http://www.info.gov.hk/hkma

A

B   —

C

2.　　　　　1999　　7

　　　　　　　　　　　　　　　　2000

3.

　　　　　　　　　　　　　　　　　2000　　4

　50

4.

i

5.

6.

( )

7.

8.

i)   4

       4

–

–

;

–

–

ii)

(   )

iii

iii)

$$\frac{1}{}$$
$$-$$

9.   2000

    9   15

                        3   30

            (「   」)

                        2878 1887

                        ccra@hkma.gov.hk

1

1.1 2000 3 8

1.2 1999 7

2000

1.3

1.4

2000

1.5

2000   4

50

A   50   45   2

3

80%   75%

1.6

2

3

4

A

B

C

(http://www.info.gov.hk/hkma)

3

2

2.1

(i)

(ii)

2.2

2.3

    (i)

    (ii)

    (iii)

2.4

2.5

B

(i)

(ii)

(iii)

2.6

2.7

C

(Buro de Credito)

1997

30%

2.8   1930

                                                                                      3

                              300

2.9   1980

2.10

_____

2.11

2.12

6

2.13

2.14

(96%)   [1]

2.15

                                                                       90%

        70%

---
[1]

3

3.1

自

3.2   72%

90%

信貸

地　往

3.3

(i)

(ii)

3.4　　　　　　　　在研究資料庫的具體架構時，　　　　　　　　　　　這些架構

–

–

–

–

3.5

3.6

3.7

58%

20%   22%

35%

3.8   施

3.9

3.10   人士

3.11

　　　一般是

51%

　　　30%　　19%

Korean Federation of Banks　　1995

　　　　　　　　1997　　　　　　　　　　　Dun & Bradstreet

　Trans Union

3.12   58%   公營

機構　　20%   10%

                                              1

                                                                因為

                　1

                                                      1

或者

3.13   1

1

(i)

(ii)   (   )

3.14

(i)
(ii)
;
(iii)

(iv)

(i)

3.15

或者

14

的運作

3.16

有信心

市場

(ii)

3.17

1996

1996

(i)

3.18   12

為　　　　　　　　　　制定規則[2]

此外，　　　　　　　　以

(iii)

3.19　　　　3

　　　　　　個方案的優點　　　　　或可

　　眾對　　　　　更　　　　　　　　　　也

　　　　　　　　　　　　　　　界

　　　　　　　　　　　　　　　　　　　　(i)

　　　　　　　　　　式也有

　　　　　　　　　　50%

(iv)

3.20

---

[2]

這一間

即   即

等

管不足   須受到具公信力的機構

實施

3.21

。   認可機構

這個方案

據了解，目前   是

的 印度   即當

地中央銀   個人

1

1

3.22

透過立

法監管

1

3.23

3.24 更

服務

84% 認為

55% 資料庫

可能引發 在香港以 地方融資

3.25 資料庫未能 ( )

資料

, 時

92%

3.26

及

80%

會

3.27 4

資料庫

資料庫　　減低認可機構

從而

1

3.28　　　　　　　　　　　　　　　　　　　減低

解

決辦法是　　　　　　　　　　　　　　　　　披露

3.29

其好處

20

3.30

84%   不便

                                                                也

                                                      值得

應   為   非藍籌上市公司也有實際困

難。   我們相信資料庫

                                                可

3.31

                                                30   60   90

                                                      3.36

21

3.32

3.33

3.34   28%

                                              須

3.35

         來

3.36

1998

2

3.37

4

4.1

　　企　融資效率　　　有關　　　融資　　　　　　提

供更多　　　　　　　　　　　　　　。

　　　　　　　　　　　　　　　　　　　　　　　願

4.2　　　　　　　　　　　同　　　　　　　　沒有

發展全面性的

4.3

　　　　　　2000　9　15

　　　　　3　30

2878 1887　　　　　　　　ccra@hkma.gov.hk

4.4

只載於　　　　　(http://www.info.gov.hk/hkma)

4

(   )

50

80%   75%

2.   A

B

C

1

A

3.   78%

92%

69%   50%

1

4.   60%

                    72%   51%

36%

5.   96%

6.   84%

7.

   51%   56%

B

8.

90%

70%

9.

52%

42%   1

10.   26%

11.   84%

12.

92%

44%   10%   12%

13.

1   82%

_____

-
-
-
-
-
-
-
-
-

14.   94%

                              70%

15.   56%

                    42%

16.

17.   60%

      22%   20%

65%

18.   58%

20%

10%

19. 　　　　　　　3

　　　　1999　12　31

(　　1 　2)

		(%)	
i)		15.1	47.0
ii)		10.6	21.5
iii)		0.4	20.4
iv)		6.8	11.0
v)		10.2	

20.

1999　12　31

(　　3)

<= 100	66,938	22,398.1
> 100　　　　250	18,043	30,293.1
> 250　　　　500	13,483	47,596.0
> 500　　　1,000	10,316	70,267.6
> 1,000　　　5,000	12,486	247,330.8
> 5,000　　　1	2,031	135,443.1

> 1	2,466	918,392.8
	125,763	1,471,721.5

A

1.

78.0%
22.0%   *6*

2.

92.3%
69.2%
53.9%
51.3%
46.2%
48.7%
25.6%
20.5%
15.4%

3.

35.9%
61.5%
2.6%

4.

71.8%
51.3%
35.9%

5.

32.0%
10.0%
4.0%
4.0%
2.0%

i)
96.0%
4.0%

ii)
83.7%
16.3%

iii)
51.0%
49.0%

iv)
56.2%
43.8%

B

7.

90.0%
6.0%
4.0%

8.   ____

i)
98.0%
2.0%

ii)
90.0%
6.0%
4.0%

iii)
70.0%
20.0%
10.0%

iv)
92.0%
2.0%
6.0%

9. _____

i)
42.0%
42.0%
16.0%

ii)
52.0%
30.0%
18.0%

iii)
26.0%
50.0%
24.0%

10.

i)
4.0%
24.0%
72.0%

ii)
6.0%
32.0%
62.0%

iii)
8.0%
48.0%
44.0%

iv)
10.0%
50.0%
40.0%

11.

[

]

26.0%
74.0%

74%
30.0%

12

[

]

84.0%
16.0%

16.0%
12.0%
8.0%
2.0%

13.

94.0%
6.0%

14.

96.0%
94.0%
76.0%
74.0%
72.0%
72.0%
72.0%
64.0%
64.0%

15.

64.0%
14.0%
22.0%

16.   14

81.6%
18.4%

17

59.2%
40.8%

18.

56.0%
42.0%
2.0%

19.

4.0%
76.0%
20.0%

20.

12.0%
72.0%
16.0%

21.

98.0%
94.0%
90.0%
90.0%
86.0%
36.0%

22.

92.0%
44.0%
10.0%
12.0%

23.   22

70.0%
58.0%
42.0%
28.0%
8.0%

24.

28.0%
42.0%
30.0%

25.

58.0%
20.0%
10.0%
12.0%

26.

22.0%
20.0%
22.0%
36.0%

27. ____

65.2%
34.8%

C

28.　　　　3　　　　　　　　　　　　　　　　　　　　　1999　　12
　31　　　　　　　　　　　　　　　　　　　　　　　　　　　　(
2)

(　　1)	(%)	
i)	15.1	47.0
ii)	10.6	21.5
iii)	0.4	20.4
iv)	6.8	11.0
v)	10.2	

29.　　　　　　　　　　　　　　　　　　　　1999　　12　　31
　　　　　　　　　　　　　　　　　　　(　　3)

<= 100	66,938	22,398.1
> 100　　　250	18,043	30,293.1
> 250　　　500	13,483	47,596.0
> 500　　1,000	10,316	70,267.6
> 1,000　　　5,000	12,486	247,330.8
> 5,000　　　1	2,031	135,443.1
> 1	2,466	918,392.8
	125,763	1,471,721.5

———1———

4

-

4 7 %

-

-

-

I B M

———2———

3 4

———3———

4 2

—

2.   1

                3

             3

          reject   rate

                                        1

    1

18	18		
	=40%	=15%	=33%
1.	=7.3%	=6.8%	=8.4%
2.	=5.6%	=5.0%	=6.8%
2 1	25.3%	27.4%	20.7%

1

3.	=4.7%	=4.3%	=5.6%
3　1	38.0%	38.4%	35.9%
3　2	16.9%	15.1%	19.2%

3.

1999   [1]

                                                    49

                                                                    (i)

        (ii)   (iii)   2

    表 2

		(%)	60.53	31.10	67.57	66.42
		(%)	0.88	1.31	0.86	0.81
			7.19	5.96	6.77	7.79
	(%)		3.45	4.53	2.87	3.38
			7.24	4.80	8.14	7.59
			2.15	3.14	2.20	1.83
			0.40	0.43	0.20	0.48
			0.12	0.00	0.00	0.22
			0.10	0.00	0.30	0.04
			0.37	0.57	0.50	0.26

[1]   22   Jappelli   Pagano
        Information Sharing, Lending and Defaults   Cross-Country
Evidence

40	7	10	23

4.

WORKING PAPER no. 22

Information Sharing, Lending and Defaults:
Cross-Country Evidence

Tullio Jappelli, and Marco Pagano

May 1999

CSEF WORKING PAPER no. 22

Information Sharing, Lending and Defaults:
Cross-Country Evidence

Tullio Jappelli[*] and Marco Pagano[*]

Abstract

Theory predicts that information sharing among lenders attenuates adverse selection and moral hazard, and can therefore increase lending and reduce default rates. To test these predictions, we construct a new international data set on private credit bureaus and public credit registers. We find that bank lending is higher and proxies for default rates are lower in countries where lenders share information, regardless of the private or public nature of the information sharing mechanism. We also find that public intervention is more likely where private arrangements have not arisen spontaneously and creditor rights are poorly protected.

