

Information in Financial Markets: The Role of Credit Registries

The role of asymmetric information in credit markets has received considerable attention in economic theory. The forward-looking nature of credit contracts, which involve a promise to pay over time, makes the identity and intentions of the buyer critical to the likelihood of repayment and, thus, the profitability of the loan. Information on potential borrowers and their investment projects is typically disclosed only partially to lenders, which can introduce adverse selection into the credit market. Once a loan is made, lenders face moral hazard—the possibility that borrowers may try to avoid repaying the loan or take actions that increase the risk of the investment project. Asymmetric information between borrowers and lenders regarding project (borrower) quality and the risk of repayment may keep interest rates from clearing the credit market. As a result, credit will be rationed and the market equilibrium results in higher prices and less availability of credit than would be the case if information sharing were optimal.

While there is extensive theoretical literature on the role of information in credit markets, much less attention has been given to the institutional responses that actual lenders have developed to minimize the impact of asymmetric information. One such institutional response is credit registries, also commonly known as credit bureaus, which collect, distribute and often analyze information on borrower behavior from a variety of sources, including numerous lenders.

Credit registries date back to at least the 19th century. In Latin America, some of the oldest credit registries were formed by Chambers of Commerce to record information on customers who did not pay accounts held with merchants. More recently, banks have organized in many Latin American countries to share information on delinquent customers. In addition, most Latin

American central banks or bank superintendencies now require supervised financial institutions to provide information on borrowers to a public credit registry, which then makes the information available to the financial system.

Credit registries have gained in importance over the past 20 years in both developed and developing countries due to changes in banking systems and advances in technology. In many countries, the financial system has recently gone through a period of consolidation. Community-based institutions with a limited geographic focus have been acquired or closed in favor of large national and even international financial conglomerates. There is evidence that such a process of mergers and acquisitions results in a loss of institution-specific knowledge on borrowers. In addition, larger institutions often want to centralize the credit decision process. These factors may increase reliance on the standardized and easily transmitted information contained in credit registries. Along with the shift toward larger institutions, there has been rapid growth in computing capacity, which enables lenders to quickly and cheaply access and analyze data on massive numbers of borrowers. Credit scoring technologies that provide a numerical ranking of borrower credit quality have become a central part of the credit decision used in a growing number of markets. From their early use in the credit card market, credit-scoring tools have now become a fundamental part of the mortgage and small business loan market.

The small business loan market is perhaps the segment of the credit market where asymmetric information is most pronounced. There is little independent analysis of most small businesses through ratings firms or stock prices, and these firms are often so diverse that it is difficult to identify clear predictors of suc-

cess. Further complicating matters is the fact that many small business owners mingle their personal finances with those of their company. In Latin America, these problems are even greater due to economic volatility, poor accounting standards and widespread tax evasion.

The traditional response of banks—the main source of *untied* credit for small firms¹—has been to put significant resources into studying business plans and cash flows, and requiring collateral to back loans. This approach is time consuming and results in high fixed costs, making many small business loans too costly to undertake. Credit registries that collect standardized historical data on borrowers can create a new kind of “reputation collateral” that can help both in reducing problems of adverse selection and moral hazard. Credit scoring technologies that make use of such data greatly reduce costs per loan, thereby opening up new lending opportunities. Data on both small businesses and on their owners has proven to be effective in determining the risk and profitability of small business loans.²

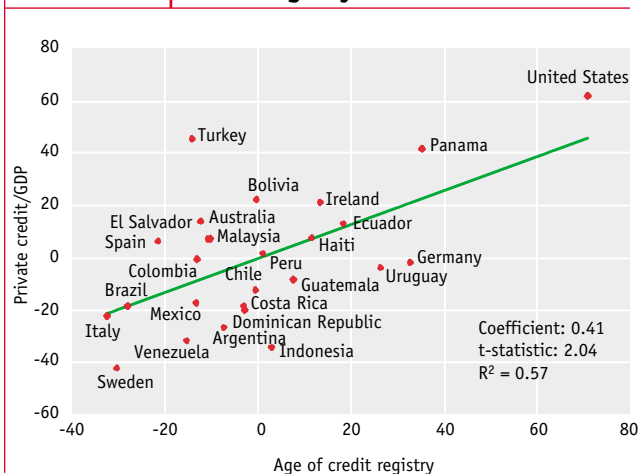
What Credit Registries Can Do

Due to asymmetric information between borrowers and lenders, the price of a loan—the interest rate—is insufficient to balance the supply and demand of financial resources. Stiglitz and Weiss (1981) suggest that the structure of the credit market will determine the extent to which either lenders or borrowers benefit from greater transparency of information. While greater access to information should increase the quantity of lending, it may not necessarily reduce the price of loans unless the credit market is competitive and the information can be transferred between institutions.

