



# Getting credit

## The importance of registries

**S**mall and medium-size enterprises account for the largest share of employment in the developing world. They are also more likely than large firms to be credit constrained.<sup>1</sup> These businesses need working capital to operate, to grow and to compete in the marketplace. So access to finance is crucial to their success.

The *Doing Business* indicators on getting credit measure 2 types of institutions and systems that can facilitate access to finance and improve its allocation. One set of these indicators focuses on the secured transactions system, examining the legal rights of borrowers and lenders in secured transactions and bankruptcy laws. The second focuses on the credit reporting system, looking at the information collected and distributed through credit bureaus or registries. Research has shown that these institutions and systems work best when implemented together.<sup>2</sup>

What is an effective secured transactions system? One that promotes the availability of credit by reducing the risk to lenders of accepting movable assets as collateral. This can be achieved by taking a functional approach to secured transactions and implementing modern collateral registries—such as those in Honduras and New Zealand—to ensure their publicity.

What is an effective credit reporting system? One that provides creditors with the most relevant, reliable, timely

and sufficient credit data as well as value added services. Among the many features offered by a modern credit reporting service provider are online access to credit information and the provision of credit scores.

*Doing Business* collected new data this year to strengthen the understanding of secured transactions and credit reporting systems around the world. The strength of legal rights index has been expanded from 10 points to 12 to also cover the functional approach to secured transactions and more features of collateral registries. The depth of credit information index has been expanded from 6 points to 8 to also cover the existence of credit scoring and online platforms for exchanging credit data.

### WHY A FUNCTIONAL APPROACH TO SECURED TRANSACTIONS?

For lenders considering a loan to a small or medium-size enterprise, one of the biggest deterrents is the possibility that the borrower has hidden liens—that is, that the borrower has already given its assets as collateral to another lender. As more complex financial instruments develop and are adopted worldwide—such as factoring (where a business sells its invoices to a third party, called a factor, at a discount) or financial leases that create hidden rights over property held by the borrowing company—the need for

- *Doing Business* has expanded its measures of the legal rights of borrowers and lenders and the sharing of credit information. They now also cover the functional approach to secured transactions, more features of the collateral registry and the availability of credit scores and online access to credit information.
- A functional approach to secured transactions provides transparency and predictability for creditors—because the legal framework covers all rights in movable assets that secure the performance of an obligation, regardless of the type of transaction. Forty-seven of 189 economies have a functional approach as recorded by *Doing Business*.
- A modern collateral registry—centralized, notice-based and allowing online access—is important. Among 189 economies, 18 have such a registry, while 25 have a notice-based registry and 28 an online registry.
- Credit bureaus or registries offering online access can provide faster service and better data quality. Online access is available in 119 of 126 economies with a functioning credit bureau or registry covering at least 5% of the adult population as recorded by *Doing Business*.
- Credit scores based on credit bureau or registry data provide highly predictive measures of a borrower's future repayment capacity and so can help expand access to finance. They are offered in 64 of the 126 economies with a functioning credit bureau or registry covering at least 5% of the adult population.

a system that limits the impression of “false wealth” becomes paramount.

One way to minimize the potential for secret liens is to adopt a functional approach to secured transactions. This requires legislation that covers all rights in movable assets that are created by agreement and that secure the payment or performance of an obligation, regardless of the type of transaction or the terminology used.<sup>3</sup> In this approach what matters is no longer the form that the agreement takes (whether a floating charge or a pledge agreement, for example) but the rights and obligations that it creates.

These rights then need to be publicized through a reliable and affordable public registration system (figure 8.1). In a system that includes several registries, the registries need to be integrated to the greatest extent possible to ensure that potential creditors can easily retrieve all notices of security interests that have been recorded.<sup>4</sup>

