as a practical matter, how the risks and premiums would be determined was unclear, and, by themselves, risk-based premiums did not address the problem of regulators who were often slow, whether because of personal inclination or institutional pressure, to take steps that would address financially troubled institutions."

²² See Benston and Kaufman (1997).

²³ Rochet (1992) shows, in addition, that because of limited liability solvency regulations should also require a minimum absolute level of own capital.

²⁴ Dewatripont and Tirole (1994) analyze the problems with the Cooke ratio.

²⁵ Moreover, risk weights also favor lending to the public sector.

agencies, to weight their assets. This is essentially the idea behind the new proposal on capital adequacy regulation put forward by the Basle Committee (BIS, 1999).

Risk sensitive solvency requirements may also be introduced by making loan loss provisions dependent on the default risk of individual loans, or at least on the loan distribution according to borrower risk. This has been the alternative so far favored by the Central Bank in Brazil. The same principle could be adopted so that supervision and regulation rely more on the market value of assets and less on their book values. This would discourage practices such as gains trading (the sale of assets that are undervalued by the accounts, while those that are overvalued are kept in the books), and evergreening (making bad loans look good by lending more money to troubled borrowers).²⁶

In principle, credit information could also be used to inform the decision to close or intervene in a bank, allowing the Central Bank to resolve the bank while it is still moderately capitalized. In practice, however, it could be legally difficult to intervene in a bank that is economically insolvent but still has a positive net worth. Adopting such procedure would likely demand changes in the law, possibly making intervention less discretionary, along the lines of the rules-based intervention procedures of the SEIR (Structured Early Intervention and Resolution) proposal (see Benston and Kaufman, 1994).

Some countries – e.g. New Zealand, Chile and Argentina – also rely on credit ratings produced by government auditors and/or by private agencies to directly increase banks' sensitiveness to risk exposure, requiring the publication of their own credit ratings. The expectation is that this increases market discipline by making depositors and other creditors more aware of the risk carried out by their banks (see Goldstein and Turner, 1996).

Is the Available Credit Information Adequate for Prudential Regulation?

Although the idea that prudential regulation can be improved by increasing the costs to banks of taking risk is well established, much less so is what is the adequate information to use for that purpose. For instance, the risk-sensitive deposit insurance premiums charged by the FDIC vary not with bank's asset composition, but with their capital-asset ratios. Rochet (1992) argues that for capital-asset ratios to be effective in controlling excessive risk the weights used in the computation of these ratios have to be proportional to the systemic risk of the assets (their betas). But remarks, in a latter article (Rochet, 1999), that "an important peculiarity of bank loans, which constitute the bulk of the assets of most banks, is that their true value is a private information of the bank that has granted the loan." A second-best solution is then to weight loans using each borrower's credit-rating. But that leaves unanswered the question of how to deal with unrated borrowers. Moreover, the value of credit ratings as leading indicators of default are still a matter of controversy (see Goldstein and Turner, 1996).

The Brazilian credit market may be described as one in which much of the information necessary for a correct evaluation of credit risk is private, so that the potential use of credit information to improve bank regulation should take into account the types of information available with distinct players. Through the CRC, the Central Bank knows more about the debt profile of firms and individuals than do CIRs and banks. CIRs have access to information also available to the Central Bank, but not included in the CCR (including some of it generated by

²⁶ See, respectively, Dewatripont and Tirole (1994) and Goldstein and Turner (1996).

the Central Bank itself), but also some that is not (e.g., Serasa has information provided by the main suppliers of firms). In addition, they add value to the information collected. The Central Bank could possibly access their data banks, but at a cost. CIRs have no access, though, to the CRC. Banks know much more about their clients than the Central Bank, and not all this information is shared with credit bureaus.

To assess the relevance of this distribution of information one should differentiate among four types of borrowers: (i) large, multi-bank firms, with reasonably transparent accounts; (ii) state and municipal governments and their companies; (iii) medium-sized companies (the middle-market), with very opaque accounts, and which rely mainly on relationship banking; and (iv) individuals and small companies, which demand commodity loans.

Large firms are the prototype borrower addressed in the new BIS framework: they are rated by different institutions, including the most important credit-rating agencies and possibly the large banks with which they operate, and these ratings can be used directly to weight their loans when computing capital requirements. The problem in this case would be how to choose among different ratings. But the empirical evidence suggests that for large non-financial firms the divergence in independent ratings tend to be relatively small.²⁷

An important issue in this case is whether regulators should rely on their own credit ratings, on those of independent agencies or on those produced by the banks. Reality in this case seems to weight in favor of private credit rating, since both banks and independent agencies have private relevant information that is not readily available to the Central Bank. Ratings offered by banks may be subject to strategic biases (banks will tend to underestimate the probability of default, to lower their capital requirements and increase the goodwill of their clients) but this might not be significant for borrowers that operate with several banks.

