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CROSS-BORDER CREDIT REPORTING

AIMING FOR INTERNATIONAL
PRACTICES AND STANDARDS

EXPLORATORY REPORT

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ABBREVIATIONS

ACCIS	Association of Consumer Credit Information Suppliers
AnaCredit	Analytical Credit Datasets
BCEAO	Central Bank of West African States (<i>Banque Centrale des Etats de l'Afrique de l'Ouest</i>)
ECB	European Central Bank
GDPR	General Data Protection Regulation
ICCR	International Committee on Credit Reporting
ID	Identification
LEI	legal entity identifier
MOU	memorandum of understanding
NCB	national central bank
PCR	public credit register

ACKNOWLEDGMENTS

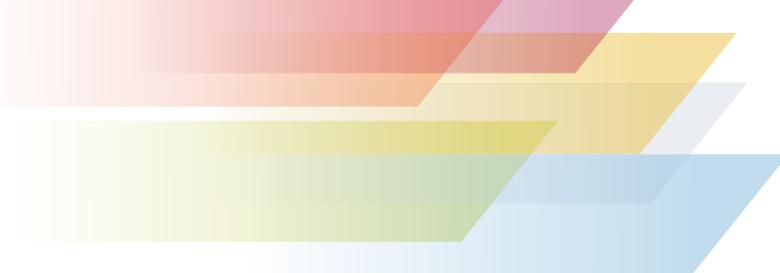
This exploratory report is a product of the International Committee on Credit Reporting (ICCR) and the World Bank Group (WBG). The paper was prepared by Dr. Nicola Jentzsch (Independent Consultant) with the assistance of Anika Lange (research Assistant) under the leadership and guidance of the ICCR Cross Border Information Sharing Working Party chaired by Michael Ritter (Deutsche Bundesbank).

The document benefited from a consultation process and the contributions of plenary members, representative organizations, and external peer reviewers. The committee gratefully acknowledges valuable inputs and comments from peer reviewers Nataliya Mylenko (WBG) and Dr. Caterina Giannetti (Assistant Professor and Affiliated Researcher—University of Pisa).

The ICCR would also like to thank the Chairman of the ICCR, Mahesh Uttamchandani and Secretariat members Luz Maria Salamina and Collen Masunda for guiding the process.

Charles Hagner provided editorial services. The layout was prepared by Naylor Design Inc.





I. INTRODUCTION

Credit reporting systems are an important ingredient in the robust and healthy financial infrastructures of countries. In credit markets, credit reporting systems help to reduce the information asymmetries that exist between borrowers and lenders, that prevents a lender from ascertaining the credit risk associated with a borrower (private persons, companies). Credit reporting intermediaries—private credit bureaus and public credit registers (PCRs)—collect information about lines and volume of credit, repayment history, or payment defaults. Such data—analyzed with advanced statistical models—allow the repayment probability of a borrower to be identified. The information is in turn redistributed to lenders, who use it to assess the creditworthiness of clients. Thus, credit rationing in financial markets, the situation in which good borrowers cannot access credit due to a lack of credit history or collateral, is reduced. Credit reporting systems also contribute to the prevention of overindebtedness.

For lenders, credit checks across international borders are one aspect. However, lenders in general need access to the full spectrum of services, including identification, fraud prevention, credit scores, and analytical services that are based on access to the bureau data. In many countries, these services are provided primarily by credit bureaus and based on country-specific data. The availability and importance of such data varies country by country.

Credit reporting has additional, less obvious, positive impacts for a country's financial market. For example, establishing credit registers and credit bureaus eases bank entries into national markets. Competition among lenders improves, as good borrowers become more contestable. As a consequence, interest rates become more competitive. The variety and volume of credit improve, and offers become more personalized. Moreover, regulators are able to monitor the accumulation of credit risk in and across institutions much more efficiently, and critical trends such as overindebtedness become observable more readily.

Four Major Trends Affecting Credit Reporting

Over the past decade, more and more countries have established credit reporting systems, especially in Asia and Africa, and more and more lenders have come to appreciate credit reporting services, leading to an increasing number of reporting institutions. However, **four major trends** affect the operation of these systems. These trends constitute the rationale and setting of this report.

The first trend is **internationalization**. Borrowers are becoming increasingly mobile across borders; companies are relocating to or opening subsidiaries in other countries, employees are being sent abroad, and migrants are seeking a better life somewhere else. The lack of a complete credit history hampers these developments, because credit data is often not shared across borders. Cross-border financial flows (for example, extending credit lines) are also hampered, as banks have little means to assess whether credit reports from other countries are trustworthy. In addition, different regulatory regimes or authorities' insistence on data localization may reduce international data flows.

