



Facilitating access to finance

**Discussion Paper on Credit
Information Sharing**



CREDIT INFORMATION SHARING

1.1 Abstract

Often, firms' access to finance is constrained by the availability of information on their credit worthiness. Public and private credit registries exist to improve the information available on borrowing firms (and individuals), in an effort to ease financing constraints. The information they make available – from a borrower's total number of current loans, repayment history, previous bankruptcies, etc. – can allow lenders to extend greater credit at more favourable interest rates. This paper reviews the theory behind the positive impact of credit information sharing and the regulatory and practical design of registries in OECD and non-OECD countries.

1.2 The positive impact of information sharing

Credit registries are a typical response to information asymmetry problems between lenders and borrowers. A credit registry is either a publically or privately owned entity that consolidates information on borrowers from lenders. Many studies have illustrated how comprehensive information helps lenders better predict borrower default. Kallberg and Udell (2003) found that historical information collected by a credit bureau had powerful default predictive power. A study by Barron and Staten (2003) showed that lenders could significantly reduce their default rate by including more comprehensive borrower information in their default prediction models.¹ An analogous study – specific to Brazil and Argentina – found similar default rate decreases when more information was available on borrowers (Powell, et al. 2004).

Theory predicts that information sharing institutions alleviate problems of asymmetric information in the following ways:

- **Countering adverse selection.** By reducing information asymmetry between lenders and borrowers, credit registries allow loans to be extended to safe borrowers who had previously been priced out of the market, resulting in higher aggregate lending (Pagano and Jappelli 1993).
- **Countering moral hazard.** Credit-sharing institutions can increase borrowers' cost of defaulting, thus increasing debt repayment (Padilla and Pagano 2000).
- **Countering information monopoly.** Conversely, sharing of credit-related information has the additional benefit of reducing the information monopoly a lender has on its borrowers. For example, banks with long-standing relationships with their borrowers know the credit history of those borrowers, while other lending institutions do not have access to this information. This allows the bank to charge higher interest rates and extract other rents from those high quality borrowers (Padilla and Pagano 1997).

1. The study looked at the inclusion of negative-only information and negative and positive information. Negative information refers to information on defaults, delinquent payment, etc. Positive information refers to all positive or neutral information on a borrower pertaining to her credit history, e.g. all open and closed credit accounts, repayment information, etc.

- **Reducing over-indebtedness.** Information sharing between lenders reveals borrowers' debt exposure to all participating lenders, eventually reducing aggregate indebtedness as highly indebted individuals receive less credit (Bennardo, Pagano and Piccolo 2009).

Although theory is ambiguous on the impact that information sharing will have on the credit market, empirical evidence has provided plenty of evidence supporting the claim that credit sharing institutions have a positive effect on lending to the private sector. For instance, Jappelli and Pagano (2002) show that strong credit-sharing institutions are positively related to the size of the credit market. Other empirical studies, including Jappelli and Pagano (1993), Love and Mylenko (2003), Galindo and Miller (2001) and Powell, et al. (2004) have shown that credit is more abundant when borrowers and lenders benefit from credit-sharing institutions. Brown, Jappelli and Pagano (2006) find that credit sharing between lenders is associated with increased and cheaper credit in transition countries in Eastern Europe. Djankov, McLiesh and Shleifer (2007) show that such institutions are associated with higher ratios of private credit to gross domestic product. Berger, Frame and Miller (2005) demonstrate how such institutions increased the quantity of small business loans in the United States, and, more importantly, served to expand credit to riskier, "marginal" borrowers – i.e. firms that, in the absence of credit information sharing institutions would probably not receive credit.

Evidence also supports the theory that information sharing reduces moral hazard. Doblaz-Madrid and Minetti (2009) find that if lenders enter a credit information sharing institution, their borrowers improve their repayment performance – delinquent payments on leases and loans decrease. Brown and Zehnder (2007) find empirical evidence that the lending market would collapse in the absence of an information sharing institution and reputational banking. However, their study also showed that establishing a credit registry encouraged borrowers to repay their loans by allowing lenders to identify borrowers with a good payment history.² The study showed that an information sharing institution positively impacted the credit market in the following ways:

- Without a credit registry, borrowers had a tendency to repay loans only when they planned to maintain their current lending relationship.³ However, in economies with a credit information institution, borrowers had a higher chance of repaying their loans regardless of whether they were planning to continue their current lending relationship or not. Thus, it can be implied that credit sharing institutions, by documenting borrower behaviour, can positively impact borrower repayment.
- The presence of a credit registry reduces the information monopoly of a lender on its borrowers, thus reducing the extra rents that lenders can charge their clients.

Evidence on the impact that credit information institutions have on over-indebtedness is less prevalent, although some evidence does exist. For instance, another finding of the study by Brown and Zehnder (2007) was that an information sharing institution helped lenders avoid serious losses from short term borrowers. The study by Doblaz-Madrid and Minetti (2009) demonstrated that, after establishing a credit bureau, lenders were more likely to issue smaller and shorter-term loans and to require more guarantees. This could, indirectly, provide evidence that sharing information allows lenders to see the entire indebtedness of their borrowers. In cases where this is high, it could reduce overall indebtedness.

2. The study also found that in instances of relationship lending, the value added of the credit registry was shown to be reduced.

3. In the experiment, borrowers would probably continue their current relationship with their lender if the loan amount was high. If not, they had an incentive to "shop around" for another lending relationship.