Pagano and Jappelli (1993) provided the first rigorous treatment of information sharing mechanisms, such as credit registries. They found that the structure of the credit market drives the impact of information sharing on lending; in a competitive market, informational rents fall and lending increases, whereas such benefits do not necessarily accrue when competition is lacking. Padilla and Pagano (1997) show that information sharing can reduce moral hazard by imposing discipline on credit users.

Empirical research on the benefits of information sharing and their impact on credit markets is scarce. At the macro level, this is due to a lack of cross-country

Figure 7.1 Financial Development and Age of Credit Registry



Notes: Figures adjusted by creditors' rights, average GDP growth, inflation, income per capita (log) and rule of law.
Sources: Galindo and Miller (2001) and World Bank (2000).

data on the nature of different credit reporting systems. At the micro level, the confidential nature of credit registry information, much of it held by private firms, limits access to the data for research. In the last few years, however, several new studies have used both macro data on credit reporting systems and data from credit registries themselves. Pagano and Jappelli (1999) find that the performance of credit registries, proxied by the number of years they have operated and the type of information that they share (positive, negative or both), has a significant positive impact on the amount of consumer credit (relative to GDP) available through the financial sector and on the total amount of credit as well. And it has a negative impact on nonperforming loans.

The availability of information is crucial to sound lending decisions. More information reduces default rates and increases access to credit.³ Accurate credit information has substantially greater predictive power about

¹ Trade or supplier credit is perhaps the most common for small firms, but it is tied to specific purchases or transactions and usually very short term (30-90 days). The prevalence of trade credit in the small business market is likely due, at least in part, to the information advantages enjoyed by firms that share business relationships.

² The most common credit-scoring product in the United States—SBSS, which is sold by the Fair Isaac Corporation—uses information on small businesses and their owners to create scores for firms. This credit-scoring product is used extensively in the small business market and has reduced loan processing times from hours or days to minutes.

³ Barron and Staten (forthcoming).

the performance of firms than the data contained in financial statements.⁴ Informed lenders provide better financial services to borrowers. And in countries where credit bureaus are more developed, businesses face fewer financial constraints.⁵

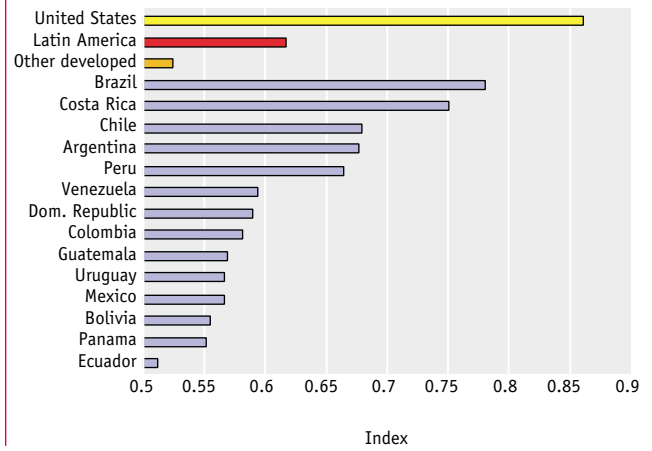
However, information sharing can be difficult, especially in medium-sized markets. Banks may be unwilling to disclose information on clients even if this would reduce their risk, preferring to maintain their informational rents.⁶

A simple empirical exercise reveals the importance of credit registries for financial market development. Figure 7.1 reports a strong significant correlation between credit market development (the ratio of private credit to GDP) and the number of years that credit registries have been operating in each country (a variable frequently used as a proxy for the development of credit registries) after controlling for rule of law, creditor rights, inflation, the log of GDP, and previous economic growth rates.⁷ Results are reported in Appendix Table 7.1.

Credit Registries in Latin America⁸

In an international comparison of the development of credit registries, Latin America scores high in each of the measures and in the index that averages them (see Table 7.1). Although there is wide variance within the region, the averages suggest the existence of healthy credit bureaus in the region. This strong performance is due to a combination of factors, including (i) the absence of laws prohibiting or significantly restricting the sharing of credit information within the financial sector; (ii) foreign direct investment in credit regis-

Figure 7.2 Quality of Credit Registries



Sources: Galindo and Miller (2001).

tries in the major Latin American markets (Argentina, Brazil, Chile, Mexico) and in many smaller countries; (iii) a history of using credit registries in the retail sector, often organized by Chambers of Commerce; and (iv) changes in banking systems that encourage infor-

⁴ Kallberg and Udell (forthcoming).