[*] CSEF, University of Salerno and CEPR

Table of contents

1. *Introduction*

A large body of literature shows that asymmetric information between borrowers and lenders can prevent the efficient allocation of credit. Lenders are often unable to observe the characteristics of borrowers, including the riskiness of their investment projects, and this induces adverse selection problems. Lenders may also be unable to control the actions that borrowers take after receiving a loan. A borrower may relax his effort to prevent default or hide the proceeds of his investment to keep from having to repay his debts. Even a solvent borrower may try to avoid repayment if the lender cannot observe or sanction his actions. The consequence is that lenders may ration credit or charge high borrowing rates.

It is often assumed that the only way lenders can overcome these informational problems is to produce information about their customers via screening and monitoring. For instance, they can interview applicants, visit their business before and after granting the loan, and gather information from public records. If lenders operate on a large scale, these data can be used for statistical risk management to grant and price loans on the basis of past performance.

Most of the literature neglects exchange of information with other lenders as an alternative way to learn about one's own customers. This exchange can be voluntary or imposed by regulation. When it occurs spontaneously, it is effected by information brokers, known as "credit bureaus", which operate on the principle of reciprocity, collecting, filing and distributing the information supplied voluntarily by their members. In many countries a great deal of informational exchange also occurs via "public credit registers". These are generally managed by central banks, with compulsory reporting of data on borrowers which are then processed and returned to the lenders.

Previous theoretical research, summarized in Section 2, shows that information sharing between lenders can foster credit activity and increase borrowers' incentives to repay, but no empirical investigation of such effects exists to this date. To fill this gap, in this paper we use a new international database to test if the presence of credit bureaus or public credit registers increases lending activity and reduces defaults.

Sections 3 and 4 describe our data set, which we collected via questionnaires directed to private credit bureaus and central banks. We document that borrower coverage and the type of data exchanged vary

considerably over time and between countries. Lenders commonly exchange data about past defaults or arrears. Sometimes they also share data about customers' outstanding liabilities, maturities, and details about borrowers' credit history. In Section 5 we test if private and public information sharing affect bank lending, and in Section 6 whether they also affect non-performing loans and credit risk. We find that information sharing is associated with broader credit markets and lower credit risk, but not with a significantly lower fraction of non-performing loans.

The empirical analysis reveals that private and public information sharing arrangements have no differential effect on credit market performance. One way to interpret this finding is that public credit registers and private credit bureaus are substitutes. This leads us to investigate directly whether the absence of private credit bureaus prompts regulators to establish public credit registers or to widen the scope of their operation. Probit and Tobit regressions reported in Section 7 show that these hypotheses are consistent with the data. Section 8 summarizes our main findings.

2. Review of Theoretical Models

Recent theoretical research suggests a threefold effect of lenders' exchange of information about borrowers. First, credit bureaus improve banks' knowledge of applicants' characteristics and permit more accurate prediction of repayment probability. This allows lenders to target and price their loans better, easing adverse selection problems. Second, credit bureaus reduce the informational rents that banks could otherwise extract from their customers. They tend to level the informational playing field within the credit market and force lenders to price loans more competitively. Lower interest rates increase borrowers' net return and augment their incentive to perform. Third, credit bureaus work as a borrower discipline device: every borrower knows that if he defaults his reputation with all other potential lenders is ruined, cutting him off from credit or making it more expensive. This mechanism also heightens borrowers' incentive to repay, reducing moral hazard.

Here we review these three effects of information sharing. In the pure adverse selection model developed by Pagano and Jappelli (1993), information sharing improves the pool of borrowers, decreases defaults and reduces the average interest rate. In the model, each bank has private

information about the credit worthiness of local residents but no information about immigrants, who therefore face adverse selection. If banks exchange their private information about residents, they can lend safely to immigrants as well, so the default rate decreases. The effect on lending is ambiguous, however. The volume of lending may increase or decrease, because when banks exchange information about borrowers' types, the implied increase in lending to safe borrowers may fail to compensate for the reduction in lending to risky types. Banking competition tends to strengthen the positive effect of information sharing on lending: when credit markets are contestable, information sharing reduces informational rents and increases banking competition, which in turn leads to greater lending. [1]

The other two effects arise in the presence of moral hazard. Information sharing can reinforce borrowers' incentives to perform, either via a reduction of banks' rents or through a disciplinary effect. The exchange of information between banks reduces the informational rents that banks can extract from their clients within lending relationships. Padilla and Pagano (1997) make this point in the context of a two-period model where banks are endowed with private information about their borrowers. This informational advantage confers to banks some market power over their customers, and thereby generates a hold-up problem: since banks are expected to charge predatory rates in the future, borrowers exert low effort to perform, leading to high default and interest rates, and possibly to the collapse of the credit market. By committing to exchange information about borrowers' types, they restrain their own future ability to extract informational rents. This reduces the probability of default of each borrower and the interest rate he is charged, and increases total lending relative to the regime without information sharing.

An effect on incentives exists even when there is no hold-up problem. This effect is present when banks, instead of exchanging information about

---

[1] This model also delivers predictions about lenders' incentives to create a credit bureau. Lenders have a greater incentive to share information when the mobility of credit seekers is high and when the potential demand for loans is large. Technical innovations that reduce the cost of filing, organizing and distributing information should foster credit bureaus' activity. Banking competition, by contrast, might inhibit the appearance of credit bureaus: with free entry, a bank that supplies information about its customers to a credit bureau is in effect helping other lenders to compete more aggressively. This reduces the expected gain from information sharing and could deter the creation of a credit bureau. Pagano and Jappelli (1993) bring international and historical evidence to bear on these predictions.

borrowers' types, communicate to each other data about past defaults. Padilla and Pagano (1999) show that this creates a disciplinary effect. When banks share default information, default becomes a signal of bad quality for outside banks and carries the penalty of higher interest rates. To avoid this penalty, entrepreneurs exert more effort, leading to lower default and interest rates and to more lending.[2]

In this model, disclosing information about borrowers' quality, instead, has no effect on default and interest rates, in contrast with the result of Padilla and Pagano (1997). Ex-ante competition is assumed to eliminate the informational rents of banks anyway, so that their customers' overall interest burden cannot be reduced further. As a result, when information about their quality is shared, borrowers have no reason to change their effort level, and equilibrium default and interest rates stay unchanged. Information sharing about borrowers' characteristics can even reduce lending. When they share information, banks lose all future informational rents and therefore require a higher probability of repayment to be willing to lend. So the credit market may collapse in situations in which it would be viable under no information sharing.

This suggests that sharing data on defaults rather than borrowers' characteristics can have quite different effects on the probability of default. The disciplinary effect arises only from the exchange of default information. To the extent that banks also share data on borrowers' characteristics, they actually reduce the disciplinary effect of information sharing: a high-quality borrower will not be concerned about his default being reported to outside banks if these are also told that he is a high-quality client. But, as discussed above, exchanging information about borrowers' characteristics may reduce adverse selection or temper hold-up problems in credit markets, and thereby reduce default rates.

On the whole, all three models agree on the prediction that information sharing (in one form or another) reduces default rates, whereas the prediction concerning its effect on lending is less clear-cut. However, even the prediction about default is unambiguous only if referred to the probability of default of an individual borrower. When one considers the

---

[2]   In this model there is no holdup problem because initially banks have no private information about credit seekers, and ex ante competition dissipates any rents from information acquired in the lending relation.

average default rate, the prediction may be overturned by composition effects. Suppose that information sharing gives access to credit to lower-grade borrowers. Even though each borrower's probability of default is lower, the aggregate default rate may increase because the relative weight of lower-grade borrowers increases. Since the data used in the empirical tests in the next sections concern aggregate measures of the default rate, this composition effect may introduce a bias against the prediction of the models.

The empirical evidence on these predictions will be presented in Section 4. Before turning to the evidence, we proceed to describe the main features of private and public information sharing arrangements, and their diffusion around the world.

3. Private Information Sharing Arrangements

In a number of countries, lenders (banks, finance companies, credit card companies, retailers, suppliers extending trade credit) routinely share information on the creditworthiness of their borrowers through credit bureaus, information brokers that in some cases are set up and owned by the lenders themselves and in others operated independently for profit by a third party. Lenders supply the bureau with data about their customers. The bureau collates this information with data from other sources (courts, public registers, tax authorities, etc.) and compiles a file on each borrower. The lenders that contribute data can later obtain a return flow of consolidated data about a credit applicant by requesting a "credit report" from the bureau. Nowadays this two-way flow of data between lenders and the bureau is effected electronically.

It is the exchange of information between lenders that distinguishes a credit bureau from other agencies that collect and process valuable information from public sources and private investigators. Credit bureaus often do collect and process such data, but this is not their distinguishing characteristic.

Lenders who provide their private information to credit bureaus are granted access to the common database insofar as the data provided are timely and accurate. Credit bureaus are exposed to a potential conflict of interest, especially when they are owned by the lenders themselves: each

lender would like to exploit the information provided by other lenders without disclosing his own. This explains why sanctions are invariably threatened to any credit granter who fails to supply data or provides inaccurate information. Sanctions range from fines to loss of membership and hence denial of access to the bureau's files. In other words, credit bureaus are based on the principle of reciprocity, which is generally stated in the contractual agreement between the bureau and credit grantors.[3] Most credit grantors do supply their information regularly, particularly those that have accounts receivable on tape.

Around the world, arrangements of this type are found both in the household credit market and in business lending, in varying degrees and with different institutional features. These are described and documented below.