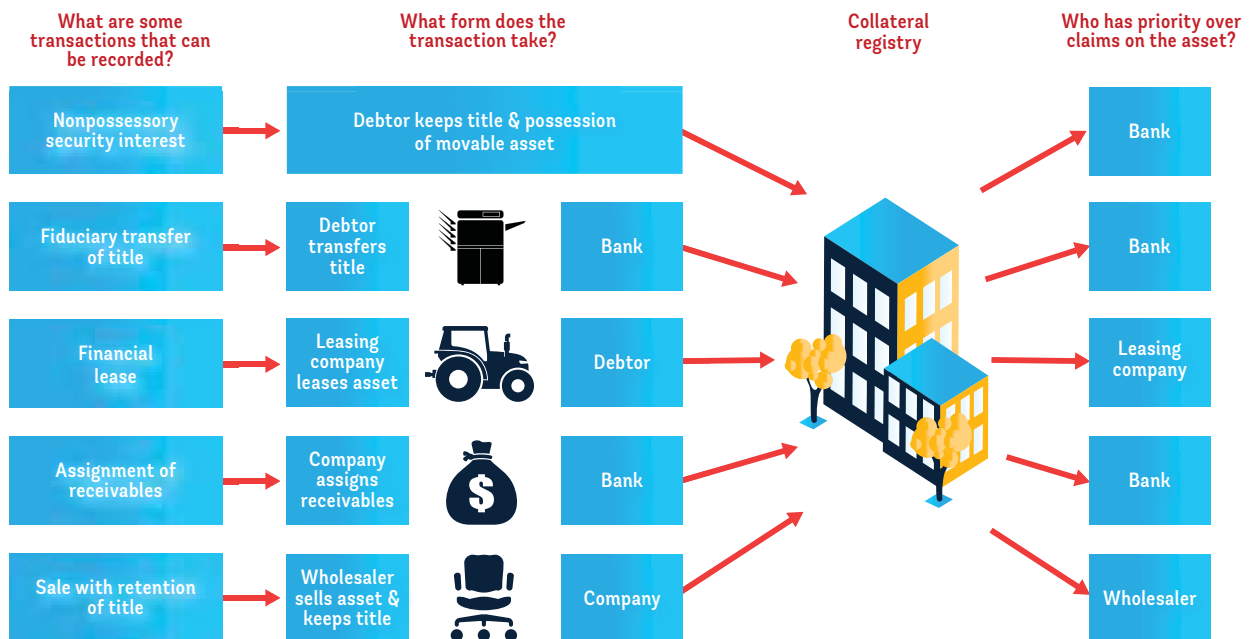
This functional approach to secured transactions, also known as the unitary model, has been promoted through model laws in regions as far apart as Eastern Europe and Latin America and the Caribbean (figure 8.2).<sup>5</sup> The functional approach has also been considered in some high-income economies whose current system poses no significant problems but where the legal community sees possible advantages in the approach.<sup>6</sup> In the European Union, as part of the efforts to harmonize private law, scholars from economies with different legal traditions have reached consensus on the importance of a single notion of security right—with pledges covered by the same rules and principles for creation, publicity and enforcement as assignments of claims, transfers of ownership, and sales and leaseback agreements.<sup>7</sup>

The benefits of a functional approach have inspired legal reforms all over the world. In Belgium a new unitary regime

will come into force in December 2014. The provisions on pledges in the country’s civil code as well as the 1919 law relating to pledges of commercial assets will be abolished,<sup>8</sup> and the distinction between the commercial pledge and civil pledge eliminated. The new legal framework will incorporate the provisions on retention of title now included in the country’s bankruptcy law and will formally recognize fiduciary transfer of title. This will create a single legal framework for all pledges over movable assets—a big step toward a functional approach to secured transactions. Once implemented, the reform will arguably be the first of its kind in Western Europe.

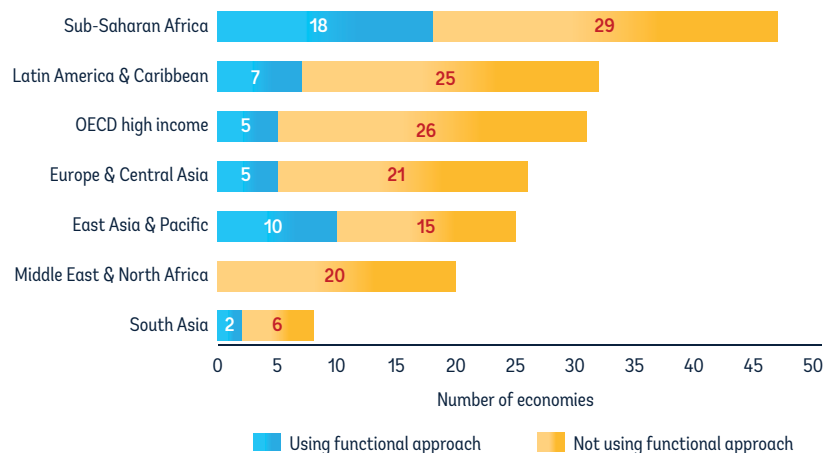
Colombia established a modern legal framework for secured transactions in the past year. The new legal framework allows the use of all types of movable assets, present or future, as collateral to secure a loan. It also regulates the functional equivalents of loans secured with movable property, such as financial leases and sales with retention of title.<sup>9</sup>

**FIGURE 8.1** Recording all types of secured transactions in a collateral registry promotes transparency



Note: Priority is established by time of registration of the security interest.

**FIGURE 8.2** How many economies have adopted a functional approach to secured transactions?



Source: *Doing Business* database.

This change is expected to increase transparency and protect the rights of creditors when taking movable property as collateral.

Jamaica also established a new legal framework to modernize its secured transactions system. The aim is to improve the availability of credit to the private sector while minimizing the risk of nonpayment of loans. The Security Interests in Personal Property Act, which came into force on January 2, 2014, repealed provisions governing traditional securities under the Agricultural Loans Act, the Bills of Sale Act and the Debenture Registration Act. The new legal framework applies to all types of security documents, including pledges, leases and floating charges.

Jamaica is following a path laid by other jurisdictions with a common law tradition. The most recent previous example was Australia's implementation of the Personal Property Security Act of 2009. The reform had a massive legal scope, replacing 77 commonwealth and state acts and regulations and affecting 30 commonwealth, state and territory agencies.

All these reforms entailed creating new collateral registries or transforming existing ones. To help in understanding

how these institutions function, the *Doing Business* indicators on the legal rights of borrowers and lenders look at several features of their operation.