⁵ Galindo and Miller (2001) focus on a structural empirical question related directly to the microeconomics of credit markets. Using firm-level data for over 20 countries, they find that information-sharing institutions reduce businesses' credit constraints.

⁶ Castelar and Moura (forthcoming) use data from Brazil's largest private credit registry, SERASA, to study how sharing of credit information is different in a highly segmented credit market.

⁷ The results stand even if the United States is excluded.

⁸ This section is based on a recent credit registry survey conducted by the World Bank. Information regarding the region's public and private credit bureaus is reported in Appendix Table 7.2.

Table 7.1 Summary Statistics

		Loans reported individually	Positive and negative data reported	Type of loan reported	Institutions allowed to access bureau	Quantity of information available
Latin America	Average	0.11	1.00	0.78	0.50	0.63
	Standard deviation	0.32	0.00	0.18	0.23	0.12
	Maximum	1.00	1.00	1.00	0.93	0.80
	Minimum	0.00	1.00	0.40	0.14	0.33
United States	Average	1.00	1.00	1.00	0.57	0.73
Other developed	Average	0.11	0.78	0.65	0.35	0.40

Notes: Based on information presented in Appendix Table 7.2. Positive answers take values of 1 and figures are normalized to the 0-1 interval. Source: Galindo and Miller (2001).

mation sharing (consolidation of the sector, a return of long-term lending due to macroeconomic stability, and an increased foreign presence requiring modernized lending practices).

In order to allow for international comparisons, the different sets of variables are added up and indexes summarizing the information are computed. Table 7.1 reports some summary statistics for the diverse measures and compares them to international standards. The final column reports an index that combines the complete set of indicators. Although the data do not allow for evaluating the reliability of the information, they do allow for comparison regarding the amount of information available in the registries, the type of information reported, the way it is reported, and who can access it.

The United States has the most complete and accessible credit reporting system (see Figure 7.2). This is in line with general perceptions of the credit reporting industry internationally. In contrast to Europe (most of the nations in “other developed” are European), the United States has a very open system for credit reporting with a relatively light regulatory approach.⁹ The European Union, on the other hand, has placed a significant regulatory burden on the credit reporting industry, and the EU Privacy Directive of 1998 greatly limited sharing of personal information, including credit data in credit registries. Some European nations, such as France, have even more stringent laws than the European Union with regard to credit registries. This accounts for the lower scores of the “other developed” category in Figure 7.2.

The Latin American nations that fare best are Brazil, Costa Rica, Chile, Argentina and Peru. Brazil has a well-established credit registry in which most banks participate. The Brazilian firm SERASA is by far the largest Latin American credit registry, with annual sales of approximately \$150 million. Brazil’s extensive Chamber of Commerce system operates a credit registry and bad check list on a state-by-state basis. Finally, the Brazilian Central Bank in 1998 established a public credit registry to collect detailed information on all large loans.

Argentina and Chile have strong private credit registries, both of which are now majority owned by Equifax. In addition, both countries have public credit registries, and much of the data in the Argentine public registry are accessible to the general public via the Internet. In Chile, the Santiago Chamber of Commerce runs one of the region’s oldest retail credit databases. The infor-

mation in this database on consumers is actually superior in some ways (coverage, years of history) to that of the bank-led credit registry.

Peru enjoys an unusually active credit reporting industry, with at least four credit registries operating in that relatively small economy. In Central America, Costa Rica, which has enjoyed years of relative economic stability, has the most developed credit registry.

Of the countries that scored lower, Mexico is worth noting. In the wake of the 1994 “Tequila” crisis, the Mexican government helped to establish credit reporting. The Trans Union Corporation together with a local banking association invested in a registry that now has a virtual monopoly on the industry. While the information it collects and distributes is considered of high quality, distribution of the data is restricted to protecting the banking sector, and competition is virtually nonexistent, which may explain Mexico’s relatively low ranking.

Quality of Information

Although information asymmetries can be reduced by developing credit bureaus such as those discussed above, it is also necessary to ensure that the information compiled by those bureaus is reliable. Unfortunately, Latin American countries have proven weak in adopting the international accounting and auditing standards that are essential to assure the reliability of business data.¹⁰ Many countries are behind in adopting global standards such as the recently updated international accounting standards (IAS), and have been unable to enforce auditing standards (IFAC).

Countries have been reluctant to move to international standards in part because it can be costly. Applying more stringent principles to accounting can show the true status of businesses that appear to be solvent.

⁹ The United States has allowed a significant degree of self-regulation by the credit reporting industry. However, the Fair Credit Reporting Act, which protects consumer rights with regard to credit registries, was amended in 1997 to address growing consumer concerns with privacy abuses by the industry.