3.1. Personal Loans and Small Business Loans

Personal and small business loans are characterized by a large number of applicants whose desired loan size is not large enough to warrant individual assessment. In these markets, screening can benefit greatly from statistical analysis of applicants' characteristics and credit histories as predictors of repayment, and such analysis is feasible precisely because of the large number of standard loans. Credit bureaus, which pool data from many lenders and for several years, own the ideal database for estimating statistical models of risk management, which explains why credit bureaus have generally originated precisely in the consumer credit market. They are now increasingly active in the small business and trade credit markets as well.

---

[3]   There are exceptions, however. At one time, American Express declined to share its information with the credit bureaus, but because it was willing to buy reports in large quantities, the bureaus kept on selling reports to that firm. This situation later changed and American Express now provides data on its own customers.

FILE NUMBER – 64610042 REF 3664-3186
HARRISON, THOMAS, RONALD, M,M, KRISTINA
SUBJECT BORN – 100850, LIC NO-2421PS
SPOUSE BORN – 250164
EMPLOYMENT – SERVICEMAN, GAZEBO WHOLESALERS PL
ADDRESS – 35, LAND, BONNYRIGG, NSW
PREVIOUS – 48, GERORGE, DANDENONG, VIC

DIRECTORSHIP DETAILS
DATE
130886 MRT – GEZEBO WHOLESALERS PL (IN LIQ.) CC-64608113

MEMBER DEFAULT REPORTS

DATE	NAME	AC	AMNT	DF	REF. NO.	DTR PAID
140388	STANDARD CHART LOSS REC NSW	L	5431	PD	LLR0040LS	MRT
040687	AGC FIVE DK NSW	L	7314	R	L1070515135	MRT
260186	ESANDA ADMIN SYD NSW	RM	6448	RL	241174159	T&K

JUDGEMENTS

DATE	NAME	AMNT	DF	PLAINT. NO.	DTR PAID
150487		9037	DJ	15648/86/METN	MRT

NOTE: Alleged debt(s) may have been paid since recorded, or are possibly disputed. check with creditors for confirmation.

CREDIT ENQUIRIES

DATE	NAME	AC	AMNT	DTR	REFERENCE NUMBER
140688	CITYCORP FIN HURTSVILLE NSW.	L	8727	T&K	
131287	AGC FIVE DOCKK NSW	L	8700	T&K	
231087	JAOHN'S MOTOR NSW	HM	7000	T&K	
111186	WESTPAC WESTERN NSW	CC	0	MRT	
221185	ITICORP FIN SYDNEY NSW	L	1717	MRT	
150685	PERMANENT FIN CORP NSW	HB	15300	MRT	
310784	AGC FIVE DOCK NSW	L	18000	MRT	
230484	ESANDA ADMIN VIC	RM	19000	MRT	

KEY TO THE INITIALS USED IN THE REPORT

AC	- ACCOUNT TYPE	L	- LEASE ACCOUNT
M	- MONTHLY ACCOUNT	HM	- HIRE PURCHASE MOTOR VEHICLE
T	- TERMS ACCOUNT	RM	- REAL ESTATE MORTGAGE
HB	- HIRE PURCHASE BOAT	CC	- CREDIT CARD
AMNT	- AMOUNT OWING OR APPLIED FOR	DF	- REASON FOR REPORTING
PD	- REGULAR PAYMENT DEFAULT	R	- REPOSSESSION
RL	- REPOSSESION LOSS	DJ	- DISTRICT COURT JUDGEMENT
LA	- LEGAL ACTION	DTR	- WHO IS THE DEBTOR
MRT	- DEBTOR IS MR. T. HARRISON	T&K	- DEBTOR IS THOMAS AND KRISTINA

FILE NUMBER – 6261150
BRANDY WHOLESALERS P/L
REG OFFICE –3, SMITH, PENRITH,NSW

INCORPORATION DETAILS

DATE INCORP	REGISTRATION NUMBER	STATE REGISTERED
180285	234322-78	NSW

CORPORATE AFFAIRS SEARCH

DATE	DATE LAS RETURN	SHARED ISSUE	PAID CAPITAL
130688	101286	1,000,000	$840,000

DIRECTORSHIP DETAILS

DATE		FILE NUMBER
100688	THOMAS GARDNER	CN-26579545
100688	SAMUEL HARVEY	CN-88502222

NOTE: Directohip details were obtained from corporate affairs comm. records

MAJOR SHAREHOLDERS

DATE	NAME	SHARES HELD
100688	CAROLINE NOMINEES P/L	385,000
100688	THOMAS GARDNER AN ASOCIATES P/L	422,000
100688	SAMUEL HARVEY	28,000

SECRETARY

DATE	NAME
100688	JOHN CAMPBELL

MEMBER DEFAULT REPORTS

DATE	NAME	AC	AMNT	DF	REFERENCE NO.	PAID
020787	AGC COMMERCIAL LEASE	L	6000	LA	45903	1186P

NOTE: Alleged debt(s) may have been paid since recorded, or are possibly disputed. check with creditors for confirmation.

SECURITIES

DATE	CREDITORS	TYPE	AMT	SECURITY	REFERENCE
100188	STATE BANK OF NSW	RM	387900	LAND PENRITH	323425362

CREDIT ENQUIRIES

DATE	NAME	AC	AMNT
130488	CORPORATE LEASING SERV NSW	L	185000
180787	J.B.C. IMPORT AGENCY VIC	M	20000

KEY TO THE INITIALS USED IN THE REPORT

AC	- ACCOUNT TYPE	L	- LEASE ACCOUNT
M	- MONTHLY ACCOUNT	DF	- REASON FOR REPORTING
RM	- REAL ESTATE MORTGAGE	LA	- LEGAL ACTION
AMNT	- AMOUNT OWING OR APPLIED FOR		

A credit bureau can issue several kinds of credit report, depending on the information gathered, the type of credit application (consumer credit, house mortgage, small business loan, etc.) and, most importantly, the amount of detail requested by the lender. Reports range from simple statements of past defaults or arrears – "black" or "negative" data – to detailed reports on the applicant's assets and liabilities, guarantees, debt maturity structure, pattern of repayments, employment and family history – "white" or "positive" data. Naturally the price of a credit report depends on the amount of detail. Prices for basic credit reports are currently quite low, averaging about 1 dollar in the United States and the United Kingdom, 2 dollars in Italy, and more than 3 dollars for local credit bureaus in Argentina.

Figures 1 and 2 give examples of the most basic type of credit report, reproduced from a publication of the largest credit bureau in Australia, which only collects and reports negative information. Figure 1 shows an individual credit file for a person with several credit problems: three members of the bureau reported default, there was a debt judgment, and he appears as director of a failed company. The bottom part of the report shows previous queries to the bureau by various lenders. Figure 2 refers to a small company. It shows the main shareholders and directors, with cross references to the individual files that the bureaus has recorded in their names. The company has been reported as insolvent by a bureau member and has pledged a security over its assets to a bank.

The more sophisticated credit bureaus also use statistical models to produce and sell "credit scoring" services, by which they rate borrowers according to characteristics and credit history. Such scores were initially developed by credit grantors mainly for deciding on applications. Where positive information is also available, the models are now intensively also used to promote financial instruments, price loans, and set and manage credit limits.

To gather more information about their operations around the world, we sent a questionnaire (reported in the Appendix) to credit bureaus in 49 countries.[4]

---

[4] The list of countries is given in Tables 1 and 2 and is the same as in La Porta et al. (1997). This choice is dictated by the need to merge our data on information sharing with data on other institutional determinants of lending and default.

Figures are based on a questionnaire sent to the main credit bureaus in each country, whose names are not reported for reasons of confidentiality. When two or more credit bureaus responded for the same country, the information was merged as follows. The starting date refers to the oldest credit bureau in the country. The type of information shared refers to the 1990s and is defined as "black" (B) if it refers to defaults and arrears, and "white" (W) if it also includes other information, such as debt exposure. Credit reports are the number of credit reports issued by all the credit bureaus in the country (if available); otherwise, by the credit bureaus responding in that country.

Country	Starting Date	Type of Information Shared	Credit Reports: Level / Percent of Population (year)
Argentina	1950	B-W	1.2 / 3.4 (1997)
Australia	1930	B	5.8 / 34.0 (1990)
Austria	1860	B-W	N/A.
Belgium	1987	B	10.6 / 104.8 (1998)
Brazil	1996	B	200.0 / 128.3 (1997)
Canada	1919	B-W	24.0 / 82.7 (1998)
Chile	1990	B-W	7.0 / 49.3 (1997)
Denmark	1971	B	2.6 / 50.3 (1996)
Finland	1900	B	3.5 / 70.2 (1990)
France	none		
Germany	1927	B-W	48.0 / 59.1 (1996)
Greece	none		
Egypt	none		
Hong Kong	1982	B	N/A.
India	N/A.	N/A.	N/A.
Ireland	1963	B-W	0.8 / 22.5 (1996)
Israel	none		
Italy	1990	B-W	2.6 / 4.6 (1996)
Japan	1965	B-W	149 / 121.5 (1990)
Jordan	none		
Kenya	none		
Mexico	1997	N.A.	N.A.
Netherlands	1965	B-W	9.8 / 64.1 (1996)
New Zealand	N/A.	B	N/A.