1.3 Public credit registries versus private credit bureaus

Information sharing institutions typically take one of two forms: either a public credit registry or a private credit bureau. A public registry is maintained by the public sector, generally the central bank, while a private bureau is managed by the private sector. In theory, the two institutions should be perfect substitutes – it shouldn't matter whether information is supplied by a public or private entity. However, the study by Love and Mylenko (2003) found that public credit registries had no impact on perceived financing constraints. Our own findings indicate that public credit registries are associated with higher perceived financing constraints (see Box 1). Djankov, McLiesh and Shleifer (2006) find that in developing countries, public credit registries were associated with higher ratios of private credit to GDP, although they found no such relationship for developed countries.

Box 1. Public credit registries and private credit bureaus

We investigate in more detail the impact that information sharing can have on firms' financial constraints. In particular, we combine firm-level survey data from the World Bank World Business Environment Survey (WBES) and macroeconomic indicators from the World Bank Doing Business and the World Bank Development Indicators databases. After merging the data our sample includes almost 80 transition and developing countries and over 30,000 firms.

We use a probit estimation technique to determine the impact that public credit registries and private credit bureaus have on firms' perceived financing constraints, controlling for firm characteristics and country fixed effects. Our findings indicate the following:

- **Legal rights.** The stronger a country's system of legal rights the lower is firms' perception of financing constraints. This is in line with economic theory: lenders who have little difficulty in recuperating claims in the case of client insolvency will be more likely to extend credit.
- **Private credit bureau.** A country that has a private credit bureau has lower perceived financing constraints among firms. This finding is in line with many other studies. For instance, Love and Mylenko (2003) find similar results using previous WBES micro level data.
- **Public credit registry.** A country that has a public credit registry has higher perceived financing constraints among firms. One possible explanation for this result might be that public registries have been established in countries where accessing finance is in general more difficult. Alternatively, the public registry could be either an government response to the weak credit environment or the by-product of a particular regulatory or legal framework that is itself a cause of the weak credit environment. Indeed, Djankov, McLiesh and Shleifer (2006) have shown that countries with legal systems of French origin have both a weaker credit environment and more public credit registries.

We also restrict the sample to include only firms in countries with a private bureau and only firms in countries with a public registry. One interesting finding when doing this is that in the sample restricted to countries with a private credit bureau, the fact of also having a public credit registry did not have any significant effect on firms' perceived financing constraints. However, in countries with a public credit registry, also having a private credit registry significantly reduced firms' perceived financing constraints.

Note: the results of this analysis are not yet published. Please email erin.hengel@oecd.org to be sent the results.

1.3.1 Are private credit bureaus better?

Why is it that public credit registries seem to have less of an impact on improving the credit environment than private credit bureaus? A large part of the reason for this is the underlying purpose of the different entities. In most cases, public registries are set up, at least originally, to support banking

supervision, although the data are often also accessible by lenders, who use this to evaluate potential borrowers. According to a survey conducted by the World Bank in 2003, 46% of public credit registries were originally established to assist in bank supervision, while only 34% were set up to improve the quality and quantity of data available to lenders (Miller 2003).

Because the main aim of many public registries is to monitor banking risk, they often only collect data above a minimum cut-off, as smaller loans generally do not affect banking sector solvency. Moreover, most public credit registries only contain information on supervised institutions, excluding non-supervised institutions such as retailers, telecommunications, micro-finance institutions, etc. For this reason, the data contained in public credit registries are often much more constrained than data provided by private credit bureaus. In addition, public credit registries are often also subject to stricter privacy laws than private bureaus. So many will only report on the aggregate credit exposure of an individual or a firm.

In addition, public credit registries usually do not provide value-added services such as credit scoring. Such services are especially valuable to smaller lenders, which don't necessarily have the in-house expertise to perform sophisticated borrower analysis. Private credit bureaus, on the other hand, are more prone to provide value-added services.

In one area, however, public credit registries do have a distinct advantage – they are able to compel participating institutions to submit their data in a timely and error-free manner. Private credit bureaus do not have the legal or regulatory power to impose significant sanctions on those who fail to provide data or who offer unreliable and error-prone data. They can only limit the offending institution from accessing the credit information database.

1.3.2 The role of the public credit registry

Theory predicts that lenders will have more of an incentive to share information on their borrowers when the borrowers are dissimilar and there is limited competition between lenders (Pagano and Jappelli 1993). However, in markets that are competitive and where the cost to a new entrant is low, then sharing information would result in competition for the most profitable borrowers and thus a reduced level of profit overall. Brown and Zehnder (2009) investigate empirically the formation of private credit bureaus. Their findings largely coincide with the predictions of Pagano and Jappelli (1993): information sharing between all lenders arises when there is a large degree of borrower heterogeneity and little competition in the lending market. Partial information sharing between non-competing lenders arises when there is significant competition and borrower heterogeneity in the lending market.

Therefore, instances exist when private credit bureaus do not develop on their own or only develop with limited scope. In such cases, the government response has been to establish public registries or expand the scope of those already operating to monitor banking sector risk. Jappelli and Pagano (2002) demonstrated how public credit registries often played a “substitution” roll, meaning that they had been created by government as a substitute to the absent private credit bureau. Another study demonstrated that the public credit registries exist when creditor protection is weak (Jappelli and Pagano 2003) – market entry for lending institutions in these situations is high, and therefore they tend to be dominated by one or a few large institutions. Djankov, McLiesh and Shleifer (2007) demonstrated that countries with legal systems of French origins, and especially those that are less developed, are more likely to have a public credit registry.