¹⁰ See Staking and Schulz (1999).

Creditors and clients might lose confidence in firms once their real financial situation is revealed.

From a national perspective, incentives to renew standards are not necessarily in place because capital markets are closed or nearly closed for many countries. However, given the new financing opportunities for Latin American firms provided through the re-emergence of American Depositary Receipts, new incentives for modernizing standards have appeared. A positive effect of intensive ADR trading is that it prompts firms to pressure regulators to update standards to increase transparency and create competitive conditions vis-à-vis the rest of the world.¹¹

The advantages of information sharing grow clearer with time. Firms, individuals and governments are gaining awareness of this issue at a time when the world is moving towards defining and adopting precise standards of disclosure and accounting of information. Together, these two trends will likely increase the access of people and businesses to credit markets, and reduce the information boundaries that, to a certain extent, have reduced capital mobility across borders.

Conclusions

Credit registries are an institutional response to the problem of asymmetric information in credit markets, but they are not the only possible response. Pledges of collateral and, in extreme cases, the threat of bankruptcy are other tools used by lenders to both screen applicants (address adverse selection) and encourage repayment (reduce moral hazard). Perhaps the fact that Latin America has advanced as far as it has in credit registries is related to the difficulties faced in many countries in the region with regard to seizing collateral.¹² Developing a credit registry, either voluntarily in the private sector or under the auspices of a banking superintendency, may be easier and politically more palatable than changing fundamental laws and judicial systems. It is also worth remembering a basic tenet of psychology—that the best predictor of future behavior is past behavior. Information contained in registries has proven to have greater predictive power than collateral pledges in determining who will repay loans, and is therefore more prized by bankers.

Exploiting the benefits of credit registries requires an adequate legal framework that encourages informa-

tion sharing among lenders. In this regard, bank secrecy laws, which can restrict information flows, have to be reviewed. Nonprecise privacy laws can impose limits on credit reporting and hinder the usefulness of credit reporting agencies. However, there must also be rules that impede the improper use of credit information in order to ensure that information sharing does not compromise the safety and security of the people recorded in the registry.

The regulatory framework that supports credit bureaus must also address unfair competitive practices and ensure that the database is not used for “cherry picking,” which occurs when institutions use it to take clients away from one another. Such practices discourage information sharing and could negate the advantages discussed above.

The ownership of credit registries is an important determinant of the quality of the data produced. Ownership by a limited group of lenders or bank associations can discourage a broader database by restricting not only information providers but also access to the system. Registries must not belong to a closed network, since this constricts information sharing. However, the role of the government in the information sharing activity is still being debated. Privately owned registries have the advantage that they gather information from several sources, not just commercial banks. However, public registries can oblige banks to report data to the registry, while private ones cannot. This in any case is not necessarily an argument favoring public property of registries. Once the value of information is acknowledged by the financial system, sharing occurs naturally and can be enforced through such methods as imposing reciprocity conditions for the usage of the data (only those that share can have access to data). The business of providing and analyzing information (through credit scoring models, for example) is profitable and attractive enough so as to have sufficient private agents managing it once the value of information sharing has been socially recognized.

To strengthen the quality of the information in the databases, the legal framework must provide mechanisms that allow consumers to file complaints pertaining to the collected information promptly and, most

¹¹ See Moel (2001).

¹² See Galindo (2001).

importantly, outside the judicial system. Borrowers must be able to access their data, and there must be consumer-friendly procedures available to quickly challenge erroneous information. However, if the consumer has had access to the data, that fact should be noted in the report in order to avoid data manipulation by consumers.

Credit registries can only succeed in reducing information asymmetries if the data shared are reliable. Despite incentives for adopting international accounting and auditing standards, governments have moved slowly in adopting these standards. To increase access to both national and international financing, proper accounting and auditing principles must be adopted and enforced.

Appendix Table 7.1 Financial Development and Age of Credit Registries: Regression Results	
Dependent variable: private credit/GDP	
OLS	
Constant	-17.64 (-0.220)
Income per capita (log)	0.59 (0.170)
Average economic growth	6.18 (1.75)*
Effective creditors' rights	13.45 (4.12)***
Age of credit registry	0.41 (2.04)**
R ²	0.57
Number of observations	28

Notes: t-statistics in parentheses.
 * Significant at the 10% level.
 ** Significant at the 5% level.
 *** Significant at the 1% level.