The second trend is **digitalization**. Credit reporting systems are an integral part of the data economy. Massive amounts of structured and unstructured data (big data) are now mined by machine-learning models. Emerging new data sources, such as mobile phones or social media profiles, include network patterns and are fast moving. An increasing number of fintech startups have put traditional credit bureaus under pressure. They envision a 360-degree view of the borrower and a monitoring of credit risk in real time. In addition, new technological inventions, such as localized, federated learning and edge computing, facilitate the extraction of insights from data, while the data sets themselves do not have to be shared or moved.

The third important trend is increasing **regulation**. Governments are increasingly under pressure to regulate data-related activities that touch the lives of millions of persons and companies. Statistics around the world show an increasing concern for privacy among individuals. In addition, governments are introducing policies of digital sovereignty. These imply, for example, reaching for more autonomy with respect to value-added chains in the data economy.

Finally, when the **COVID-19 pandemic** struck economies around the world, it had devastating effects for millions of persons who lost their jobs. They struggle to make ends meet and to pay their rents and repay mortgages and other loans. International institutions, such as the International Committee on Credit Reporting (ICCR) and national regulators (such as the US Consumer Financial Protection Bureau and European Banking Authority) have issued guidance for dealing with defaults in such a way that borrowers' deteriorating credit report do not lead to additional economic hardship.

Goal of This Study

The purposes of this study are to review currently established international cross-border sharing initiatives and mechanisms and to explore obstacles for cross-border sharing of credit information. The study also includes recommendations on how to overcome the obstacles observed. The scope covers data on individuals and businesses (that is, micro, small, medium, and large enterprises) and public and private initiatives. Moreover, it covers all continents (with the exception of Australia) and includes cross-border sharing initiatives in the European Union, West Africa, and the Asia-Pacific Economic Cooperation forum. The exploratory study also compiles the latest academic insights on the economics of information sharing.

The study also refers to (anecdotal) evidence for the sources of demand for cross-border credit reporting. Such demand originates in migration across borders, the international movement and trade transactions of firms, and demand for credit from creditors in other countries. By 2020, it seems that migration had become the most important factor for demand of credit reports on individuals, while international trade transactions and the lending of/to firms were the most important for company business reports, but there is no empirical evidence on this matter at the moment.

Method of This Study

The study employed a combination of techniques to construct a sound information basis. A **desktop research sprint** (explained in appendix A) was conducted covering the latest academic research on cross-border credit reporting. Moreover, the report also covers technological innovations in credit scoring, different use cases of public and private credit reporting, and international models of cross-border credit reporting.

This research sprint was combined with **in-depth guided expert interviews**, for which experts from a variety of different backgrounds were selected to provide insights on different regulatory schemes.

Finally, to obtain a broad overview of the different obstacles and policy solutions, a **questionnaire** was drafted, and about 50 organizations and individuals around the globe responded to this survey.

Recommendations

The **recommendations** are based on the aforementioned information collection and tailored to different stakeholder groups (international organizations, national policy makers, and regulators, as well as industry associations and private credit bureaus). A solution successfully tailored to one region might fail when applied in another. The first recommendation, therefore, is for national policy makers and regulators to evaluate their own maturity in terms of cross-border reporting and the potential demand for it. Based upon this model, they may pick the right cross-border reporting model, of which several are mentioned herein.

Another key suggestion is to create an **international observatory of cross-border data restrictions**, which amends and extends the EU survey conducted in 2017. The data industry has expanded since then and today covers a much wider spectrum of players. Thus, the regulatory space applicable to cross-border credit data flows has evolved significantly. The same holds for platform and data trust regulation (examples in Europe are the Digital Services Act and the Data Governance Act.) Continued, active engagement through the ICCR and industry associations is key for staying abreast of an evolving framework.

This exploratory report shows that **international credit reporting is benefiting from a technology update**. Technology can leapfrog slow regulatory changes (for example, harmonization) and create legally compliant processes and products. Moreover, open standards for international credit reporting, as well as smart deployment of artificial intelligence, are a route to faster internationalization of credit reporting. The tech update, however, would need to include the latest insights from the

debate on the ethics of machine learning and artificial intelligence, as it can be foreseen that further regulation of these technologies is on the horizon. (Plans in Europe to regulate artificial intelligence provide an example.)