A more difficult job is to assess the risk of loans, securitized or not, to state and municipal governments and to their companies. Most of them have a poor payment record, which is aggravated by the difficulty to legally demand payment. Even though the central government usually bails them out when they default (or the banks that finance them, depending on how one looks at this), this practice contributes little to the soundness and stability of the financial system. It seems thus appropriate to weight the credits to these governments according to the credit risk they represent. Possibly, the methodology used to assess the credit of sovereigns could be adapted to assess the risk of credits to states and municipalities.²⁸

An even more complicated issue is how to incorporate the information about small and medium sized companies for which there is no rating available. (Interestingly, the new framework proposed by the Basle committee does not make any specific recommendation for loans to unrated borrowers). In the CRC there are 215 thousand firms with debts in individual institutions above R\$ 50,000. This contrasts with the number of firms rated by Serasa: xxx. The problem is not only one of the quantity of firms. Much of the relevant information for analyzing the credit risk of these borrowers arises from bilateral, long-term relationships they keep with their banks, which is not disclosed either to the Central Bank or to private CIRs. In addition, for many of these firms balance sheets are utterly unreliable -- even in some of the few cases in which they are audited by independent firms -- and often do not to reflect the actual financial health of the firm.²⁹ Banks, however, usually have access to these firms' shadow accounts,

²⁷ See Morgan (1997).

²⁸ A rating system of state and municipal governments was developed by the Getulio Vargas Foundation at the request of the federal government but was never put in place.

²⁹ Balance sheets are falsified to facilitate tax evasion.

which show their actual financial health. In addition, they more easily correlate the accounts of the firm and its owners with their creditworthiness.

The Central Bank expects to assess this information through the CRC, by asking financial institutions to rate all their clients with debts above R\$ 50,000, and possibly also each individual loan, on a scale from 1 to 6, following a prescribed set of classification rules. The Central Bank will then consolidate these ratings and ascribe to each borrower a credit rating to be used by all banks. This rating would then be the main instrument to incorporate risk assessment in prudential regulation. The problem with this strategy, as note above, is that banks have incentives to underestimate their clients' probability of default. It is unlikely that banks incentives could be corrected through sanctions, since it is impossible to verify whether banks are correctly reporting on the information that is private to them in the first place.³⁰

The Argentine Central Bank tries to mitigate this problem using the interest rate charged by banks in individual operations as a proxy of credit risk, using these to generate an Indicator of Credit Risk, used in computing minimum capital requirements.³¹ The shortcoming of this procedure is that it encourages banks to lower reported interest rates, using other means to remunerate their loans (e.g. minimum interest-free deposit balances).

Fourth, it remains to be determined how to factor in the available information about retail risks (loans to individuals and very small companies), for which not even the banks keep private information, in asset risk assessment. It seems to us that the relevant information to bank supervisors in this case is available at the CIRs. Serasa's Credit Bureau data bank keeps positive information about more than 80 million people. Large banks also have credit scoring models that could be used for that purpose. Possibly, incentives for truth-telling in this case would be stronger than in the case of medium size firms.

A last issue is how to account for the correlation of credit risk in different operations at bank level. That is, the extent to which risk is properly diversified. Banks have progressed significantly in recent years in developing their own models to assess their risk, and there has been a tendency to rely on internal models to measure portfolio risks, coupled with supervisory review to make sure the consistency of capital-asset ratios and risk profile.

5. Final Remarks

Any analysis of the use of credit information in Brazilian credit market has to consider that this market is segmented in four parts, namely, loans to (i) large corporations, (ii) the public sector and public companies, (iii) medium-sized companies (the middle market), and (iv) small companies and individuals. Differences among the four arise regarding the amount and quality of information about borrowers, how this information is used in credit analysis, and how it is distributed among the market's main players (the Central Bank, banks, and the CIRs).

The CIR industry has a long history in Brazil, one characterized by the maintenance of black lists on defaulters. These lists played the dual role of informing creditors and encouraging defaulters to settle their debts, so as to have their names erased from them. This industry has changed considerably since price stabilization and the ensuing surge in the volume of consumer

³⁰ The importance of the CRC to overcome the information asymmetries between incumbent banks and outsiders should not be overlooked. Currently, the simple fact that a firm has managed to secure credit is in itself revealing about its actual probability of default. As time passes by, financial institutions will also be able to learn about the actual payment history of these firms. So, even if information asymmetries will remain, they will be reduced.

³¹ Escudé (1999) shows that under certain conditions interest rates are a good proxy to the systemic risk of loans.

loans. Three of these changes are noteworthy. First, it has become more competitive, as new players entered the market, attracted by its large potential. Second, the public sector started to play a more active role, with the creation of CADIN and the CRC. Third, CIRs started to offer more positive information on borrowers.