## A CRITICAL PIECE—THE COLLATERAL REGISTRY

To be effective, an integrated legal framework for secured transactions needs to be accompanied by a modern collateral registry for movable assets. Such registries allow a lender to take security rights in an asset without having to take physical custody of it. The debtor retains title and possession. Without registration of these transactions, there is no transparent security for the lender and no assurance that the lender is the only one laying claim to the asset. Collateral registries both enable potential creditors or buyers to discover any existing liens over property and allow them to register their own security interest, establishing priority over other creditors in case of the debtor's default.<sup>10</sup>

Studies show that a new collateral registry can have a substantial economic impact. In economies that introduce one, access to bank finance rises by about 8 percentage points on

average, while interest rates decline by about 3 percentage points and the terms of loans increase by about 6 months.<sup>11</sup> Experience shows how active collateral registries can be, even in countries with small populations. In 5 such countries that recently created registries and reformed secured transactions laws—the Marshall Islands (2010), the Federated States of Micronesia (2007), the Solomon Islands (2009), Tonga (2011) and Vanuatu (2009)—the number of filings had reached a total of more than 20,000 by January 31, 2014, while the number of searches had exceeded 60,000.<sup>12</sup> In Australia, whose 2009 reform included implementing a new collateral registry, the number of filings exceeded 2 million in 2013 alone, while the number of searches exceeded 6 million.<sup>13</sup> Implementing and maintaining a modern and well-functioning collateral registry may entail significant financial and administrative efforts. It is encouraging to note that, costs notwithstanding, a number of low-income countries have found the associated investments to be fully justified when examined in light of other benefits for the economy at large.

## Key features of a modern collateral registry

As model laws and legislative guides have evolved with technology over the years, they have encapsulated a set of good practices that serve as generally accepted standards for modern collateral registries. These include using notice-based registration, allowing online access to data and centralizing registries.

While traditional registries usually require a copy of the loan agreement or other documents, notice-based registries require no documentation other than a simple generic form that records the existence of a security interest, providing the names of the creditor and the debtor as well as a general description of the collateral asset and the obligation secured. This

avoids the need for a specialist to review lengthy documents, which can be costly and time-consuming. It also improves the quality of registration: with less documentation, the potential for errors is minimized. Notice-based registration has also been successfully adopted for other registration systems, such as patent and trademark registries.

Online systems allow users to perform searches and register security interests from anywhere and at any time. Unlike with paper-based systems, there is no need for users to appear before the registrar and wait their turn to enter information in the registry index. Online registration also transfers the burden of preventing errors to the interested party.

Centralized registries enable potential creditors to determine whether an asset has been pledged as collateral by

searching a single database, regardless of the location of the borrower. To be effective, these registries also need to allow searches based on unique search criteria—such as a debtor's unique identifier (or name, if no unique identifiers exist) or a serial number (for serial-numbered assets such as vehicles)—and they need to encompass both legal and natural persons as well as all types of assets. Where registries are not centralized, searches can be time-consuming and even useless. In the fragmented collateral registry system for chattel mortgages in the Philippines, for example, finding out whether an asset is mortgaged requires submitting a request to more than a hundred registries.

### Different legal traditions, different practices

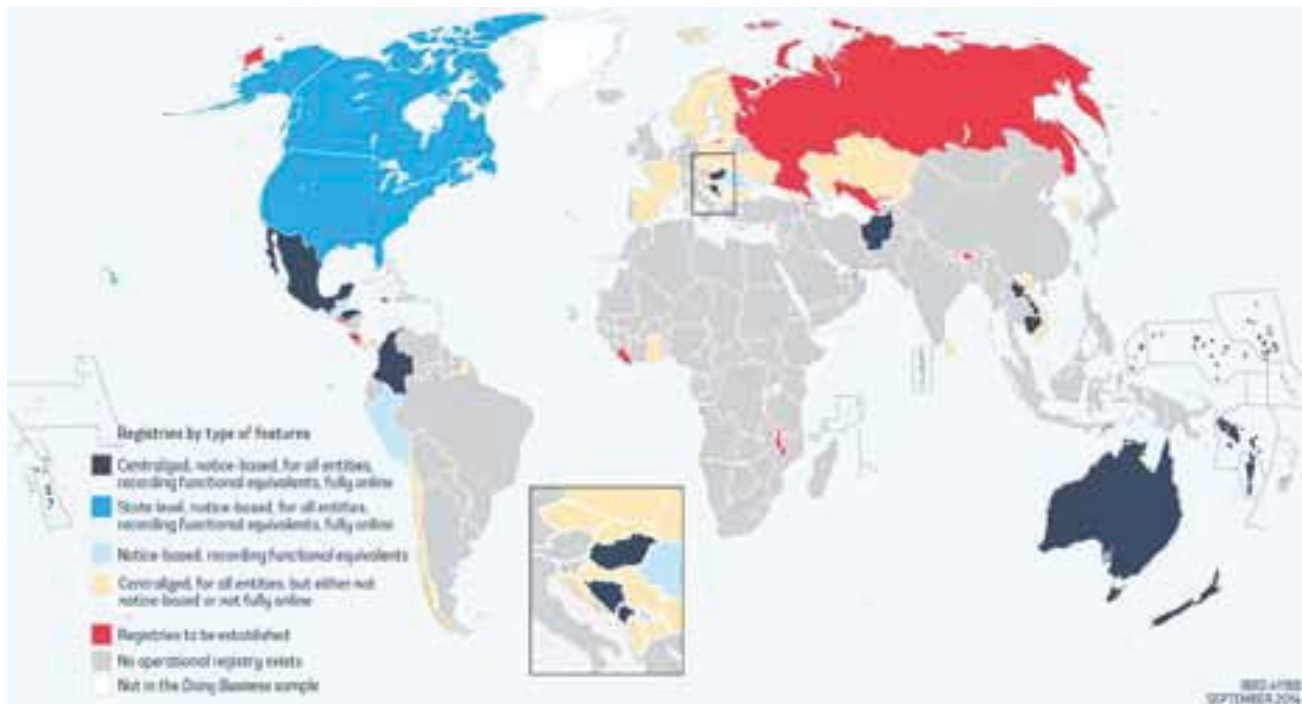
While the registration of collateral claims is common practice in many