Appendix Table 7.2 Features of Credit Registries in Latin America

		Argentina	Barbados	Bolivia	Brazil	Chile	Colombia	Costa Rica	Dominican Republic	Ecuador	El Salvador							
		1957	1991	1994	1989	1968	1997	1928	1982	1990	1999	1995	1994	1994	1966	1997	1994	1994
Year bureau was founded:																		
Reported data	Loans described individually	Pr		Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Positive and negative data reported	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
Information of loans included	Name	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Address	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Taxpayer ID	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Name of reporting institution	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Amount of loan	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Interest rate	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Maturity	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Type of loan	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Type of collateral	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Value of collateral	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Status or rating of loan	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Ownership or participation in a business	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Financial data	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
	Personal information	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G
Tax information	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	G	Pr	G	Pr	G	Pr	G	
Type of loans	Unsecured line of credit including credit cards	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Overdraft lines	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Auto loans	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Mortgages	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Secured lines of credit	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Public financial institutions that provide data	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
Institutions with access to information of credit registry	Public financial institutions that do not provide data	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Private financial institutions that provide data	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Private financial institutions that do not provide data	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Central Bank	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Public credit registry	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Government tax collection office	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Law enforcement agencies	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Other federal government offices	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	State/provincial/municipal governments or agencies	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Credit bureaus and registries	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Other businesses	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr
	Individuals	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr	G	Pr

Notes: Pr indicates that private credit registries have such a feature. G indicates that public ones do. Source: Miller (forthcoming).

Appendix Table 7.2 Features of Credit Registries in Latin America (cont.)

	Guatemala	Haiti	Mexico	Nicaragua	Panama	Paraguay	Peru	Uruguay	Venezuela
	1976 1996	1980 1996 1964	1980 1996 1964	na	1956	na	1970 1968	1954 1982	1975
	Year bureau was founded:								
Loans described individually	Pr	Pr	Pr	G	Pr	G	Pr	Pr	
Positive and negative data reported	Pr	Pr	Pr	G	Pr	G	Pr	Pr	G
Name	Pr	G	Pr	G	Pr	G	Pr	Pr	G
Address	Pr	G	Pr	G	Pr	G	Pr	Pr	G
Taxpayer ID	Pr	G	Pr	G	Pr	G	Pr	Pr	G
Name of reporting institution	Pr	G	Pr	G	Pr	G	Pr	Pr	G
Amount of loan	Pr	G	Pr	G	Pr	G	Pr	Pr	G
Interest rate	Pr	G	Pr	G	Pr	G	Pr	Pr	G
Maturity	Pr	G	Pr	G	Pr	G	Pr	Pr	G
Type of loan	Pr	G	Pr	G	Pr	G	Pr	Pr	G
Type of collateral	Pr	G	Pr	G	Pr	G	Pr	Pr	G
Value of collateral	Pr	G	Pr	G	Pr	G	Pr	Pr	G
Status or rating of loan	Pr	G	Pr	G	Pr	G	Pr	Pr	G
Ownership or participation in a business	Pr	G	Pr	G	Pr	G	Pr	Pr	G
Financial data	Pr		Pr		Pr		Pr	Pr	
Personal information	Pr		Pr		Pr		Pr	Pr	
Tax information	Pr		Pr		Pr		Pr	Pr	
Unsecured line of credit including credit cards	Pr		Pr	G	Pr		Pr	Pr	G
Overdraft lines				G				Pr	G
Auto loans	Pr		Pr	G	Pr		Pr	Pr	G
Mortgages	Pr		Pr	G	Pr		Pr	Pr	G
Secured lines of credit	Pr		Pr	G	Pr		Pr	Pr	G
Public financial institutions that provide data			Pr	G	Pr	G	Pr	Pr	G
Public financial institutions that do not provide data			Pr	G	Pr	G	Pr	Pr	G
Private financial institutions that provide data	Pr		Pr	G	Pr	G	Pr	Pr	G
Private financial institutions that do not provide data	Pr		Pr	G	Pr	G	Pr	Pr	G
Central Bank	Pr		Pr	G	Pr	G	Pr	Pr	G
Public credit registry	Pr		Pr	G	Pr	G	Pr	Pr	G
Government tax collection office	Pr		Pr	G	Pr	G	Pr	Pr	G
Law enforcement agencies	Pr		Pr	G	Pr	G	Pr	Pr	G
Other federal government officers	Pr		Pr	G	Pr	G	Pr	Pr	G
State/provincial/municipal governments or agencies	Pr		Pr	G	Pr	G	Pr	Pr	G
Credit bureaus and registries	Pr		Pr	G	Pr	G	Pr	Pr	G
Other businesses	Pr		Pr	G	Pr	G	Pr	Pr	G
Individuals	Pr		Pr	G	Pr	G	Pr	Pr	G