We investigate some of the determinants of private credit bureau formation, in particular focusing on how they form when public credit registries exist as well. When we estimate our baseline model, we find no significant relationship between the establishment of a private credit bureau and whether a public credit

registry has already existed. However, we do find that the existence of public credit registries, combined with a higher level of domestic credit and stronger legal rights, reduce the probability that private credit bureaus will develop. It could be interpreted that, in such situations, having a public credit registry effectively “crowds-out” development of a private credit bureau – the quality and quantity of information that the public registry provides effectively cause the fixed costs of setting up a private credit bureau to be too high. Put another way, although a public credit registry might, in the short term, provide much needed information on borrowers, in the medium to long term it could restrict the creation of private credit bureaus. As public credit registries do not generally have the drive of competition spurring them into expanding the scope of information and services they maintain, the resulting situation could be sub-optimal. It could result in a situation where the public credit registry collects enough information to meet lenders’ needs adequately (thus stifling the creation of a private credit bureau) but not sufficient information for the expansion (or contraction in the case of over-indebtedness) of credit.

Therefore, when governments decide to implement a public credit registry for the purpose of providing credit information, they should ensure that it will not choke the creation of private credit bureaus. Policy makers might consider:

- **Limiting the scope of information.** Public credit registries might only collect a minimal amount of loan information, e.g. loan amount and borrower name and address.
- **Limiting the depth of information.** Public credit registries might only make current or relatively current data available and prohibit access to historical data.
- **Only reporting on loans above a minimum amount.** Finally, public credit registries might consider only including information on larger loans. Moreover, when the public credit registry’s main aim is to aid supervision of the banking sector, information on small loans is unlikely to be particularly important. Furthermore, such data are often prone to more errors than larger loans, so including them can contribute to added costs for the agency.
- **Immediately passing on information to private bureaus.** The central bank in Ecuador consolidates loan information for all regulated institutions. It then passes the information on to private credit bureaus. The bureaus combine the data from the central bank with other available information and also provide analytical services.

1.3.3 Private credit bureaus

Private credit bureaus can either be completely independent for-profit entities or a consortium between lenders operated on either a profit or non-profit basis. Independent entities are usually considered to be the optimal structure for private credit bureaus: “Credit reporting is the core business of such companies and the shareholders’ main objective is to maximise the value of the credit bureau by expanding its operations and providing new services” (IFC 2006, 10). An example of an independent credit bureau is the Dun & Bradstreet Corporation (D&B). D&B is specialised in providing information on business credit. It was founded in New York but now operates globally. The bulk of its transactions are relatively small in nature, ranging from USD 3,000 – 10,000 and the clients typically are factoring or leasing companies or suppliers accepting credit for their goods (Kallberg and Udell 2003). Participating lenders supply credit information on their borrowers and then D&B compiles and analyses the information to create credit reports on those borrowers, which are then sold back to the lenders.

Box 2. Private credit bureaus in South Africa: CompuScan

CompuScan began operations in 1994 in South Africa to serve the microfinance lending market in South Africa – an environment generally ignored by the traditional private credit bureaus already established within the country. At first CompuScan only collected negative information on borrowers and distributed the list to potential lenders on a simple Excel spreadsheet. It has since evolved into a full-service credit bureau with a wide range of data sources (including banks, retail outlets and micro-finance institutions) and a diverse array of value-added services (including credit checks and scoring). CompuScan has also developed and sells its own Credit Technology Systems, including credit application processing software and loan management and fraud management systems.

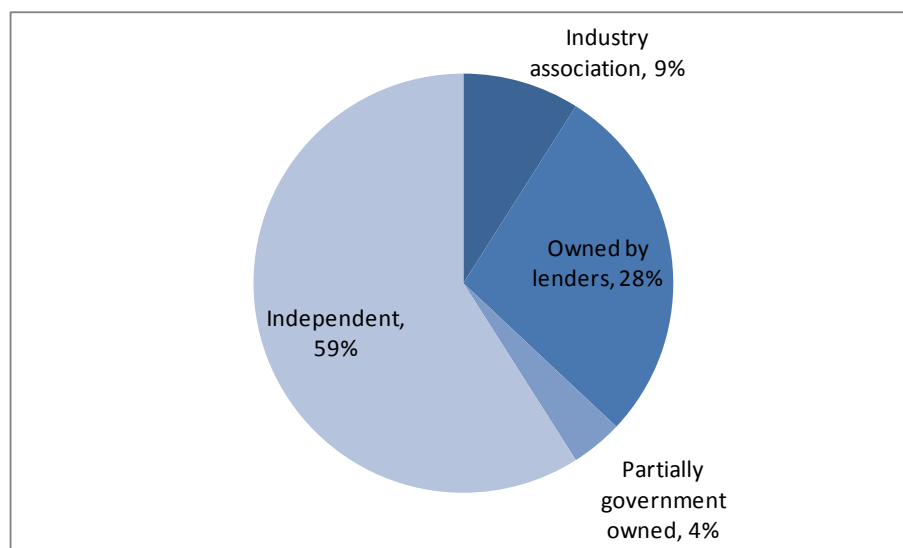
Furthermore, CompuScan has begun the CompuScan Academy of Learning, which offers training to financial institutions. Training services include their “Credit Management & Micro-Finance Skills Training” which trains small lenders (particularly micro-finance lenders) in general credit assessment practices and methodologies as well as fraud and credit management principles. Other training programmes include financial literacy and business and personal development training as well as on-demand specialised training.