In this report, we include a glossary of terms that facilitate a better understanding of the report. It is not meant to be a proposal for a standard international glossary of credit reporting.





II. OVERVIEW

2.1 ICCR Standards on Cross-Border Credit Reporting

The General Principles for Credit Reporting are the first internationally recognized principles for credit reporting.¹ They were published in 2011 by a task force at the World Bank. This task force later evolved into the ICCR.

The principles are international standards for credit reporting directed to policy makers, regulators, financial supervisors, credit reporting data providers, credit reporting service providers, users of such services, and subjects of credit reports (individuals and businesses).

The General Principles for Credit Reporting define minimum elements for an efficient and effective credit reporting system and consider the different roles of the aforementioned stakeholders. Their primary public-policy objective is the sound and fair extension of credit in an economy, which is facilitated by credit reporting systems: “To this end, credit reporting systems should be safe and efficient, and fully supportive of data subject/ consumer rights” (World Bank 2011, 2–3).

The principles may be grouped into the following **five focus** areas:

- 1) **Data:** Relevant, accurate, timely, and sufficient.
- 2) **Data processing:** Standards of security and reliability.
- 3) **Governance and risk management:** Accountability, transparency, and effectiveness.
- 4) **Legal and regulatory environment:** A framework should be clear, predictable, non-discriminatory, proportionate, and supportive of data subject and consumer rights.
- 5) **Cross-border data flows:** Cross-border flows should be facilitated.

Cross-border credit data transfers should be facilitated, where appropriate, provided that adequate requirements are in place.

Cross-Border Data Flows
General Principle 5

The principles state that cross-border activities take place in a more complex environment due to the multiplicity of legal frameworks, including data and consumer protection but also market practices and institutional structures.

Potential areas of concern associated with cross-border credit reporting are cross-border disputes regarding inaccuracies, conflicting consumer-protection rights, and differences in data-retention periods, as well as differing data elements—some might be required in one country but prohibited in another. The principles explain that, in some economic blocks, entities and persons shall obtain financial services under similar conditions no matter which country they are in. Thus, either the credit bureaus need to establish cross-border access to their reports or the credit reports themselves need to become portable.²

Moreover, the principles establish that credit bureaus reduce their costs of doing business by servicing several smaller countries from one central point (hub-and-spoke system).

Important ingredients for cross-border credit reporting

- Standards on data formats
- Mandatory data elements
- Guidelines for cross-border data transfers
- Risk mitigation
- Governance in credit reporting agencies
- Frameworks for cooperation and coordination among different regulators

World Bank (2011)

The principles emphasize that a standardization of data formats and procedures should be fostered to facilitate cross-border transfers of credit data. In order to ensure consistency of reports, there should be “mandatory inputs” in credit reports (World Bank 2011, 40).

The general principles also relate to the risks of doing business. When data is collected in a single repository, or sent across several jurisdictions, cybersecurity operational as well as legal and cybersecurity risks might arise. Thus, a high level of bilateral or multilateral agreements/cooperation are needed in order to deal with such trans-border data flows.

Regulatory cooperation might evolve from regular meetings of working parties into more formal memoranda of understanding (MOUs), which could include the establishment of joint task forces and regular information exchange.

2.2 Different Modes of Cross-Border Reporting

The European Expert Group of Credit Histories (Expert Group 2009), an advisory group to the European Commission, established the following four modes or models of cross-border credit data exchange:

- Direct-access model
- Indirect-access model
- Report-portability model
- Right-of-access model

These are business practices and not only theoretical models. These business practices have developed over time in different countries in Europe and elsewhere. They will be briefly explained in the following.

The first three models are currently used and coexist in the European Union. Normally, market forces drive the choice of one model over the other, not the regulator.