economies, the type and role of registries may vary depending on the legal tradition. In some economies with a common law tradition, rights over movable property are customarily recorded in separate registries for incorporated and nonincorporated entities. For example, not all security instruments may be available to both companies and sole proprietorships or registered at the same place.

In some civil law economies registration of securities takes place at the local court of first instance or at the commercial registry. In many other economies there is no requirement at all to register security interests over movable property (figure 8.3).

The strength of legal rights index is consistent with good practices in secured transactions law, such as allowing both incorporated and

FIGURE 8.3 Which economies have collateral registries—and of which type?



Note: The map reports operational collateral registries as recorded by *Doing Business*—those that are for all entities, are centralized geographically and by asset type and have an electronic database indexed by the debtor's name or unique identifier. Functional equivalents to traditional security interests include financial leases, sales with retention of title, assignments of receivables and fiduciary transfers of title, among others. Registries that are fully online allow searches, registrations, amendments and cancellations to be carried out online by any party with a legitimate right to do so.

Source: *Doing Business* database.

nonincorporated companies to create security interests over all categories of movable assets. Good practices also call for registering all types of security interests and functional equivalents at the same place—including financial leases, sales with retention of title, assignments of receivables, fiduciary transfers of title and tax liens—to ensure that they are not hidden from prospective creditors or buyers. The indicator focuses on the first 4 of these functional equivalents and rewards economies in the scoring if at least 3 of them are recorded at the same collateral registry. This unitary approach has increasingly become part of the secured transactions reforms in Central and Eastern Europe, most recently in Hungary. But because of different approaches in their implementation, the wave of reforms in the region has not led to consistent results.<sup>14</sup>

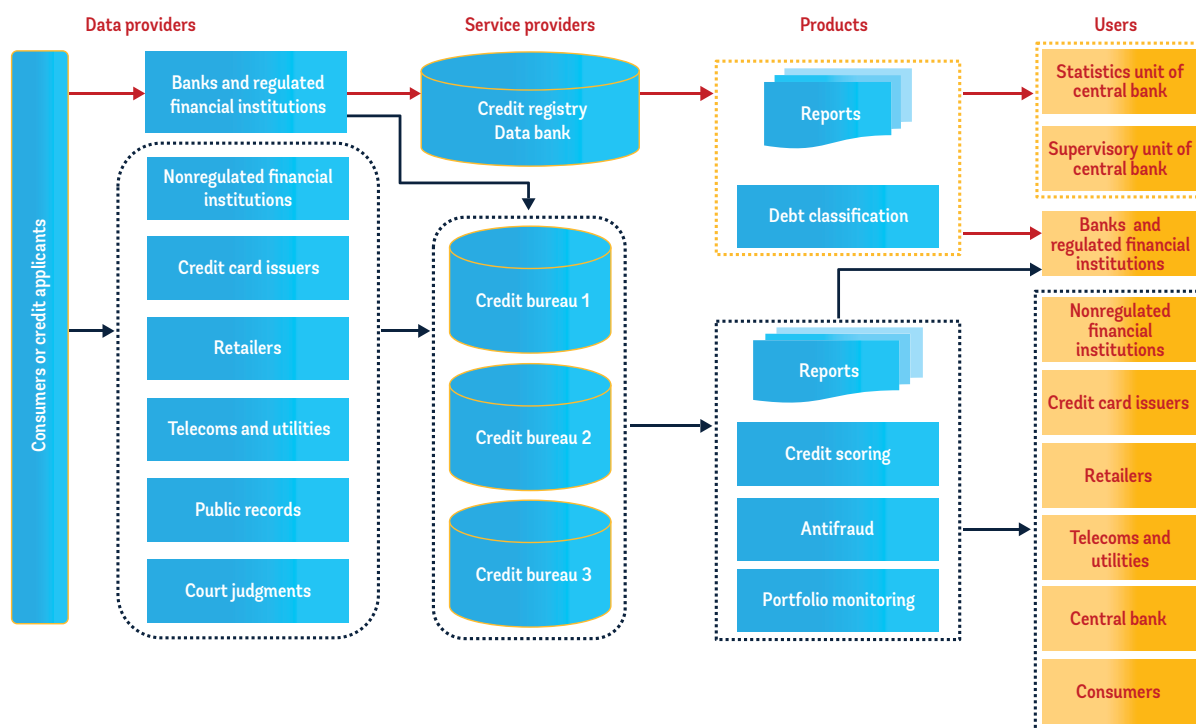
## WHY ARE CREDIT BUREAUS AND REGISTRIES IMPORTANT?