Country	Starting Date	Type of Information Shared	Credit Reports: Level / Percent of Population (year)
Nigeria	none		
Norway	1987	B	0.5 / 12 (1990)
Pakistan	none		
Peru	1995	B-W	N/A.
Philippines	1982	B	N/A.
Portugal	N/A.	B-W	N/A.
Singapore	1978	B	N/A.
South Africa	1901	B-W	N/A.
South Korea	1985	B-W	N/A.
Spain	1994	B	N/A.
Sri Lanka	none		
Sweden	1890	B-W	2.2 / 26.0 (1990)
Switzerland	1968	B-W	1.7 / 24.1 (1997)
Taiwan	1975	B-W	N/A.
Thailand	none		
Turkey	none		
United Kingdom	1960	B-W	60.0 / 104.8 (1989)
Uruguay	1950	B	N/A.
United States	1890	B-W	600.0 / 228.1 (1997)
Venezuela	N/A.	N/A.	N/A.
Zimbabwe	none		

We have received responses from credit bureaus in 39 countries; for 4 more, we obtained data from other sources (Internet sites, published information, etc.).[5] The data obtained are reported in Table 1, which displays, by country, the year in which credit bureaus were first established, the type of information exchanged (black or white) and the number of credit reports issued by credit bureaus.

The table shows that in some countries lenders exchange a massive amount of negative and positive information in the consumer credit market: Canada, the United States, the United Kingdom, Japan, Germany, South Africa, Sweden and Switzerland have the highest number of credit reports

---

[5] Detailed information on European countries is reported in a background paper (Jappelli and Pagano, 1999).

per person, and lenders have exchanged information for decades at least and in many cases the better part of a century. Credit bureaus have also operated for several decades in Argentina, Brazil, Finland, the Netherlands, and Australia but on a smaller scale. In Italy credit bureaus are a relatively new phenomenon, but have taken on growing importance in recent years. In some Latin American and Asian countries, credit bureaus are in their infancy, either non-existent or operating on a small scale and exchanging mainly black information.

Our questionnaires also elicit qualitative information on the structure and evolution of the credit bureau industry, that is not reported in the table. In most countries there is a strong concentration. A few countries have just one large credit bureau (Australia, Germany, Argentina, Brazil, Finland, and Ireland). In the U.S., U.K., and Japan competition is limited to two or three large vendors. This process of concentration is relatively recent. Where the industry has the longest history (e.g., in the U.S.), it began with local credit bureaus, progressively merging into larger entities. This reflects economies of scale (the larger the credit bureau, the more complete and accurate its information), as well as recent advances in information technology and the elimination of barriers between local credit markets. In the early 1990s concentration began to extend beyond national boundaries: the top three U.S. bureaus (Equifax, Experian and Trans Union) acquired national credit bureaus throughout in Latin America and in parts of Europe and Asia.The questionnaires also gather information on ownership structure. In the U.S., Brazil and Argentina the major credit bureaus are for-profit operations owned by private entrepreneurs, although there are also several local non-profit bureaus owned by chambers of commerce or merchants' associations. In Japan and in most of Europe, credit bureaus are typically incorporated as private companies owned by a consortium of lenders. In Finland and Belgium, they are operated or licensed by government agencies. With the process of cross-border acquisitions of local credit bureaus, especially by the large U.S. vendors, the industry is becoming increasingly profit-oriented.

The international differences in the presence and activity of credit bureaus have several complementary explanations. Pagano and Jappelli (1993) document that the number of credit reports per capita are largest where household mobility is highest. This accords with the idea that the benefit of establishing a credit bureau is greatest where each bank is confronted by a large number of unknown customers, which is the case in countries where borrowers are very mobile.

Fear of competition may also inhibit information sharing. When lenders agree to supply data to a credit bureau they lose the monopoly power attached to exclusive customer information, unless they are well protected by other barriers to entry. So lenders' incentives to pool information are greater when local credit markets are segmented by regulation, as in the United States, than when banks are free to compete nationwide, as in most European countries.

A further element that has historically affected the development of credit bureaus is the degree of privacy protection accorded prospective borrowers. The activities of credit bureaus are regulated almost everywhere so as to prevent violation of privacy and civil liberties. Privacy laws contemplate a wide range of consumer guarantees, such as limits on access to files by potential users, bans on white information (e.g., in Finland and Australia), compulsory elimination of individual files after a set time (7 years in the United States, 5 in Australia), bans on gathering certain kinds of information (race, religion, political views, etc.) and right to access, check and correct one's own file.[6]

A final element bearing on the development of credit bureaus is the degree of protection of creditor rights. Where the legal and judicial systems give poor protection to creditors, debtors may be tempted to default on their obligations even when they have the means to repay. As we argue in Section 2, credit bureaus can attenuate moral hazard in credit relations, by creating a private disciplinary system in place of defective public sanctions.

---

[6] As far as access limits are concerned, there appear to be three levels of privacy protection. The replies to our questionnaire indicate that there are low-protection countries, such as Argentina, where anyone can access all debtors' data regardless of the purpose of investigation. In such medium-protection countries as the United States, data can be accessed only for an "admissible purpose", essentially the granting of credit. A higher level of privacy protection may be embodied in the further requirement of the borrower's explicit consent to access his file. This principle is enshrined in the legislation of several European countries and in the Directive 95/46 of the European Parliament on "the protection of individuals with regard to the processing of personal data and on the free movement of such data". In some countries (such as France, Israel and Thailand) safeguards for consumer privacy are so strong that regulation has impeded the emergence of private credit bureaus.

3.2. Corporate Loans

The information needed to assess the creditworthiness of companies is by its very nature more complex and less standardized than for households. Therefore in the case of business loans credit bureaus generally take a more active role in the production of information, collating credit market data received from lenders and suppliers together with balance sheet data and information from the company itself and from public sources about shareholders and managers. The positive component of a credit report for a company is typically much larger than for an individual, and the nature of the credit bureaus in this market segment is different. Rather than provide standard credit reports and statistical risk management, here credit bureau become rating agencies, gathering and processing information from a variety of sources, including lenders and suppliers.

This very active role in the production, processing, and marketing of information may explain why the credit agencies that treat corporate loans are typically profit-oriented businesses, not lenders' cooperative arrangements. The largest of these agencies worldwide is Dun & Bradstreet (D&B). Formed in 1933 through the merger of two credit reporting agencies (R. G. Dun & Co., formed in 1841, and the Bradstreet Company), today D&B maintains a global database that covers 48 million businesses, 10 million of them in the United States. It provides a wide range of services, from the assessment of credit risk and suppliers' reliability to the management of credit and accounts receivables. A standard D&B business information report (available online via the Internet) contains payment history, financial condition, business history, management experience, details on lines of business, parent company and subsidiaries, public records, etc.

4. Public Credit Registers

All countries have public registers for real estate collateral (mortgages) to protect the seniority rights of collateralized creditors, and bankruptcy information is publicly disseminated to alert present creditors and potential

new lenders.[7] These can be considered as basic forms of publicly enforced information sharing. But in several countries government authorities have taken a much more active role in fostering the exchange of information between lenders, creating formal public credit registers (PCRs), which operate in many respects like credit bureaus.

The PCRs are managed by central banks (except in Chile, Costarica and Peru, where they are operated by the banking supervisory authorities, and in Finland, where it is contracted out to a private company). Access to the PCR is granted only to authorized central bank staff (mainly for surveillance reasons and under tight confidentiality rules) and to the reporting financial institutions.[8] This creates a two-way flow of data between credit grantors and the PCR, much as in the case of private credit bureaus.

TABLE 2. PUBLIC CREDIT REGISTERS AROUND THE WORLD

Figures are based on a questionnaire sent to central banks. The data reported to the register are defaulted loans (D), arrears (A), total loan exposure (L), interest rates (R), and guarantees (G). The exchange rates used to convert the minimum reporting threshold into dollars are those of September 1, 1998.

Country	Starting Date	Number of Subjects Covered	Credit Reports Issued	Minimum Reporting Threshold (US$)	Data Reported by Participating Institutions
Argentina	1991	4,000,000	N/A.	50	D, A, L, G
Australia	none				
Austria	1986	55,585 (1997)	10,267 (1997)	430,700	L, G
Belgium	1985	360,000 households (1997), 400,000 firms (1990)	3,550,000 households (1997)	223 for households, 27,950 for firms	D, A (consumer and mortgage credit only)

---

[7] In some countries, public registers also exist for unpaid IOUs and tax liens.

[8] In Argentina and Finland not only financial institutions but also the general public can access the PCR. In Chile the data are also made available to a private credit bureau. In Israel and Greece a database on large loans is collected for supervisory reasons only by the central bank, but this information is not made available externally.

17

Country	Starting Date	Number of Subjects Covered	Credit Reports Issued	Minimum Reporting Threshold (US$)	Data Reported by Participating Institutions
Bolivia	1989	N/A.	1,300,000	0	D, A, L, R, G, repayments
Brazil	1997	N/A.	4,000,000 households 6,000,000 firms	0	D, A, L
Canada	none				
Chile	1975	2,200,000 households 600,000 firms (1998)	Information transferred to a private credit bureau	0	D, A, L, G, risk class, sector, type of debt, etc.
Colombia	1994	N/A.	N/A.	N/A.	N/A.
Denmark	none				
Finland	none				
France	1989 for households, 1984 for firms	370,000 (1990)	5,400,000 (1990)	118,293 (1990)	D, A for households, L, G, undrawn credit facilities for firms
Germany	1934	1,200,000	1,800,000	1,699,800	L, G
Greece	none				
Egypt	none				
Hong Kong	none				
India	none				
Ireland	none				
Israel	1975	15,000	N/A.	169,500	D,L
Italy	1964	2,200,000 (1994), 6,536,914 (1998)	1,400,000 (1994)	0 for bad loans 86,010 for other loans	D, A, L, G
Japan	none				
Jordan	1966	N/A.	14,300	42,065	A, L
Kenya	none				
Malaysia					
Mexico	1964	260,000 (1997)	129,870 (1997)	20,111	D, A, L, economic activity of debtor, type of credit
Netherlands	none				
New Zealand	none				
Nigeria	none				
Norway	none				
Peru	1968	1,920,000 (1998)	N/A.	0	D, A, L, G
Philippines	none				
Portugal	1977	2,469,120 (1998)	N/A.	286,860	D, A, L, G, undrawn credit facilities

Country	Starting Date	Number of Subjects Covered	Credit Reports Issued	Minimum Reporting Threshold (US$)	Data Reported by Participating Institutions
Singapore	none				
South Africa	none				
South Korea	none				
Spain	1983	4,600,000 (1991)	758,000 (1997)	6,720 for residents, 336,000 for non-residents	D, A, L, G, regional, sectoral and currency risk
Sri Lanka	1990	N/A.	102,175 (1997)	1,493 for bad loans, 7,465 for other loans	D, A, G
Sweden	none				
Switzerland	none				
Taiwan	none				
Thailand	none				
Turkey	none				
United Kingdom	none				
Uruguay	1984	N/A.	8,000 (1997)	N/A.	D, A, L
United States	none				
Venezuela	1980s	N/A.	N/A.	0	D, A, L
Zimbabwe	none				

The key difference from credit bureaus is that participation in the PCR is compulsory, and its rules are not contracted, but imposed by regulation (except in Finland and Sri Lanka, where participation is voluntary). This implies a second important difference, namely that PCRs have universal coverage (all loans above a threshold amount must be reported at specified intervals), but the information consists mainly of credit data and is disseminated in consolidated form (total loan exposure of each borrower, no details on individual loans). Credit bureaus are less complete in coverage but offer details on individual loans and merge credit data with other data.