CompuScan has become a big provider of information services in Africa. Besides South Africa, it operates in Uganda, Botswana and Namibia. Third-party credit bureaus using their software can be found in Zambia, Mozambique, Swaziland and Lesotho.

Source : IFC (2006), CompuScan (2009)

However, it is often not possible to have an independent credit bureau in countries that do not already have a rich history of credit information sharing – lenders may be reluctant to share their information with a third party due to lack of trust. In these instances, and when information sharing should arise on its own, a consortium between lenders tends to develop where they share ownership of the credit bureau. In a few instances the bureau has been created and managed by a business association, such as a chamber of commerce, and participating lenders pay annual fees to access the data (see Figure 1 for an overview of private credit bureau ownership structures). Reciprocity is the key component in both the credit bureau managed directly by the lenders and the credit bureau managed by a business and industry association – those who wish to participate in the scheme must also contribute their own information on creditors. There are often sanctions for not supplying data or for supplying data with significant errors – non-compliant lenders can face fines or even expulsion from the bureau.

Figure 1. Ownership structures of private credit bureaus



Source: (IFC 2006, 9)

An example of a private credit bureau owned by a group of lenders is i-Score in Egypt. It is a private credit bureau jointly owned by 25 commercial banks and the Social Development Fund and operates on the principle of reciprocity. The initiative was driven by the private sector. However, the Central Bank and other government institutions provided the legal and regulatory framework. Aid and technological support was also provided by the International Finance Corporation and D&B. Its database contains borrower information from the Central Bank and the participating commercial banks and covers over 80% of newly extended commercial loans (OECD 2009).⁴

Despite its attractiveness in encouraging lenders to share information when they otherwise might distrust a third party credit bureau, credit bureaus owned by banks or business associations do have their drawbacks and are generally considered second best to independent bureaus. Most problems emerge from the fact that the stakeholder incentives are not always aligned with what is best for the private credit bureau. For example:

- Lenders participating in a jointly owned credit bureau may want to restrict access to new entrants – new lenders cannot contribute substantially to the existing database, but they will significantly benefit from the information provided by the database (IFC 2006). Thus, the social benefit the bureau could provide by expanding the lending market goes unrealised.
- Decision-making can be more onerous than would be the case in an independent bureau, since the core business is not solely responding quickly to the needs of lenders. Often, all stakeholders must be consulted and most decisions must be agreed upon. This can take a significant amount of time, especially when a decision that is in the interest of the bureau must be made that conflicts with the private interest of one or more stakeholders.

Another drawback is similar to a negative side-effect of a public credit registry discussed earlier – namely, having a credit bureau owned by banks or business associations could effectively “crowd-out” development of a third-party credit bureau. To the extent that the latter restricts access to new entrants or is

4. However, coverage is still only about 16-20% of the borrower population, although this is still quite high considering i-Score’s young age.

unable to provide as diverse an array of services as the former, the result is a sub-optimal information-sharing situation (for other drawbacks as well as advantages, see Table 1).

Table 1. Private credit bureaus: joint ownership or independence?

	Joint ownership	Independence
Advantages	<ul style="list-style-type: none"> • Since initiated and supported by lenders, has a high chance of providing comprehensive and accurate data 	<ul style="list-style-type: none"> • Main objective is to maximise credit bureau profit, thus aligning objectives with increased coverage and more value-added services
Disadvantages	<ul style="list-style-type: none"> • Can create conflicts of interest between what is good for the credit bureau and what is good for the individual stakeholders • Management and decision-making can be bureaucratic • Can crowd-out the development of a third party credit bureau 	<ul style="list-style-type: none"> • Due to lack of trust, lenders may be unwilling to share their information with a third party

Source: Adapted from (IFC 2006, 11)

In general, if it appears that there isn't enough trust for lenders to share information with a third-party credit bureau, then a consortium between lenders or a bureau managed by a business association may be a viable alternative to put information sharing in motion. However, it is in the best interest of most if clear guidelines are put in place limiting ownership of any one lender, with the bureau becoming completely independent after a certain time period (allowing participating lenders to gain trust in the system). Examples of where this has incurred include Hong Kong and the Dominican Republic (IFC 2006).

1.3.4 Legal and regulatory framework for private credit bureaus

Different countries have different legal and regulatory frameworks overseeing private information sharing institutions. In general, a country can take a "hands-off" approach as adopted in many common law countries. Other countries choose to be more "hands-on", and establish laws and/or regulations governing information sharing. Whichever approach is taken, data privacy and enforcement issues must be addressed.

Data protection

Data protection and the right to privacy are fundamental to the establishment of a private credit bureau.⁵ Without these rights, borrowers will be reluctant to allow lenders to access their credit information and lenders will be reluctant to share their information for fear of unknown reprisal stemming from the uncertain legal environment. The protection of privacy can come from one comprehensive law or an array of laws overseeing personal data protection. An example of the former is the European Union's Data Protection Directive, which came into force in 1998. It deals with the processing and transfer of personal data. The overarching objectives of the directive are "to safeguard the individual's right to privacy and to support the flow of information necessary for commercial and financial transactions" (del Villar, Diaz de Leon and Hubert 2003, 402). Individual E.U. countries complement the Directive with more specific legislation, such as the U.K.'s Data Protection Act.