Credit reporting service providers can be grouped into 2 main types: credit bureaus, which aim primarily to improve the quality and availability of data that creditors need to make informed decisions, and credit registries, which seek mainly to support banking supervision while also improving the quality and availability of data for supervised financial intermediaries (figure 8.4). (In practice, many credit bureaus also support financial supervision activities, and some credit registries also aim to improve data for creditors.) While their primary objectives might differ, both types serve the same purpose: reducing information asymmetries to help increase access to credit. They also improve borrower discipline, lower interest rates and support bank supervision and credit risk monitoring.

Borrowers have more information about their past credit behavior and current financial situation than creditors do. This makes it hard for individuals and small firms trying to get a loan to make their case to lenders. Banks are more likely to lend to larger firms, which usually are required to adopt international accounting standards, are more transparent and bear less risk of default.<sup>15</sup>

By collecting information on individuals and small firms, credit bureaus and registries provide banks with the information they need to assess creditworthiness. This information sharing helps poor people and micro and small businesses.<sup>16</sup> It can especially benefit new entrepreneurs, by enabling formal credit providers to check their past repayment patterns and track their current credit behavior.<sup>17</sup> A 2007 study found that in developing economies access to credit grew twice as fast

FIGURE 8.4 How credit information flows in a system with both a credit registry and credit bureaus



Note: Some economies have only a credit registry, some have only one or more credit bureaus, and some have both a credit registry and one or more credit bureaus. Credit bureau networks tend to be more complex than credit registry networks because they generally include a larger variety of data providers and data users.

Source: World Bank 2011a, p. 51.

for small firms as for large ones after new credit reporting systems were introduced.<sup>18</sup>

Good credit reporting systems combined with strong rule of law can be a catalyst for growth in frontier economies with many young firms and entrepreneurial ventures. Research based on World Bank Enterprise Survey data from 123 countries found that in those with better credit reporting systems, younger firms have better access to bank finance than older firms do.<sup>19</sup> Credit information systems also reduce firms' reliance on informal credit, whose high interest rates and lack of protections can be destabilizing both to the firms and to the overall economy.

Sharing credit information can improve borrower behavior and reduce interest rates. According to a study surveying more than a thousand consumers in the United States with primary or joint responsibility for paying bills, half said

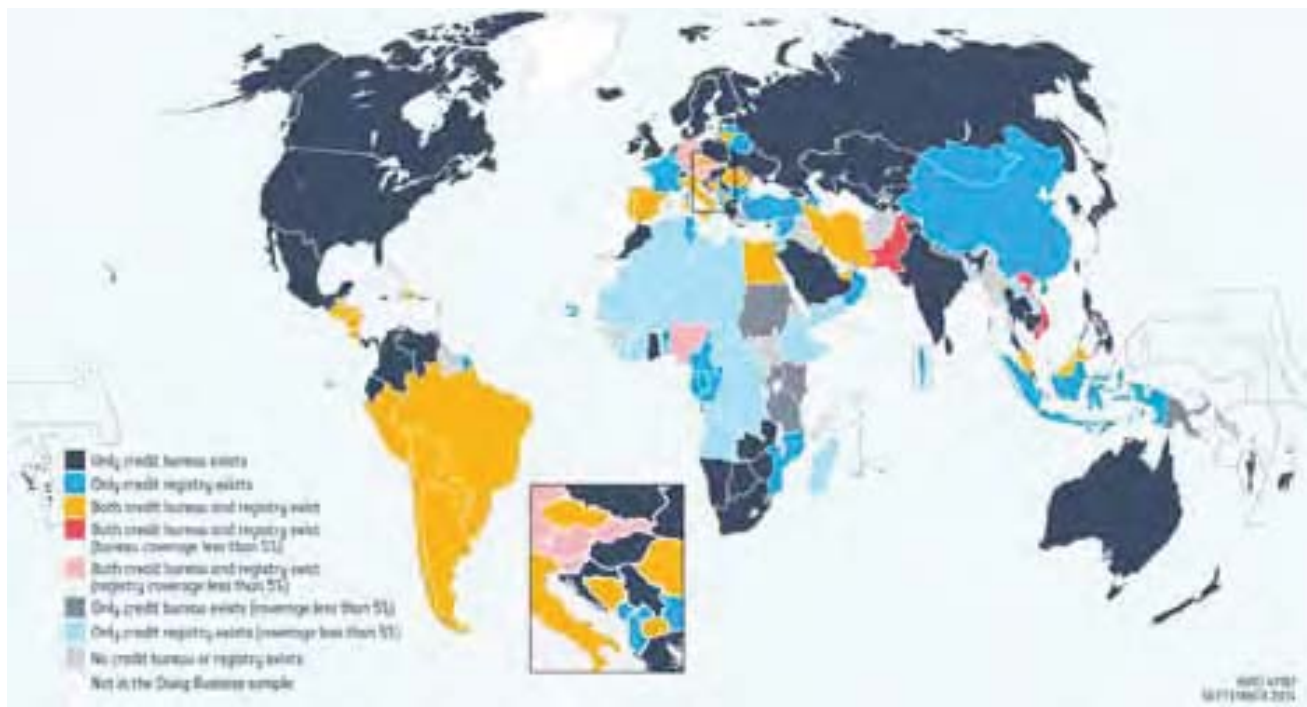
that they would be more likely to pay their bills on time if those payments were fully reported to credit bureaus and could affect their credit score.<sup>20</sup> A study in Albania found that loans given after the launch of its credit registry were 3 percentage points less likely to turn problematic.<sup>21</sup> And when credit reporting compels borrowers to establish consistent repayment patterns, financial institutions face less uncertainty in their debt exposure and can lower interest rates.<sup>22</sup>