Table 2 sets forth the main characteristics of PCRs around the world, based on a questionnaire submitted to 49 central banks, of which 46 have responded (for the questionnaire, see the Appendix); 19 operate a PCR and 27 do not. PCRs are common in continental Europe and Latin America, absent in Anglo-Saxon countries. Most have been created in the last two

decades, except for Germany (1934), Italy (1964) and Mexico (1964). The newcomers are mostly located in Latin America.[9]

The table also shows that the data reported vary considerably across countries. For instance, in Argentina lenders are required to report data on defaults, arrears, loan exposure, interest rates and guarantees. In Germany, only loan exposure and guarantees are reported; in Belgium, only defaults and arrears.

PCRs invariably specify a reporting threshold, but this varies considerably. In most of Europe, PCRs effectively collect information only on relatively large loans to businesses, but in Belgium and France they also cover consumer loans. The threshold is highest in Germany and lowest in Belgium. Clearly, the higher the threshold set by regulators, the fewer the borrowers covered and the credit reports issued, as we see in Table 2. The threshold also demarcates the segment in which private credit bureaus operate without competition from the PCR: above the threshold, credit bureaus have to take into account that lenders can also turn to the public register's reports.

A major emerging problem for PCRs is posed by the growing integration of national credit markets, particularly within the European Union. As of 1998, PCRs are strongly if not exclusively oriented to their respective domestic markets. For instance, Italian banks are required to report to the Italian PCR loans made by their foreign branches. But these loans are not reported to the host-country PCRs. Similarly, Italian companies can borrow abroad without being reported to the Italian PCR. The integration of capital markets thus implies that PCRs are losing the capacity to provide full, accurate and reliable information on the overall credit situation.

Efforts made by the EC commission to set up an international credit reporting system have not met with success so far owing to the differences between systems which are already in place in the individual countries and the fact that countries without a central credit register are unwilling to set up a credit reporting system at the national level. However, European PCRs are planning to establish cooperative agreements to provide lenders with cross-border information. As the legal requirements for this exchange of information have not been met by all EU countries, and since technical and

---

[9]   Hong Kong is currently setting up a PCR.

organizational problems have not been solved, it is not possible to say when this cooperation will become effective. In the longer run, it is well possible that the PCRs will be gradually displaced by the growth of private, multinational credit bureaus. Since only eight EU countries have PCRs and even they find it difficult to agree on a common set of rules, the second outcome seems more likely.[10]

5. The Effect of Information Sharing on Bank Lending

The data described in Sections 3 and 4 can be used to relate bank lending to measures of the activity of credit bureaus and public credit registers, such as their presence, the quality of information collected, and the number of years they have been in operation. This exercise poses several data problems. First, missing values and non-responses limit the number of countries for which we have data on information sharing. Second, data on default rates are hard to collect and compare internationally. Third, one must control for other legal and institutional determinants of lending and defaults, and these variables are only available for a few countries.

There is also a causality issue. Theoretical models show that information sharing may increase lending and reduce defaults. The same models, however, also suggest that where credit is more abundant lenders have a stronger incentive to set up a credit bureau. In our empirical analysis, we attempt to overcome the econometric problems posed by the endogeneity of information sharing by relating credit market performance to lagged measures of the quality and intensity of information sharing.

The first row of Table 3 reports the ratio between bank lending to the private sector and GDP in a sample of 40 countries. Data refer to 1994-95. The countries are divided into three groups, depending on whether prior to 1994 (i) no private credit bureau existed, (ii) only black information was exchanged, or (iii) both black and white information was shared. Bank lending is about twice as large in countries where information is shared, irrespective of the type of information exchanged. However, the correlation may be spurious: information sharing is found in countries with higher GDP

---

[10]   In fact, it may be already occurring: in October 1998, the main Italian credit bureau (CRIF) announced a link-up with other European credit bureaus.

per capita, better law enforcement and poorer safeguards for creditor rights, variables that may well themselves be correlated with bank lending. To control for their effect on bank lending, we turn to regression analysis.

<p style="text-align:center">T ABLE 3
I NFORMATION S HARING AND C REDIT M ARKET P ERFORMANCE:
D ESCRIPTIVE S TATISTICS</p>

Countries are divided according to the type of information exchanged via private credit bureaus or public credit registers, based on Tables 1 and 2. Black Information Only is 1 if prior to 1994 private credit bureaus and/or PCRs exchange black information, and 0 otherwise. Black and White Information is 1 if prior to 1994 credit bureaus or PCRs exchange black and white information. The Bank Lending - GDP ratio is the ratio of bank claims on the private sector to GDP in 1994-95. Loan Loss Provisions is the 1994-95 average of the median ratio of non-performing loans to total loans in each country and is based on the BankScope data set produced by IBCA. The Appendix reports the data for loan loss provisions and the number of banks used to construct country medians. The Credit Risk Indicator is based on the International Country Risk Guide Financial Indicator (ICRGF), and ranges from 0 to 50 (maximum risk). The total number of observations for Loan Loss Provisions and Credit Risk is 34 and 35, respectively. See the Appendix for sources and definition of other variables. Country included are: Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Denmark, Egypt, Finland, France, Germany, Greece, Hong Kong, Ireland, Israel, Italy, Japan, Kenya, Mexico, Netherlands, New Zealand, Nigeria, Norway, Peru, Philippines, Portugal, Singapore, South Africa, South Korea, Spain, Sri Lanka, Sweden, Switzerland, Thailand, Turkey, United Kingdom, Uruguay, United States, Zimbabwe.

Variable	Total Sample	No Information Sharing	Black Information Only	Black and White Information
Bank Lending / GDP (%)	60.53	31.10	67.57	66.42
Loan Loss Provisions / Total Loans (%)	0.88	1.31	0.86	0.81
Credit Risk	7.77	15.20	5.11	7.14
Log GDP	7.19	5.96	6.77	7.79
GDP Growth Rate (%)	3.45	4.53	2.87	3.38
Rule of Law	7.24	4.80	8.14	7.59
Creditor Rights	2.15	3.14	2.20	1.83
French Origin	0.40	0.43	0.20	0.48
German Origin	0.12	0.00	0.00	0.22
Scandinavian Origin	0.10	0.00	0.30	0.04
English Origin	0.37	0.57	0.50	0.26
Number of observations	40	7	10	23

To explain international differences in bank lending, we regress the ratio of bank lending to GDP on the log of output in 1994-95, the growth rate of output in 1970-93, and indicators of rule of law, creditor rights and legal origin of the commercial code of each country (see the appendix for sources and definitions). We use a baseline specification similar to that used by La Porta et al. (1997) and by Levine (1998), who find that the breadth of the credit market is positively correlated with good law enforcement and protection of creditor rights. They also find that the historical origins of national legal systems are associated with significant differences in lending activity: French (civil law) and Scandinavian systems are associated with a lower ratio of private debt to GNP than English (common law) and German systems. La Porta et al. (1997) measure the size of the credit market by the sum of bank debt of the private sector and outstanding non-financial bonds divided by GNP, while Levine (1998) uses bank lending from 1976 to 1993. We also focus on bank lending only, because credit bureaus and PCRs can be expected to affect primarily banks' policies. Information on bond issuers is instead produced by credit rating agencies and generally publicly available.

Column 1 of Table 4 presents the estimates of the baseline specification for the 40 countries for which we have complete records. The estimates confirm previous findings that rule of law and creditor rights are important determinants of bank lending. In the specification of column 2 we add two variables intended to proxy for the quality of information sharing. The first variable equals 1 if either private credit bureaus, PCRs or both exchange only black information, and 0 otherwise. The second equals 1 if either private credit bureaus, PCRs or both exchange black as well as white information. As discussed in Section 2, black information alone may have a disciplinary effect on borrowers, but the availability of both black and white information enhances the banks' screening ability.

Both coefficients are positive and that of black and white information is statistically different from zero at the 2 percent level. The point estimates indicate that information sharing increases bank lending by more than 20 percent of GDP. In column 3 we add the legal origin dummies to the list of regressors. Due to the correlation between creditor rights and legal origin and to the fewer degrees of freedom, the coefficients of the creditor rights variable and the information sharing dummies are now less precisely estimated. We further check our results by using an estimator which is

robust to the presence of influential values, and report the results in columns 4 and 5. The two dummies for information sharing are both statistically different from zero at the 1 percent significance level.