5. Data protection and the right to privacy are also important to the establishment of public credit registries.

The United States is an example of a country without a comprehensive data protection law. Although the right to privacy is enshrined in the first amendment to the U.S. Constitution, the general legal basis of its data protection has evolved over many years through jurisprudence and is covered by a spectrum of sector-specific laws (del Villar, Diaz de Leon and Hubert 2003). The Fair Credit Reporting Act is one such law. It was originally passed in 1970 and outlines the responsibilities that private credit bureaus have, including: (i) the responsibility to allow consumers to view and correct their data; and (ii) the responsibility to remove negative information after a certain time period. The law also dictates the responsibilities of those who access the information of the bureaus, including: (i) the responsibility to notify a consumer if a negative action has been taken on the basis of a credit report (e.g. a loan had been denied based on a poor credit report); and (ii) the responsibility to notify the consumer of the source of the report (i.e. the credit bureau from which it originated) to allow the consumer to verify its content.

Whatever the form that data protection laws take, countries should create a framework that is able to encourage and support the development of private credit bureaus. In general, good legislation on data protection follows international standards, such as the OECD *Guidelines on the Protection of Privacy and Transborder Flows of Personal Data*, and includes clauses specifically addressing the following aspects:

- **Purpose.** Legislation should specify the purposes for which data may be collected, and the circumstances in which the information may be used. In Hong Kong the Personal Data (Privacy) Ordinance (Ord. No. 81 of 1995) clearly stipulates that personal data may only be collected if: (i) it is used for a lawful purpose; (ii) the data user has a legitimate reason for collecting the data; (iii) the data being collected are necessary to execute the activity for which it is being collected; and (iv) the detail of the data collected should not exceed the purpose.
- **Quality.** The data collected by the registry should be at the required quality, accuracy and timeliness. An example is the Dutch Personal Data Protection Act, Article 13.2: “The responsible party shall take the necessary steps to ensure that personal data, given the purposes for which they are collected or subsequently processed, are correct and accurate.”
- **Security.** Legislation should consider the appropriate level of security safeguards required to protect data. International security standards to consider include the International Standards Organisation ISO 27000 (ISO17799) series which identifies the systems, processes, infrastructure and checks required to protect data from numerous threats, including theft, destruction, etc
- **Access.** Individuals should have the right to access their own information, dispute inaccurate or incomplete information and have those disputes investigated and any errors corrected. When adverse decisions are made about them based on their credit histories (e.g. a credit application is declined), individuals should be notified.
- **Limits.** Any limits that are made on data collection, such as data based on race, gender, etc, as well as the time limits during which the data may be maintained (see Box 3) should be clearly specified. As an example, in 1974 the U.S. Congress adopted the Equal Credit Opportunity Act (ECOA) which prohibited using information on a potential borrower’s sex or marital status in determining creditworthiness. The act was later extended to include race, age, religion and national origin. In addition to legal restrictions, many credit bureaus also impose voluntary restrictions on the data they collect due to public relations concerns. Despite having no legal restriction on using geographic information in making credit decisions and the fact that such information can have strong predictive power in credit scoring models, most credit bureaus in the U.S. have refrained from using this information because of the potential negative press it could elicit (Bostic and Calem 2003).

Laws must also consider any negative impacts they might have on the creation and operation of effective credit information systems. In particular, privacy laws that are too strict can limit the amount of information that is used in the credit decision process, thus hindering the ability of lenders to distinguish the higher quality borrowers. As mentioned earlier, the ECOA was originally enacted in the U.S. because many lenders at that time were denying loans to otherwise creditworthy women. However, a recent study by Bostic and Calem (2003) observed that at a fixed credit score, female borrower repayment rates either equalled or exceeded those of men at that same credit score. Their findings indicated that scoring models taking gender into account as an explanatory variable could have led to increased credit for female borrowers with lower credit scores.⁶

Moreover, unclear laws, laws that impose disproportionately strict penalties and laws with excessive administrative requirements can also stifle growth or development of private credit bureaus. When bureaus fear high penalties for inaccurate information, when requirements are vague and when the administrative burden is severe, bureaus might limit their information collection. In many countries, strict libel laws prevent further development of credit information sharing. In Brazil, the Consumer Protection and Defence Code was adopted in 1997. It stipulates that individuals must be notified whenever their personal data are updated. The large administrative burden this law imposed effectively discouraged private bureaus from collecting positive information on individuals (del Villar, Diaz de Leon and Hubert 2003). In Thailand, The Credit Information Business Act was passed in 2002. It included unclear guidelines on what constituted inaccurate data or how to obtain borrower consent coupled with strict penalties for violations. As a result, the already existing private credit bureaus shut down, fearing severe liabilities. However, five months later, once the law was clarified, the bureaus restarted operations (IFC 2006).

Box 3. Historical information

In general, the more complete the information provided by the credit reporting institution, the more accurate a will be the lender's assessment of the credit worthiness of a potential borrower. There is some controversy, however, on how long information should be maintained in a credit report of an individual or firm. In a paper developed by Vercammen (1995), lending markets benefit from more historical data on borrowers because moral hazard and adverse selection are reduced. However, there can be too much of a good thing – in cases when the credit history is excessively long, new information on borrowers is not worth as much and therefore borrowers have less of an incentive to pay back their current loans. The result is that markets with full information disclosure on credits may actually be inferior to markets where a limit, is maintained, particularly on the length of information a bureau can hold.