Credit information systems also help maintain the health of financial systems, with credit registries enabling policy makers and regulators to monitor large flows of money and credit bureaus allowing them to assess developments in credit markets and interest rates. One study found that credit registries played a valuable role in calculating credit risk for capital and in supervising and checking banks' internal ratings in Argentina, Brazil and Mexico.<sup>23</sup>

Coverage by credit bureaus and registries is extensive, encompassing more than 2 billion individuals and 120 million firms worldwide by January 2014.<sup>24</sup> The number of economies with a credit bureau covering at least 5% of the adult population as recorded by *Doing Business* grew from 49 of 145 economies in 2004 to 94 of 189 in 2014—while the number with a credit registry covering at least 5% increased from 22 of 145 economies to 58 of 189 (figure 8.5). Globally, 28 economies have both a credit registry and a credit bureau covering at least 5% of the adult population.

Coverage continues to grow as economies establish or enhance credit reporting systems. Several did so in the past year. In Jamaica 2 new credit bureaus, Creditinfo Jamaica and CRIF-NM Credit Assure Limited, having received licenses in 2012, began serving banks and financial institutions in 2013. Thanks to the launch of their operations, Jamaica was the economy that made the biggest

**FIGURE 8.5 Which economies have a credit bureau or registry?**



Note: Coverage is the number of individuals and firms covered as a percentage of the adult population. The map reports operational credit reporting service providers as recorded by *Doing Business* that have a coverage of at least 0.1% of the adult population.

Source: *Doing Business* database.

improvement in credit reporting in 2013/14.

Three other economies also developed new credit reporting systems in the past year. The Democratic Republic of Congo's central bank established a credit registry by launching an electronic credit reporting system, YSYS-CERI, in April 2013. Tanzania's central bank licensed the country's first credit bureau, Creditinfo Tanzania, in June 2013, and its second credit bureau, Dun & Bradstreet Credit Bureau Tanzania, in September 2013. Vietnam's first credit bureau, Vietnam Credit Information, started operating in January 2014. By April it was providing credit information to 23 of 47 commercial banks in the country as well as market education and training.

Some economies have development plans under way. In June 2013 the West African Economic and Monetary Union set up a legal framework providing for the establishment of credit bureaus in member states. Two have adopted the law so far, Senegal in January 2014 and Côte d'Ivoire in March 2014.

## FEATURES OF MODERN CREDIT INFORMATION SYSTEMS

The vast majority of credit reporting service providers offer online access to their databases, which provides data users with faster, more efficient service and can ensure better data quality. Many also provide credit scores based on credit bureau or credit registry data as a value added service. These scores are different from those developed on the basis of individual lenders' data and provide a highly predictive measure of a borrower's repayment behavior. Online access and credit scoring are 2 of many features that define a modern credit reporting system.

### The efficiencies of online access

More efficient credit reporting service providers share their data online. Offering online access for subscribed banks and financial institutions has become a must for many credit bureaus and registries. One way to do so is through an online platform accessed with a traditional internet browser. This kind of system allows a user to connect once it has validated the user's log-in information. Once connected to the system, the user can retrieve credit reports autonomously.

Another way to provide online access is through a system-to-system connection, where the user's system is connected to and integrated with the credit reporting service provider's system. Both parties have software installed that allows host-to-host connectivity without human interaction. Data are updated automatically, and users retrieve credit information by accessing their own system, with no need to log into the service provider's system.<sup>25</sup>