The paper's main conclusions about the use of credit information by banks can be summarized in the following items:

a) The market for bank loans to the private sector is very fragmented in terms of borrowers's credit quality. Banks in general tend to divide the loan market into three segments: consumer credit and small business; the middle market and the corporate sector. They pursue different strategies for each market category, since risks and returns are different for each class of customers;

b) Banks are at different stages of organizational development in relation to the management of credit decision process. The institutionalization of credit policies, procedures and practices only became important after the unsuccessful experience with the credit bubble in the early phase of stabilization plan (from July 1994 to March 1995);

c) The creation of credit committees at various stages of banking organizations is part of the process of institutionalization of the credit culture mentioned earlier. The same kind of organizational change can be detected in the trend towards the decentralization of the credit process, as revealed in the development and adoption by some banks of methodologies for the management of credit risk, such as credit scoring, credit rating, and so on. This means that a substantial proportion of the loans (mostly to small businesses and consumers), as much as 80% in some banks, is decided at the branch level, based on automatic credit evaluation methods relying on statistical analysis;

d) In general, all banks use the negative information provided by CIRs as the first filter to select their potential borrowers. For lending to small business and to consumers, this restrictive information is the relevant consideration to accept or reject the loan application. As mentioned earlier, the inclusion of an individual's or a firm's name in any of CIR is sufficient to exclude him/her from the credit market. Therefore, the information supplied by CIRs is crucial for lending decisions in the high quantity/low value credit market serving small businesses and consumers;

e) Information gathered by CIR is also important to monitor changes in the economic conditions of the current borrowers thus preventing future defaults. Given the pronounced macroeconomic instability of recent times in Brazil, the small business' and individuals' capacity to pay might have been particularly affected by the large swings in level of economic activity and the associated high unemployment rates;

f) The weight of the CIR information in the credit decision process decreases as the size and complexity of the loan increases. For the middle market, the most profitable and risky credit market segment, banks combine internally generated information with positive and negative data from CIRs, giving more importance to the former in their lending decisions. Costs and returns associated with the gathering of private information by lenders are not shared with credit bureaus, remaining therefore "proprietary" assets/liabilities;

g) The credit decision process is very similar for the loans to large domestic corporations or subsidiaries of foreign companies, where formally audited accounting data are more reliable as

sources of data on the firms' prospects. Even in such situation, banks also collect their own private information to support their credit decisions.

Bank regulation and supervision make very little use of the information available at the CIRs. The only noteworthy exception is the consideration of borrowers' status in the CIRs by the Central Bank when analyzing the banks' credit portfolio in on-site supervision. Other than that, bank regulation is mostly based on balance sheet information and on individual loan status. There is a wide scope for introducing regulation that is more forward looking and risk sensitive. The main challenge in this regard is how to incorporate the information that is private to banks (middle market) and how to account for correlations across different types of loans in banks' portfolios.

Table 4.2: Number of debtors with normal debts and balances per institution on December 31st, 1998, of R\$ 50.000 or above – Firms

	<u>Number of debtors that operate with</u>				
	1 Bank	2 Banks	3 Banks	4 Banks	5 or more Banks
1. Without consolidating debts posições devedoras					
With balances with each bank					
Between R\$ 50.000 e R\$ 100.000					
Between R\$ 100.001 e R\$ 200.000					
Between R\$ 200.001 e R\$ 1.000.000					
Between R\$ 1.000.001 e R\$ 10.000.000					
Between R\$ 10.000.001 e R\$ 50.000.000					
Between R\$ 50.000.001 e R\$ 100.000.000					
Above R\$ 100.000.000					
2. After consolidating debts across banks					
With consolidate balances					
Between R\$ 50.000 e R\$ 100.000					
Between R\$ 100.001 e R\$ 200.000					
Between R\$ 200.001 e R\$ 1.000.000					
Between R\$ 1.000.001 e R\$ 10.000.000					
Between R\$ 10.000.001 e R\$ 50.000.000					
Between R\$ 50.000.001 e R\$ 100.000.000					
Above R\$ 100.000.000					

Source: Central Bank.

Table 4.3: Number of debtors with normal debts and balances per institution on December 31st, 1998, of R\$ 50.000 or above – Individuals

	<u>Number of debtors that operate with</u>				
	1 Bank	2 Banks	3 Banks	4 Banks	5 or more Banks
1. Without consolidating debts posições devedoras					
With balances with each bank					
Between R\$ 50.000 e R\$ 100.000					
Between R\$ 100.001 e R\$ 200.000					
Between R\$ 200.001 e R\$ 1.000.000					
Between R\$ 1.000.001 e R\$ 10.000.000					
Between R\$ 10.000.001 e R\$ 50.000.000					
Between R\$ 50.000.001 e R\$ 100.000.000					
Above R\$ 100.000.000					
2. After consolidating debts across banks					
With consolidate balances					
Between R\$ 50.000 e R\$ 100.000					
Between R\$ 100.001 e R\$ 200.000					
Between R\$ 200.001 e R\$ 1.000.000					
Between R\$ 1.000.001 e R\$ 10.000.000					
Between R\$ 10.000.001 e R\$ 50.000.000					
Between R\$ 50.000.001 e R\$ 100.000.000					
Above R\$ 100.000.000					

Source: Central Bank.

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