TABLE 4. EFFECT OF INFORMATION SHARING ON BANK LENDING / GDP

Bank Lending to GDP is the ratio of bank claims on the private sector to GDP in 1994-95. Black Information Only is 1 if prior to 1994 private credit bureaus and/or PCRs exchange black information, and 0 otherwise. Black and White Information is 1 if prior to 1994 credit bureaus or PCRs exchange black and white information. See the Appendix for sources and definition of other variables. White-corrected standard errors are used in the OLS estimates. Robust regressions first calculate Huber weights based on absolute residuals and then regresses again until convergence using those weights. T-statistics are reported in parentheses. The list of countries is reported in the note to Table 3.

Variable	Ordinary Least Squares			Robust Regressions	
	(1)	(2)	(3)	(4)	(5)
GDP Growth Rate	2.61	2.93	2.17	-1.75	-1.19
	(0.85)	(0.89)	(0.62)	(-1.07)	(-0.68)
Log GDP	5.30	4.96	2.23	6.77	5.34
	(1.73)	(1.51)	(0.61)	(2.80)	(2.00)
Rule of Law	7.47	6.25	7.72	4.18	4.87
	(3.14)	(2.46)	(3.64)	(2.83)	(2.89)
Creditor Rights	6.58	8.32	5.27	11.64	9.96
	(2.12)	(2.76)	(1.07)	(4.68)	(3.23)
French Origin			-7.01		2.46
			(-0.65)		(0.31)
German Origin			26.67		14.66
			(1.24)		(1.42)
Scandinavian Origin			-44.46		-29.22
			(-3.18)		(-2.59)
Black Information Only		24.77	29.38	34.14	36.46
		(1.52)	(1.82)	(3.62)	(3.50)
Black and White Information		23.18	15.65	31.38	27.23
		(2.38)	(1.43)	(3.68)	(2.92)
Constant	-54.86	-67.93	-42.65	-67.58	-60.64
	(-2.71)	(-3.03)	(-1.22)	(-4.29)	(-2.96)
Adjusted R square	0.46	0.50	0.67	-.-	-.-
Number of observations	40	40	40	40	40

We also experimented with a variable counting the number of years from the establishment of the earliest bureau of which we have knowledge. This variable is based on the assumption that time in existence may correlate

with the size of the industry's data bases and the reliability of its storage and processing techniques. The coefficient of this variable is not significantly different from zero (regressions are not reported for brevity).

In principle, private credit bureaus may impact credit markets differently compared to public credit registers. As explained in Section 4, PCRs have universal coverage but provide more aggregated data compared to credit bureaus and collect data only for loans above a statutory threshold. We test for this differential impact by adding separate dummies for information exchanged by credit bureaus. The coefficients of these variables (not reported for brevity) are not significantly different from zero. This suggests that private and public information sharing arrangements are substitutes, an issue that will be further investigated in Section 7.

6. The Effect of Information Sharing on Default Rates

Testing the theoretical prediction that information sharing will lower default rates is complicated by the unavailability of internationally comparable data on defaults. Lacking direct observability, we resort to two proxies for default rates: loan loss provisions and an index of credit risk. Loan loss provisions is measured as the median ratio of loan loss provisions to total loans in each country, averaged over 1994 and 1995. It is constructed on the basis of the individual banks' balance sheets of the IBCA BankScope data set. Credit risk is a composite, equal-weighted indicator of five types of financial risk based on the International Country Risk Guide (ICRG) survey of leading international bankers. They are asked to rate the risk of loan default or restructuring, delayed payment of suppliers' credits, repudiation of contracts by governments, losses from exchange controls, and expropriation of private investments. The variable we use ranges from 0 to 50 (maximum risk). (See the Appendix for details and sources of both indicators.)

Both proxies for default rates have their own shortcomings. Measuring ex-post default rates by the proportion of loan loss provisions may be distorted by differences between national accounting procedures, prudential banking regulations, and even more by their highly discretionary nature: to a large extent, banks can decide how much to allocate to provisions in

anticipation of future losses.[11] The survey-based assessment of credit risk, on the other hand, is only imperfectly related to the likelihood of default on bank loans, because it also reflects other risks (such as repudiation of contracts by governments).

The descriptive evidence in the second and third rows of Table 3 reveals that countries where information is shared have lower than average loan loss provisions and credit risk. In Tables 5 and 6 we investigate if the descriptive evidence is confirmed by regression analysis.

In Table 5 the dependent variable is the ratio of loan loss provisions to total lending and the specification is the same as in Table 3. The regressions are estimated by ordinary least squares, weighted least squares and robust methods. The coefficients of the dummies for information sharing are both negative but estimated with large standard errors. The only significant predictor of loan loss provisions are the legal origin dummies. They show that French and especially Scandinavian origin countries have higher loan loss provisions, a possible reflection of the dramatic Scandinavian crisis of the early 1990s. The number of banks used to construct the country medians varies substantially in the IBCA sample. We thus repeat the estimation weighting observations by the number of banks used to compute the medians. The results reported in columns 3 are similar, and so are the coefficients of the robust regression in column 4.

In Table 6 the dependent variable is credit risk. This indicator is more promising as a proxy for defaults as it is based on ex-ante attitudes of potential lenders. The OLS estimates in columns 1 and 2 indicate that slow GDP growth rate and poor rule of law predict higher credit risk. The coefficients of the information sharing dummies are large and negative, and significantly different from zero at the 10 percent level or better. The presence of information sharing in these regressions reduces credit risk by 3 or 4 points, between one third and one half of the sample average of credit risk (7.77 from Table 3). However, the size and precision of the coefficient estimates are attenuated in the robust regressions of columns 3 and 4.

---

[11] A more appropriate measure of default rates is the frequency of non-performing loans in each country. Unfortunately, this variable is available only for a very limited number of countries in the IBCA data set. This reduces the sample size to 18 observations, only 1 of which refers to a country without any form of information sharing. This prevents any reliable inference.

TABLE 5. EFFECT OF INFORMATION SHARING ON LOAN LOSS PROVISIONS / TOTAL LOANS

Loan Loss Provisions is the 1994-95 average of the median ratio of non-performing loans to total loans in each country and is based on the BankScope data set produced by IBCA. The Appendix reports the data for loan loss provisions and the number of banks used to construct country medians. Black Information Only is 1 if prior to 1994 private credit bureaus and/or PCRs exchange only black information, and 0 otherwise. Black and White Information is 1 if prior to 1994 credit bureaus or PCRs exchange black and white information. See the Appendix for sources and definition of other variables. The regression in column 2 is weighted by the number of banks used to compute medians of the ratio of loan loss provisions to total loans in each country. T-statistics are reported in parentheses. Countries included are the same as in the note to Table 3 except: Ireland, Kenya, New Zealand, Nigeria, Singapore, Zimbabwe.

Variable	Ordinary Least Squares		Weighted Least Squares	Robust Regression
	(1)	(2)	(3)	(4)
GDP Growth Rate	-0.01	0.04	-0.13	0.05
	(-0.20)	(0.66)	(-1.33)	(0.78)
Log GDP	-0.09	0.02	0.013	0.00
	(-1.03)	(0.23)	(0.16)	(0.00)
Rule of Law	-0.02	-0.09	-0.15	-0.07
	(-0.25)	(-1.33)	(-1.55)	(-1.29)
Creditor Rights	-0.10	-0.03	0.02	-0.02
	(-0.85)	(-0.27)	(0.22)	(-0.23)
French Origin		0.64	0.50	0.53
		(2.81)	(3.09)	(1.95)
German Origin		0.31	0.46	0.21
		(1.22)	(2.39)	(0.69)
Scandinavian Origin		1.43	1.31	0.44
		(2.11)	(2.93)	(1.21)
Black Information Only	-0.48	-0.39	-0.71	-0.43
	(-0.92)	(-0.99)	(-1.51)	(-1.16)
Black and White Information	-0.46	-0.25	-0.39	-0.11
	(-1.10)	(-0.84)	(-1.18)	(-0.34)
Constant	10.72	1.04	2.34	0.94
	(2.47)	(1.68)	(2.05)	(1.19)
R square	0.13	0.38	0.58	-.-
Number of observations	34	34	34	34

The Credit Risk Indicator is based on the International Country Risk Guide Financial Indicator (ICRGF), and ranges from 0 to 50 (maximum risk). Black Information Only is 1 if prior to 1994 private credit bureaus and/or PCRs exchange black information, and 0 otherwise. Black and White Information is 1 if prior to 1994 credit bureaus or PCRs exchange black and white information. See the Appendix for sources and definition of other variables. White-corrected standard errors are used in the OLS estimates. Robust regressions first calculate Huber weights based on absolute residuals and then regresses again until convergence using those weights. T-statistics are reported in parentheses. Countries included are the same as in the note to Table 3 except: Egypt, Israel, Kenya, Sri Lanka, Uruguay.

Variable	Ordinary Least Squares		Robust Regression	
	(1)	(2)	(3)	(4)
GDP Growth Rate (%)	-0.63	-0.56	-0.96	-0.61
	(-2.05)	(-1.97)	(-3.72)	(-2.06)
Log GDP	-0.57	-0.34	-0.21	-0.21
	(-1.21)	(-0.74)	(-0.49)	(-0.43)
Rule of Law	-1.65	-1.67	-2.13	-1.71
	(-4.31)	(-4.74)	(-8.24)	(-5.45)
Creditor Rights	-0.45	-0.09	-0.57	-0.09
	(-1.07)	(-0.17)	(-1.38)	(-0.17)
French Origin		0.90		1.04
		(0.73)		(0.70)
German Origin		-2.76		-2.46
		(-2.32)		(-1.41)
Scandinavian Origin		2.19		2.23
		(1.42)		(1.18)
Black Information Only	-4.26	-4.54	-1.30	-3.78
	(-1.91)	(-2.15)	(-0.75)	(-1.89)
Black and White Information	-2.99	-2.40	-2.42	-2.22
	(-1.76)	(-1.37)	(-1.56)	(-1.23)
Constant	30.59	27.51	32.05	26.49
	(9.67)	(8.90)	(11.61)	(7.09)
R square	0.78	0.84	-.-	-.-
Number of observations	35	35	35	35

Again, the explanatory power of the regressions is unchanged if we add separate indicators for information provided by private credit bureaus. We take this as further support for the substitutability of private and public information sharing arrangements.