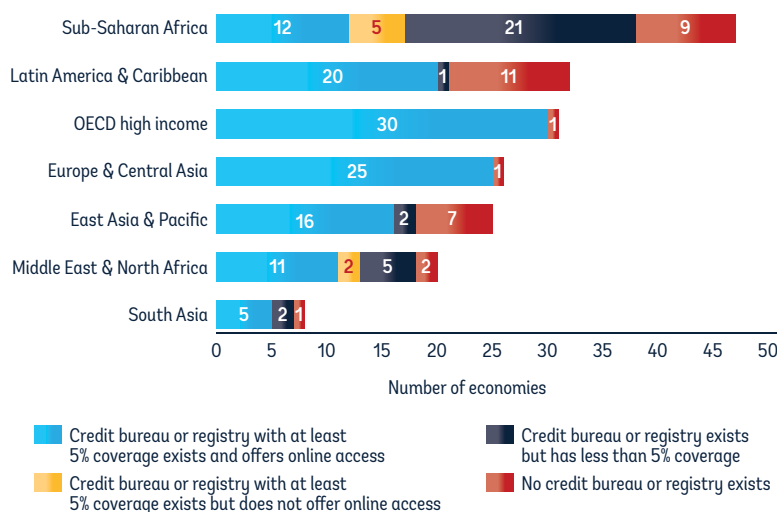
Online access to data is fast and can ensure transparency, data quality and security. A system-to-system

connection further ensures system efficiency and high service standards for users because it eliminates data duplication, reduces the risk of human error and allows the streamlining of work flows with appropriate business and validation rules. These advantages may encourage more data providers to share information with the credit bureaus and registries.

Online access is widespread. In 119 of 126 economies with a functioning credit bureau or registry covering at least 5% of the adult population as recorded by *Doing Business*, data users can access borrowers' credit information online. Globally, data providers and users can exchange credit information electronically in 94 of the economies with a credit bureau that covers at least 5% of the adult population—and in 50 of those with a credit registry that does so.

In East Asia and the Pacific, Europe and Central Asia, Latin America and the Caribbean, the OECD high-income group and South Asia data providers and users can exchange data electronically in all economies that have a functioning credit bureau or registry covering at

**FIGURE 8.6** How many economies have a credit bureau or registry providing online access to credit data?



Note: Coverage is the number of individuals and firms covered as a percentage of the adult population.

Source: *Doing Business* database.

least 5% of the adult population (figure 8.6). In the Middle East and North Africa this is the case in about 85% of economies that have such a credit bureau or registry, while in Sub-Saharan Africa it is the case in only 71%.

Online access to credit reporting systems is growing in the developing world. Ethiopia's central bank established a credit information center to allow banks to submit data and inquiries electronically. A pilot program was launched in August 2011 with 3 commercial banks, and by April 2012 the online system was fully implemented. Today 17 Ethiopian banks are registered as data users and provide monthly updates. The objective for the online system is to preserve and distribute 5 years of historical data on the repayment status of all loans.

Bangladesh's central bank (Bangladesh Bank) launched an online system for its credit information bureau in July 2011 to allow banks and other financial institutions to exchange information on borrowers and loan repayments electronically. Before, Bangladesh Bank had a semiautomatic system

in place: banks provided information on computer disks and had to pick up printed copies of credit reports from Bangladesh Bank's office.

Paraguay's central bank introduced a new online system in April 2011. This system is aimed at improving both the credit registry's efficiency—by reducing the time it takes to verify credit information from one week to just a few minutes—and the accuracy of data. The system, called Red de Comunicación Financiera, allows financial institutions to transfer data to the credit registry and access credit information on both firms and individuals.

### The predictive value of credit scores

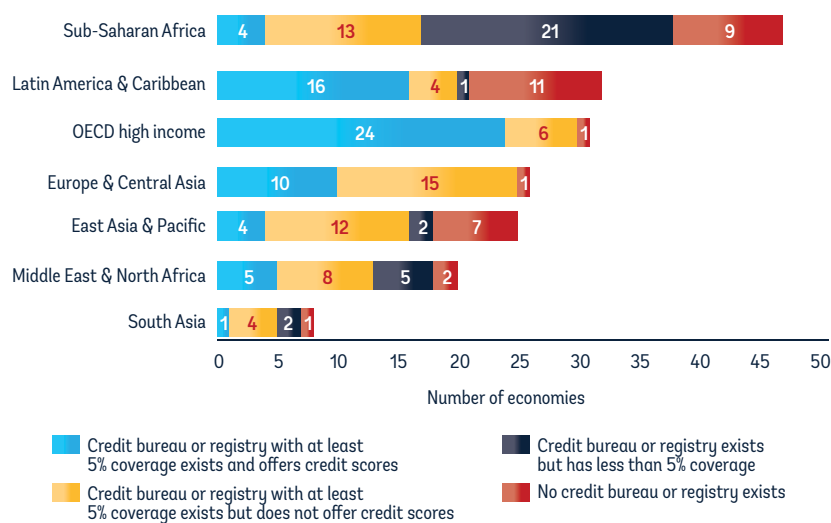
Many credit bureaus and registries provide value added services to data users. These include credit scoring, marketing services, portfolio monitoring, fraud detection and debt collection. An important tool in expanding access to finance is credit scoring, a statistical method of evaluating the probability that a prospective borrower will fulfill the financial obligations associated with a loan.

Credit scores based on credit bureau or credit registry data pool information across many creditors as well as some public information sources. They therefore include characteristics otherwise unavailable to any individual creditor, such as total exposure, number of outstanding loans and previous defaults within the system. Credit scoring models typically incorporate historical data such as defaults, positive payment behavior and previous inquiries. To sharpen the predictive value of credit scores, credit bureaus and registries also are increasingly collecting data from a wider range of sources (such as bankruptcies and court judgments). As a result, credit scores generally have a higher predictive value than assessments derived from credit histories alone.<sup>26</sup>

Credit scores may improve market efficiency and provide borrowers with more opportunities to obtain credit. The availability of credit scores allows lenders that would otherwise not be capable of analyzing the raw credit data to extend credit to underserved markets at lower cost.