In a similar vein, it has often been proposed that negative information, especially, should be purged after a certain time period. In particular, it may be beneficial if debtors with bad credit are allowed to wipe the slate clean after a set number of years once their debt has been re-paid. In this way, they will not be indefinitely kept out of the lending market. To the extent that people having gone bankrupt are also members of society more willing to take risk and invest in new business ventures, this would result in a more beneficial solution from society's point of view.

In almost all countries in which private credit bureaus or public credit registries operate, limits are placed on the period of time for which information can be held. In the United States, information sharing institutions may maintain late payments and delinquency information on file for seven years; bankruptcy information may remain on file for ten years. However, in instances of default or late payments on large loans, information may be kept indefinitely. The EU does not specifically regulate the length of time after which information must be discarded, but instead states that that length should not be excessively long. It is left to individual EU countries to specify the length themselves. As an example, in Spain, information on delinquencies and late payments may be kept for six years.

Source : Vercammen (1995); del Villar, Diaz de Leon and Hubert (2003)

6. The ECOA only prohibits using certain information in deciding whether to issue credit. Sex and other variables may be used by, e.g. vehicle insurance companies when determining applicable car insurance rates.

Enforcement

Enforcing laws and regulations governing credit bureaus and consumer privacy is left up to either an enforcement body or the judicial system. The United States is an example of a country which relies on the judicial system to guard against violations of the information sharing laws on their books.⁷ However, most countries – especially developing countries – have less efficient and more time-consuming judicial procedures. For this reason, a good alternative is a powerful regulatory authority. It is especially important that the regulatory authority incorporates the following:

- **Appropriate enforcement tools.** Beyond anything else, a strong supervisory authority requires tools to punish violations of the laws and regulations governing credit bureaus and consumer protection. At a minimum, the regulatory authority should be able to bring lawsuits against credit bureaus. Other sanctions can also be used – in countries where registration or authorisation is required before a credit bureau can begin operations, the regulatory authority should have the power to revoke a license in instances where standards have not been upheld.
- **Ability to collect information.** A strong regulatory authority will also have the power to investigate wrong-doing of errant credit bureaus by requesting audits. Moreover, the regulatory authority should have a means to collect complaints from consumers of privacy violations and, if possible, settle those complaints (del Villar, Diaz de Leon and Hubert 2003).
- **Publicise consumer rights.** Regulatory authorities should also engage in a concerted effort to educate consumers of their rights and obligations under privacy protection laws. This includes creating promotional and informational material, and even engaging in a wide-scale public relations campaign.
- **Accountability.** Finally, the supervisory authority should be accountable to the public. As such, it should regularly report on its activities and performance. These reports should be made available to the public.

Often the central bank is the responsible authority for enforcing laws and regulations governing credit bureaus. However, the central bank is not always the best body to perform this task. As outlined in (del Villar, Diaz de Leon and Hubert 2003), officials in the central bank are often more familiar with institutions that they monitor – i.e. commercial banks – and have little experience with non-regulated, non-bank financial institutions. Moreover, their priority is often ensuring the soundness of the banking system. Facilitating the development of a credit reporting industry is usually a secondary concern. Both of these factors can influence the decisions of officials, perhaps encouraging them to take decisions that “favour the development of a bank-centric credit reporting industry...contribut[ing] to the fragmentation of data in the economy, weakening the predictive power of credit reports and reducing their contribution to promoting competition in credit markets” (del Villar, Diaz de Leon and Hubert 2003, 440).

Many countries encourage private credit bureaus to adopt and enforce codes of conduct as a means of self-regulation. A code of conduct is comprised of a set of principles to which signatory members of a credit bureau are bound. Codes of conduct outline the rules that oversee credit bureau operations, including consumer rights to privacy and dispute resolution mechanisms. In South Africa, where a number of credit bureaus exist, all bureaus are bound by a common code of conduct, enforced by the association of credit bureaus (IFC 2006). In many cases, the regulatory authority is responsible for reviewing self-regulation

7. However, even the U.S. has a regulatory authority – the Federal Trade Commission – to whom complaints can be made. The Commission also has the authority to file class action suits on behalf of consumers.

codes-of conduct, and in some cases even for registering those codes (del Villar, Diaz de Leon and Hubert 2003).

The basic principles within codes of conduct generally cover reciprocity, data format, frequency and quality. Typically, signatory members are subject to the rule of reciprocity, meaning that if they wish to obtain information from the bureau's database, they must also contribute their own credit data. Furthermore, the codes of conduct generally stipulate a common data format, a minimum reporting frequency and minimum data quality requirements (IFC 2006). Violations of these principles tend to result in penalties which are also outlined in the code of conduct. In extreme cases, members may be subject to expulsion from the bureau.

1.4 Summary and conclusions

In conclusion, countries should consider many aspects when looking to improve their credit information sharing institutions. In particular, they should keep the following key points in mind:

1. Private credit registries tend to surpass public credit registries in the comprehensiveness of the data and services they provide to lenders. However, public credit registries can be an effective tool to improve the amount and quality of information available on borrowers in emerging economies with non-existent or under-developed information sharing institutions. In order to not choke the creation of private credit bureaus, policy makers should consider selectively limiting the scope and/or depth of information provided by the public registry.
2. Data protection and the right to privacy are fundamental to the establishment of a private credit bureau. Governments should ensure that a legal framework is in place that protects privacy but does not stifle the creation of private credit bureaus. In particular, international standards, such as the *OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data* should be enshrined in legislation, and cost benefit analyses should be conducted to determine whether the marginal benefit of particular privacy restrictions outweighs any marginal loss in efficiency.
3. Countries which have less efficient and more time consuming judicial procedures should establish a powerful regulatory authority to enforce data protection legislation and monitor information-sharing institutions. The authority should be provided with the appropriate enforcement tools, the ability to collect information and investigate wrong-doing, and resources to publicise consumer rights. The authority should also be held accountable to the public.
4. Before putting in place any regulation or institutions associated with information sharing, governments are encouraged to elicit comments and expertise not only from their own domestic private sector, but also from large international private credit bureaus. Many of these firms have years of experience in dealing with legal and regulatory environments surrounding information sharing, and can provide particularly useful information on potential obstacles or unintended consequences that new laws can pose to sharing information.