Overall, the results of this section indicate that default rates are negatively correlated with information sharing indicators. The effect is economically significant, but not always precisely estimated: its statistical significance varies depending on the estimation method and on the particular proxy used for defaults. Our weakest results are for loan loss provisions, possibly due to the inadequacy of the proxy itself.

7. *Substitution between Private and Public Information Sharing Arrangements*

The previous two sections reveal that information sharing improves credit market performance but that private and public information sharing arrangements have no differential effects. One way to interpret this finding is that public credit registers and private credit bureaus are substitutes. If this is true, in countries where credit bureaus are already present the benefit of establishing a public credit register is negligible. Conversely, its benefit should be high where credit bureaus are absent, other things equal.

In this section we investigate whether the absence of private credit bureaus prompts regulators to establish public credit registers or to widen the scope of their operation. If PCRs are created to remedy the failure of private credit bureaus to arise, the pre-existence of a credit bureau should be negatively related to the presence of a PCR.

In testing for this relationship, one should control for the severity of moral hazard in the credit market. As discussed in Section 2, in the presence of moral hazard information sharing mechanisms increase borrowers' incentives to repay, and they can lead to a welfare gain.[12] Therefore, if credit bureaus fail to arise spontaneously (say, because of coordination problems), the case for the creation of a PCR by a regulator is particularly strong in countries in which debtors' opportunistic behavior plagues credit relations and where institutions afford a weaker protection to creditor rights. We control for these factors using the rule-of-law index and the creditor rights variable in La Porta at al. (1997).

---

[12] Padilla and Pagano (1999) show that, if these mechanisms are appropriately designed, borrowers' effort to perform is closer to the socially optimum level.

TABLE 7. DETERMINANTS OF THE PRESENCE OF PUBLIC CREDIT REGISTERS

Countries are divided according to the presence of public credit registers, based on Table 2. Presence of a PCR is 1 if the register is operating in 1998, 0 otherwise. Pre-existence of a Private Credit Bureau is 1 if at least one private credit bureau was in operation before the establishment of the PCR, 0 otherwise. Other data are taken from La Porta et al. (1998). See the Appendix for sources and definition of the variables. In the probit regressions the dependent variable is the presence of a PCR prior to 1998 (see Table 2). In the Tobit regression the dependent variable is the PCR minimum reporting threshold (see Table 2). The probit coefficients indicate the effect of the variable on the probability of establishment of a PCR. T-statistics are reported in parentheses. Countries included in the probit estimation are the same as in Table 3 plus Colombia, India and Taiwan. Countries included in the Tobit estimation are the same as in Table 3 plus India and Taiwan and excluding Uruguay.

Panel A. Descriptive Statistics

Variable	Total Sample	PCR Present	PCR Absent
Creditor Rights	2.14	1.59	2.50
Rule of Law	7.08	6.67	7.34
Pre-existence of a Private Credit Bureau	0.51	0.29	0.65
English Origin	0.38	0.12	0.54
French Origin	0.39	0.71	0.19
German Origin	0.14	0.11	0.15
Scandinavian Origin	0.09	0.06	0.12
Number of observations	43	17	26

Panel B. Regression results

Variable	Probit Regressions		Tobit Regressions	
	(1)	(2)	(3)	(4)
Creditor Rights	-0.16	-0.07	2,966.97	1,297.22
	(-2.37)	(-0.81)	(2.13)	(0.77)
Rule of Law	-0.01	-0.01	-213.79	10.09
	(-0.11)	(-0.09)	(-0.30)	(0.01)
Pre-existence of a Private Credit Bureau	-0.39	-0.41	9,670.32	10,025.44
	(-2.24)	(-2.04)	(2.49)	(2.31)
French Origin		0.49		-9,382.13
		(3.35)		(-1.78)
German Origin		0.566		-11,689.14
		(1.77)		(-1.79)
Scandinavian Origin		0.476		-4,923.32
		(1.16)		(-0.65)
Number of observations	43	43	41	41

The correlations between these variables are displayed in Table 7. The conditional averages in Panel A show that a private credit bureau already existed in only 30 percent of the countries where there is a PCR, against 65 percent where there is none. Also, PCRs tend to be formed in countries where creditor rights are less protected (1.59 versus 2.50) and there is less respect for the law (the rule of law variable is 6.67 against 7.34). They are also more likely to be found in countries whose legal system derives from the French civil code tradition (the French-origin dummy is 0.71 against 0.19).

To test the statistical significance of these relations, we estimate Probit regressions where the presence of a PCR is the dependent variable. The results, displayed in columns 1 and 2 of Panel B, show that the probability of the presence of a PCR is significantly and negatively related to the pre-existence of a credit bureau. The coefficient indicates that pre-existence of a private credit bureau raises the probability of establishing a PCR by 40 percent. If the legal origin dummies are not introduced in the Probit regression, the creditor-rights variable also appears with a negative and significant coefficient. When the origin dummies are added as explanatory variables in column 2, the coefficient of creditor rights is still negative but not precisely estimated, whereas the French-origin dummy takes a large, positive and statistically significant coefficient. The reason is that creditor rights has a strong negative correlation with French origin; that is, the countries whose legal system is rooted in the French civil code are also those that afford the weakest legal protection to creditors. Finally, the coefficient of the rule-of-law variable is close to zero.

As we saw in Section 4, a key parameter in the design of a PCR is the threshold above which data on loans must be reported by credit institutions. The higher the threshold, the more accurate and comprehensive the account of past credit history that the PCR can provide to lenders. Therefore the threshold effectively measures the boundaries of the PCR operation.

In columns 3 and 4 we report estimates of Tobit regressions where the threshold - measured in thousands of US dollars - is related to the same set of regressors as in Probit regressions. The reason for using Tobit rather than OLS estimation is that the threshold is not defined in countries where there is no PCR. For these countries, we set the threshold at an arbitrarily large positive number. As a result, the distribution of the dependent variable features upper truncation. The pattern of results is similar to that of the Probit regressions, once one takes into account that in this case the signs are predicted to be opposite. In particular, the pre-existence of a private credit

bureau raises the threshold by about ten million U.S. dollars. Since obviously no existing PCR has such enormous threshold, the interpretation of this number is that pre-existence of a credit bureau effectively discourages the creation of a PCR.

In summary, the historical experience is consistent with the hypothesis that the establishment of PCRs has been largely motivated by the "substitution" role. First, they have often been created to make up for the lack of private credit bureaus. Where the market alone has not produced information sharing, governments have felt they had to take the initiative. Second, PCRs have been introduced to compensate, at least partly, for the weak protection that the state offered to creditors' interests, and thus to remedy heightened moral hazard in lending.

8. Conclusions

In many countries lenders communicate data concerning their customers' creditworthiness to one another or can access databases that help them assess credit applicants. However, the type, quality, and quantity of data available, and information-sharing mechanism, vary greatly. Often lenders agree to exchange of information spontaneously, via information brokers such as credit bureaus. In other cases they are obliged to do so by the authorities via public credit registers. The empirical literature has not contributed much to our knowledge of this phenomenon and of its relevance to credit market performance. The predictions of the theory offer some guidance as to the impact of information sharing on default rates and lending activity. However, its predictions are partly ambiguous, and therefore the verdict about the actual impact of information sharing on credit market performance rests with the data.

Here, we systematically document private and public information-sharing arrangements around the world and analyze their effects on the credit market as well as the reasons for their emergence. The empirical analysis builds upon a new, specially designed data set mainly collected via questionnaires. We find that the breadth of credit markets is associated with information sharing. Total bank lending to the private sector scaled by GNP is larger in countries where information sharing is more solidly established and intense. This relation persists even when one controls for other economic and institutional variables, such as country size and growth rate,

and variables capturing respect for law and the protection of creditor rights. We also find evidence, in accordance with the theory, that defaults are mitigated by public and private information sharing. This evidence is somewhat weaker, however, perhaps owing to the poor quality of our proxies for defaults.

Our data also show that the impact of private arrangements to share credit information is similar to that of public credit registers. In fact, where private credit registers already existed, PCRs are less likely to be established. Conversely, governments are likely to step in with forced information sharing in countries where private information-sharing arrangements have not arisen. They are also more likely to do so where creditor rights are poorly protected.

We regard this paper as a first step in the empirical analysis of the effects of information sharing on credit markets. The pervasiveness and intensity of this information exchange warrants much more thorough inquiry into its effects on the lending policies of banks and the conduct of borrowers. There is still no microeconomic evidence on this issue. We also lack accounts of the impact of these arrangements in developing countries, where in many cases they are just being established. It is ironic that private credit bureaus and public credit registers know so much about us while we still know so little about them.

References

Erb, B. Claude, Campbell R. Harvey and Tadas E. Viskanta (1996), "Political Risk, Economic Risk, and Financial Risk," *Financial Analyst Journal*, November/December, 29-45.

Jappelli, Tullio and Marco Pagano (1999), "The European Experience with Credit Information Sharing." Università di Salerno: mimeo.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert W. Vishny (1997), "Legal Determinants of External Finance," *Journal of Finance*, July, 52(3), 1131-50.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer and Robert W. Vishny (1998), "Law and Finance," *Journal of Political Economy*, December, 106(6), 1113-55.