Credit scoring based on credit bureau or credit registry data is offered in 64 of 126 economies with a credit reporting service provider covering at least 5% of the adult population as measured by *Doing Business*. This value added product is most widely available in Latin America and the Caribbean and the OECD high-income group, offered in 80% of economies with a credit bureau or registry covering at least 5% of the adult population—compared with 40% in Europe and Central Asia, 38% in the Middle East and North Africa, 25% in East Asia and the Pacific and 24% in Sub-Saharan Africa (figure 8.7). In South Asia credit scores are offered in only 1 of 5 economies with a credit reporting service provider covering at least 5% of the adult population.

**FIGURE 8.7 How many economies have a credit bureau or registry providing credit scores?**



Note: Credit scores are those based on credit bureau or registry data. Coverage is the number of individuals and firms covered as a percentage of the adult population.

Source: *Doing Business* database.



**FIGURE 8.8 Economies with stronger systems for secured transactions and credit reporting have higher levels of domestic credit provided to the private sector**



Note: Domestic credit to private sector refers to financial resources provided to the private sector by financial corporations, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment. The correlation between the distance to frontier score for getting credit and domestic credit to private sector as a percentage of GDP is 0.34. The relationship is significant at the 1% level after controlling for income per capita.

Source: *Doing Business* database; World Bank, World Development Indicators database.

## WHAT ARE THE LINKS WITH ACCESS TO CREDIT?

Where the legal framework provides stronger protection of secured creditors' rights and credit reporting systems provide more relevant, reliable, timely and sufficient data, the private sector tends to have better access to credit. Analysis of data collected for the strength of legal rights and depth of credit information indices confirms that economies that score high on these indices also have higher levels of domestic credit provided to the private sector by financial institutions (figure 8.8).

The results show that both transparency in the secured transactions system and access to credit information—elements that create predictability for secured creditors and provide lenders with tools to assess the creditworthiness of borrowers—are associated with a higher level of private sector credit, and this leads to more business creation or expansion in the long term. Nevertheless, there are many other factors that constrain or enable firms'

access to credit, and these should be taken into account when analyzing an economy's credit market.

## CONCLUSION

Effective systems for secured transactions and credit reporting can improve access to finance for small and medium-size enterprises. This is confirmed by the data for the expanded indicators on getting credit, which this year also cover the functional approach to secured transactions, more features of the collateral registry and the availability of credit scores and online access to credit information. Analysis of these data shows a significant correlation between better performance on the getting credit indicators and higher levels of domestic credit provided to the private sector by financial institutions. Used in conjunction with other indicators measuring factors that affect firms' access to credit, the getting credit indicators can contribute to a better understanding of credit markets.

## NOTES

This case study was written by Iana Ashchian, Catrice Christ, Santiago Croci Downes, Salima Daadouche, Nan (Charlotte) Jiang, Magdalini Konidari and Yasmin Zand.

1. Kuntchev and others 2012.
2. Djankov, McLiesh and Shleifer 2007.
3. UNCITRAL 2007.
4. World Bank 2011b.
5. The European Bank for Reconstruction and Development has used its 1994 Model Law on Secured Transactions to promote a functional approach in Eastern Europe, while the Organization of American States has used its 2002 Model Inter-American Law on Secured Transactions to promote the approach in Latin America and the Caribbean.
6. According to a discussion paper by the City of London Law Society (2012, p. 3), "the advantage of this approach would be that all aspects of the law relating to secured transactions could be set out in one place. This would make it more accessible to those involved in taking or granting security, including those from outside England who engage in cross-border financing. It could also result in useful clarification and simplification of the law."
7. Study Group on a European Civil Code and Research Group on EC Private Law (Acquis Group) 2009.
8. The relevant provisions of the Belgian Civil Code are in articles 2071–84 on pledge.
9. Law 1676, article 3.
10. Alvarez de la Campa 2011.
11. Love, Martínez Pería and Singh 2013.
12. Asian Development Bank 2013.
13. Data provided by the Australian Financial Security Authority.
14. Tajti 2013.
15. Jappelli and Pagano 2002; Behr, Entzian and Guettler 2011; Brown, Jappelli and Pagano 2009.
16. Luoto, McIntosh and Wydick 2004; Brown, Jappelli and Pagano 2009.
17. Chavis, Klapper and Love 2010.
18. Brown and Zehnder 2007.
19. Chavis, Klapper and Love 2010.
20. Turner and others 2009.
21. Behr and Sonnekalb 2012.
22. Brown and Zehnder 2007; Luoto, McIntosh and Wydick 2004; Brown, Jappelli and Pagano 2009; Behr, Entzian and Guettler 2011.
23. Powell and others 2004.
24. Statistics refer to the number of individuals and firms covered in 126 economies with functioning credit bureaus and registries covering at least 5% of the adult population as recorded by *Doing Business*.
25. IFC 2012.
26. World Bank 2011a.