1.5 Bibliography

Barron, John M., and Michael Staten. "The Value of Comprehensive Credit Reports: Lessons from the U.S. Experience." In *Credit Information Systems and the International Economy*, by Margaret J. Miller, 273-310. Cambridge, MA: The MIT Press, 2003.

Bennardo, Alberto, Marco Pagano, and Salvatore Piccolo. "Multiple-Bank Lending, Creditor Rights and Information Sharing." 16 February 2009. <http://federation.ens.fr/ydepot/semin/texte0809/PIC2009MUL.pdf> (accessed 13 October, 2009).

Berger, Allen, Scott Frame, and Nathan Miller. "Credit Scoring and the Availability, Price and Risk of Small Business Credit." *Journal of Money, Credit, and Banking*, 2005: 191-222.

Bostic, Raphael W., and Paul S. Calem. "Privacy Restrictions and the Use of Data at Credit Registries." In *Credit Reporting Systems and the International Economy*, by Margaret J. Miller, 311-334. Cambridge, MA: The MIT Press, 2003.

Brown, Martin, and Christian Zehnder. "Credit Registries, Relationship Banking and Loan Repayment." *Money, Credit and Banking*, 2007: 1883-1918.

—. "The Emergence of Information Sharing in Credit Markets." SSRN. 14 January 2009. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1327834&download=yes.

Brown, Michael, Tulio Jappelli, and Marco Pagano. "Information Sharing and Credit: Firm-Level Evidence from Transition Countries." *Swiss National Bank, Zurich*, 2006.

CompuScan. *CompuScan*. [/www.compuscan.co.za/live/index.php](http://www.compuscan.co.za/live/index.php) (accessed October 13, 2009).

del Villar, Rafael, Alejandro Diaz de Leon, and Johanna Gil Hubert. "Regulation of Personal Data Protection and of Credit Reporting Firms." In *Credit Reporting Systems and the International Economy*, by Margaret J. Miller, 397-431. Cambridge, MA: The MIT Press, 2003.

Djankov, Simeon, Caralee McLiesh, and Andrei Shleifer. "Private Credit in 129 Countries." *World Bank Doing Business Project*. January 2007. (accessed http://www.doingbusiness.org/documents/private_credit_jan23.pdf).

Doblas-Madrid, Antonio, and Raoul Minetti. "SSRN." *Sharing Information in the Credit Market: Contract-Level Evidence from U.S. Firms*. 17 March 2009. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1361928 (accessed 10 13, 2009).

Galindo, Arturo, and Margaret Miller. "Can Credit Registries Reduce Credit Constraints? Empirical Evidence on the Role of Credit Registries in Firm Investment Decisions." *Paper prepared for the Annual Meetings of the Inter-American Development Bank*. Santiago, Chile, 2001.

IFC. *Credit Bureau Knowledge Guide*. Washington, D.C.: IFC, 2006.

Jappelli, Tullio, and Marco Pagano. "Information sharing in credit markets." *Journal of Finance*, 1993: 1693-1718.

Jappelli, Tullio, and Marco Pagano. "Information sharing, lending and defaults: Cross-country evidence." *Journal of Banking and Finance*, 2002: 2017-2045.

Jappelli, Tullio, and Marco Pagano. "Public Credit Information: A European Perspective." In *Credit Reporting Systems and the International Economy*, by Margaret J. Miller, 81-114. Cambridge, MA: The MIT Press, 2003.

Kallberg, Jarl G., and Gregory F. Udell. "Private Business Information Exchange in the United States." In *Credit Reporting Systems and the International Economy*, by Margaret J. Miller, 203-228. Cambridge, MA: The MIT Press, 2003.