Levine, Ross (1998), "The Legal Environment, Banks, and Long-Run Economic Growth," *Journal of Money, Credit and Banking*, August, 30(3, part 2), 596-613.

Padilla, A. Jorge and Marco Pagano (1999), "Sharing Default Information as a Borrower Discipline Device." University of Salerno: CSEF Working Paper n. 21.

Padilla, A. Jorge and Marco Pagano (1997), "Endogenous Communication among Lenders and Entrepreneurial Incentives," *The Review of Financial Studies* 10(1), Winter, 205-236.

Pagano, Marco and Tullio Jappelli (1993), "Information Sharing in Credit Markets," *The Journal of Finance* 43(5), December, 1693-1718.

Appendix

A1. Definition of variables used in Tables 3 to 7

Bank Lending   *Claims of banks on private sector, 1994-95 average. Source:* International Financial Statistics *(line 32d).*

Credit Risk   The Credit Risk is based on the International Country Risk Guide Financial Indicator (ICRGF). The indicator is constructed on the basis of a survey of leading international bankers, who are asked to rate each country on a scale of 0 to 10 each of the following 5 risks: default or unfavorable loan restructuring, delayed payment of suppliers' credits, repudiation of contracts by governments, losses from exchange controls, expropriation of private investments. The original index scales from 0 to 50 (maximum creditwothiness). We define Credit Risk as 50 minus the original index, so that 50 represents maximum risk. Credit Risk refers to October 1995. Source: Erb et al. (1996), Table 4, Series ICRGF.

Creditor Rights   An index aggregating creditor rights. The index aggregates various rights that secured creditors might have in bankruptcy, liquidation and reorganization. Restrictions on the managers' ability to seek unilateral protection from creditors, mandatory dismissal of management in reorganizations, lack of automatic stay on assets, and absolute priority for secured creditors all contribute to this index. The index ranges from 0 to 4. Source: La Porta et al. (1997).

Log GDP   Logarithm of the gross domestic product in 1992-93. Gross Domestic Product is expressed in 1990 million dollars. Source*: International Financial Statistics*, line 99b for GDP and *aa* for exchange rates.

GDP growth   Average annual percent growth of per capita gross domestic product, for the period 1970-1993. . Source*: International Financial Statistics.*

Legal Origin   Identifies the legal origin (English, German, French, Scandinavian) of the company law or commercial code of each country. Source: La Porta et al. (1997).

Rule of Law   Assessment of the law-and-order tradition in the country. Average of the 1982-95 period. Scale from 0 to 10 with lower scores for less tradition of law and order. Source: La Porta et al. (1997).

A2. Loan Loss Provisions (regressions of Table 5)

Loan loss provisions is the ratio of loan loss provisions to total loans in each country. The variable is based on the BankScope bank-level data set produced by IBCA. The variable is the 1994-95 country average of the median ratio in each year. In each year we consider a total of 7,244 banks for which non-consolidated balance sheet data are available in at least one year. Banks include commercial banks, savings banks, medium and long-term credit banks, cooperative banks, real estate and mortgage banks, specialized governmental credit institutions and Islamic banks. The variables of interest are available only for a sub-sample whose size is reported in the table. We exclude countries for which fewer than 5 banks report data in the 1994-95 average.

Country	Loan loss provisions / total loans	Number of banks used to estimate provisions for loan losses
Argentina	2.29	99
Australia	0.08	35
Austria	0.92	70
Belgium	0.35	78
Brazil	0.96	92
Canada	0.51	17
Chile	0.35	35
Denmark	1.63	85
Ecuador	1.99	24
Egypt	2.39	22
Finland	3.18	7
France	0.98	354
Germany	0.90	1701
Greece	0.93	18
Hong Kong	0.29	5
Israel	0.39	16
Italy	0.80	2586
Japan	0.24	171
Mexico	1.27	25
Netherlands	0.38	23
Norway	0.26	30
Peru	1.71	14
Philippines	0.31	15
Portugal	1.58	31
South Africa	0.65	7
South Korea	0.90	25
Spain	0.94	175
Sri Lanka	0.78	7
Sweden	0.62	16
Switzerland	0.00	34
Thailand	0.51	16
Turkey	1.42	44
United Kingdom	0.13	60
Uruguay	1.06	8
United States	0.26	514

A3. Questionnaire directed to private credit bureaus

Aim of the survey

This questionnaire is part of a research project that aims at understanding the frequency, determinants and consequences of information sharing arrangements in credit markets. This questionnaire is directed to managers of credit bureaus.

Confidentiality

The researchers carrying out this project guarantee complete confidentiality in the use of the data collected in the survey. Data and results based on the survey will always be presented in tabular form and at a level of aggregation that will safeguard the confidentiality of individual banks.

PLEASE ENCLOSE ANY PUBLISHED OR OFFICIAL MATERIAL THAT YOU FEEL WOULD BE RELEVANT TO UNDERSTAND THE OPERATION OF CREDIT BUREAUS IN YOUR COUNTRY.

1. DESCRIPTION OF YOUR CREDIT BUREAU

Town where headquarters is located: _____

The credit bureau is owned by:
- a group of banks ☐
- a group of other financial intermediaries ☐
- individual share-holders ☐
- foreign-owned (majority stake foreign-owned) ☐

The credit bureau is
- a company run for profit ☐
- a cooperative enterprise or consortium of lenders ☐
- a semi-public institution ☐
- other (please indicate) ☐

Indicate who originally started the credit bureau:
- private entrepreneurs ☐
- consortium of lenders ☐
- government agency ☐
- other (please indicate) ☐

The credit bureau operates:
- at multinational level ☐
- at national level ☐
- at regional or provincial level ☐

2. SCALE OF OPERATIONS

	Personal sector	Business sector
Year started operating		
Number of records in your files in 1990		
Number of records in your files in 1996		
Credit reports issued in 1990		
Credit reports issued in 1996		
Credit reports issued in 1990 as % of all those issued in your country in that year		
Credit reports issued in 1996 as % of those issued in your country in that year		

If the credit bureaus started operating **after 1990**, please supply information on credit reports and number of records in the first year of the operation of the credit bureau.

3. SOURCES OF INFORMATION

Please rank the importance of the following as sources of information for your credit reports on a 1 to 3 increasing scale: 1 = not used or rather unimportant, 2 = important; 3 = crucially important.

	Personal sector	Business sector
Banks		
Other financial institutions		
Credit card companies		
Central Credit Register		
Public records		
Tax files		
Other: (please indicate)		

4. DATA SUPPLIED BY LENDERS

Which type of data are provided by lenders to your credit bureau?

	Personal sector	Business sector
Defaulted loans		
Arrears		
Total loan exposure		
Characteristics of borrowers*		
Other: (please indicate)		

* *For households*: employment status, marital status, age, income, assets, etc.; *for firms*: line of business, balance sheet data, personal information about directors, share-ownership structure, etc.)

5. RECIPROCITY

Do you apply a principle of reciprocity with your clients (i.e., do you supply information only to those who supply it to you)?

YES ☐   NO ☐

If yes, is there an explicit agreement between you and lenders to exchange information?

YES ☐   NO ☐

What happens if lenders do not comply with the reciprocity agreement (i.e. supply late or incorrect information)?

6. CREDIT BUREAUS IN YOUR COUNTRY

Please list the other main credit bureaus that operate in your country:

Please describe briefly the evolution of the credit bureau industry in the last 10 years in your country (growth and problems of the industry, process of concentration, etc.)

7. PUBLIC CREDIT REGISTERS

Please indicate if a Public Credit Register exists in your country and, if so, how it affects your operations. (By a P.C.R. we mean a publicly managed database, which forcibly collects data about loans from banks to supply it under request from other banks.)

8. PRIVACY LAWS

If laws protecting consumer privacy exist in your country, what do they require?

How do these laws affect the operation of your company?

A4. Questionnaire directed to Central Banks

This questionnaire is part of a research project that aims at understanding the frequency, determinants and consequences of information sharing arrangements in credit markets. By **Public Credit Register** we mean a public database managed by the Central Bank or some other government institution, which forcibly collects information about loans from banks and makes it available under request from other banks via credit reports.

1. MANAGEMENT OF THE PUBLIC CREDIT REGISTER (PCR)

Is the PCR operated by the Central Bank or by another Government agency (please indicate)?

2. ACTIVITY

Year in which the PCR was established	
Number of subjects in the file of the PCR	
Number of credit reports issued by the PCR to banks and other lending institutions in 1997 (1996 if not available)	
Minimum reporting threshold (specify currency units)	
Lenders required to supply data (banks, finance companies, etc.)	
Is participation compulsory? (yes/no)	

3. DATA REPORTED BY PARTICIPATING INSTITUTIONS TO THE PCR

Defaulted loans	
Arrears	
Total loan exposure	
Interest rates	
Other (please indicate)	

4. ACCESS TO DATA IN THE PCR FILES

Government	
Participating financial institutions	
Private Credit Bureaus	
General public	
Other (please indicate)	

5. PRIVATE CREDIT BUREAUS

Please list the names of the **private** credit bureaus that operate in your country.

6. PRIVACY LAWS

Please mention if privacy laws exist and, if so, how they affect the operations of the PCR and of private credit bureaus (add pages if necessary).

C

	(D&B) (CIS) CIS CIS			B u r o d e C r e d i t o (B C) 1 9 9 7 T r a n s U n i o n ( )	

1

			National Banking Commission BC	
	D & B	3 300	100	BC BC BC BC 130	

				National Banking Commission	
			BC	
			BC	
			BC	
			BC	
			BC	