- Klapper, Leora. "The role of factoring for financing SMEs." *Journal of Banking and Finance*, 2006: 3111-3130.
- Klein, Daniel. "Promise Keeping in the Great Society: A Model of Credit Information Sharing." *Economics and Politics*, 1992: 117-136.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny. "Investor protection and corporate governance." *Journal of Financial Economics*, 2000: 3-27.
- Love, Inessa, and Nataliya Mylenko. "Credit Reporting and Financing Constraints." *World Bank Policy Research Working Paper 3142*, 2003.
- Miller, Margaret J. "Credit Reporting Systems around the Globe: The State of the Art in Public Credit Registries and Private Credit Reporting Firms." In *Credit Reporting Systems and the International Economy*, by Margaret J. Miller, 25-79. Cambridge, Massachusetts: The MIT Press, 2003.
- OECD. *Business Climate Development Strategy: Egypt*. Investment Climate Review, Paris: OECD, 2009.
- Padilla, A. Jorge, and Marco Pagano. "Endogenous communication among lenders and entrepreneurial incentives." *The Review of Financial Studies*, 1997: 205-236.
- Padilla, A. Jorge, and Marco Pagano. "Sharing default information as a borrower discipline device." *European Economic Review*, 2000: 1951-1980.
- Pagano, Marco, and Tullio Jappelli. "Information Sharing in Credit Markets." *Journal of Finance*, 1993: 1693-1718.
- Powell, Andrew, Nataliya Mylenko, Margaret Miller, and Giovanni Majnoni. *Improving Credit Information, Bank Regulation and Supervision: On the Role and Design of Public Credit Registries*. Washington, D.C.: World Bank Research Working Paper Series, 2004.
- Staten, Michael, and John M. Barron. "The Value of Comprehensive Credit Reports: Lessons from the U.S. Experience." In *Credit Reporting Systems and the International Economy*, by Margaret Miller, 273-310. Cambridge, MA: The MIT Press, 2003.
- Vercammen, James A. "Credit Bureau Policy and Sustainable Reputation Effects in Credit Markets." *Economica*, 1995: 461-478.
- World Bank. *Finance for All?* Washington, DC: World Bank, 2008.

1.6 Annex 1: Literature review of select papers

Table 2. Information sharing literature review of select papers

Author	Data	Country	Method & Dependent Variable	Findings
(Kallberg and Udell 2003)	Micro-level firm data (D&B database)	U.S.	Logit; dummy variable indicating whether a firm failed or not	The summary indicator of the payment history of a firm was positive and highly significant. Indicates that payment history had significant explanatory power in predicting if a firm would fail or not. Controls for other information that would be available to a lender.
(Love and Mylenko 2003)	Micro-level firm data (WBES) & World Bank Doing Business indicators	51 developed and developing countries	Probit and ordered probit; dummy variable indicating if access to finance is considered a constraint and variable indicating firms' share of financing obtained from financial institutions	Private credit bureaus are associated with lower perceived financing constraints and a higher share of bank financing. No relationship significant relationship is detected with public credit registries, although in countries with a public credit registry, bank financing in new firms is higher.
(Powell, et al. 2004)	Micro-level data from public credit registries	Argentina, Mexico, Brazil	Probit; dummy variable indicating if a payment is greater than or equal to 90 days (signifying default)	Positive information has significant predictive power in determining defaults. With positive information, at any given level of risk or default, banks can increase lending.
(Brown and Zehnder 2007)	20 experimental sessions involving 340 participants		Experimental credit market	In markets where relationship banking is difficult (e.g. due to high mobility of borrowers), information sharing allows lending to still occur. Credit registries also encourage borrower loan repayment even when relationship banking is possible. Credit registries also prevent lenders from extracting high rents from borrowers due to their informational advantage.
(Galindo and Miller 2001)	Micro-level firm data (WorldScope database) & country level data (World Bank Credit Information Project)	Latin America and developed countries	GMM; investment to capital ratio of a firm	Strong credit registries reduce firms' sensitivity to available cash flow when making investment decisions. This implies that financial restrictions are lower in countries with better developed credit registries.
(Doblas-Madrid and Minetti 2009)	Micro-level firm data (PayNet database)	U.S.	OLS fixed effects and probit; measures of delinquency, size of the loan, contract maturity and a dummy variable indicating whether the borrower has a guarantor	Entering an information exchange reduces borrowers' delinquent payments. These effects are particularly strong for firms that are "informationally transparent" (e.g. SMEs) and riskier (e.g. newer firms). Lenders tend to grant smaller, shorter-term loans and to require more guarantees.
(Brown, Jappelli and Pagano 2006)	Micro-level firm data (WBES) and World Bank Doing Business indicators	24 transition countries	OLS, ordered probit, tobit and fixed effects panel estimates	Information sharing increases the availability of finance and reduces its cost, particularly in transition countries where creditor rights are weak. It is especially potent for "opaque" firms and firms operating in countries with

(Djankov, McLiesh and Shleifer 2007)	Macro-level country panel data (IMF International Finance Statistics) and index on creditor rights (La Porta, et al. 2000)	133 developed and developing countries	OLS; average ratio of private credit to GDP	weak creditor protection. Legal creditor rights and information-sharing institutions are significant determinants of the average ratio of private credit to GDP. Public credit registries positively influence the average ratio of private credit to GDP in poor countries, only, suggesting that public credit registries are beneficial where private credit bureaus do not emerge endogenously.
(Jappelli and Pagano 2002)	Macro-level data (author survey of information sharing institutions)	40 countries	OLS, probit, tobit; Bank lending as a percent of GDP, indicator of credit risk, presence of a public credit registry, threshold above which data on loans must be reported to a public credit registry	Bank lending is higher in countries with information sharing. Where private credit bureaus already exist, public credit registries are less likely to be established. Public credit registries are likely to be established in countries with weak credit rights.
(Jappelli and Pagano 2003)	Macro-level data (author survey of information sharing institutions)	43 countries	Probit; dummy variable indicating the existence of a public credit registry or a private credit bureau	Public credit registries tend to exist in countries where creditor rights are weaker, the law is less respected and the law is of French origin. Public credit registries also tend to be created to make up for a lack of private credit bureaus.
(Brown and Zehnder 2009)	Experimental sessions		Experimental credit market	Information sharing occurs when there are significant information asymmetries and little lender competition. When competition is strong and/or information asymmetries are weak, then partial-sharing tends to develop (i.e. information is only shared between non-competing lenders).