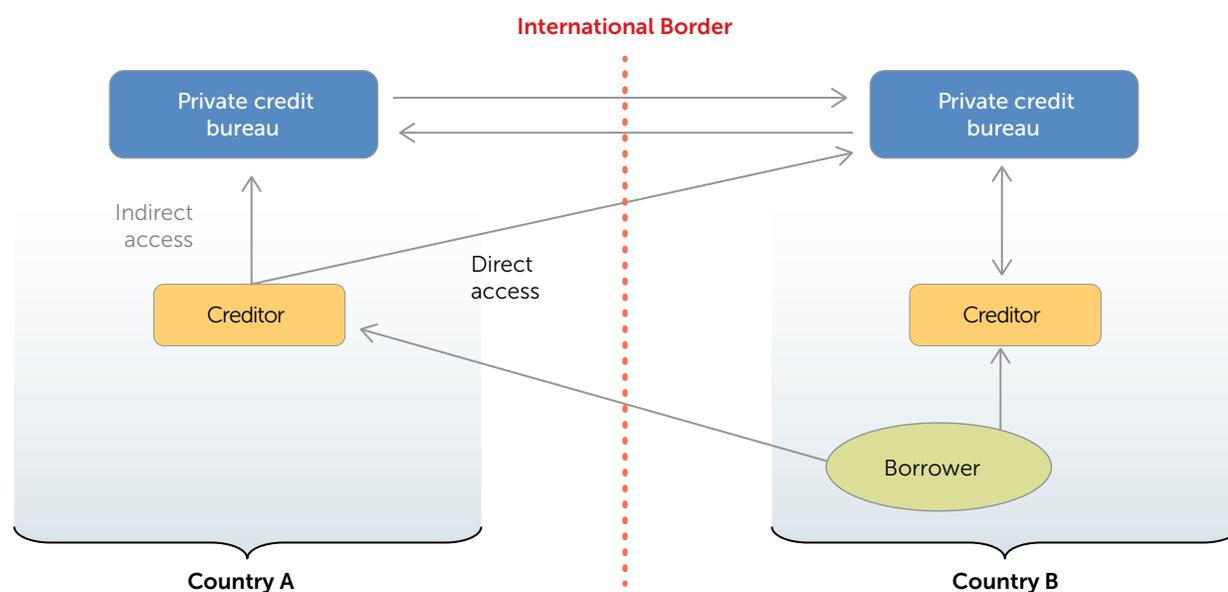
Direct-access model (figure 1): In this model, the creditor from country A accesses the credit data of the borrower from country B stored in a credit bureau located in country B. After having granted credit to that consumer, the creditor of country A could be required to report the data and possibly the payment performance of that credit to the credit register located in country B. Figure 1 shows the data flows within this model.³ The direct-access model is available but rarely used.

Indirect-access model (figure 1): In this model, in order to get the credit data of a borrower from country B, the creditor (resident in country A) accesses the credit register located in country B through a credit register located in country A. The creditor reports the data on the credit granted and/or payment performance to his local credit register according to the rules applicable to it. The request works vice versa—that is, a credit bureau in country B requests information about a borrower’s activity in country A. This model is predominantly in use nowadays.

Report-portability model: In this model, a borrower from country B collects his/her own credit report from the credit bureau. The borrower then provides it to the creditor in country A. This model is sometimes used for mobile borrowers, such as citizens who are moving to or working in a foreign member state (country A) and applying for a credit. The integrity of the origin of the data and the credit report, however, have to be proven.

Right-of-access model: When a borrower applies for a credit, the creditor requires the borrower to ask the relevant credit bureau in his/her country of origin to send an authenticated credit report directly to the creditor on his/her behalf. The local credit bureau conducts the actual production and provision of the report.

Both the direct and the indirect models require international cooperation agreements between the transaction partners. If there are many different creditors and consequently credit bureaus from different countries (the “many-to-many problem”), these international agreements might become so cumbersome that they may not be feasible. In that case, a multilateral agreement would be necessary.

FIGURE 1: Direct- and Indirect-Access Model

Source: Jentzsch (2007).

For large international banks and other players, however, an additional modus operandi is possible. Once they have established subsidiaries or branches in several countries, they may request data on entities/individuals from another country (if lawful) through their local subsidiary or branch in another country. There is one such example of a large retailer in the Southern African Development Community that includes credit information about individuals from several countries in consolidated credit reports and can do cross-border reporting on these individuals, because the retailer has branches in these countries. This is based upon the consent of the consumer.

2.3 Cross-Border Credit Reporting Initiatives: Use Cases and Approaches

Over the past decade, more and more credit reporting systems have been established. The global view reveals that a variety of systems exist around the world. In Latin America, Western Africa, some parts of Europe, and Eastern Asia, dual systems are in place that combine public and private credit reporting institutions (See figure 2.) In North America, Southern Africa, and Eastern Europe, private credit reporting systems predominate, whereas in Central Africa, PCRs are more common.

While credit reporting systems are becoming well established, it is also clear that there are not many areas around the world where cross-border credit reporting is conducted to a noticeable extent. At this stage, the main regions with cross-

border credit reporting activities are those that record notable economic integration and cross-border trade. The regions include the following:

Asia

- Australia (only data imports), New Zealand, and Pacific Islands
- Mekong Delta in Vietnam

North America and Latin America

- United States and Mexico

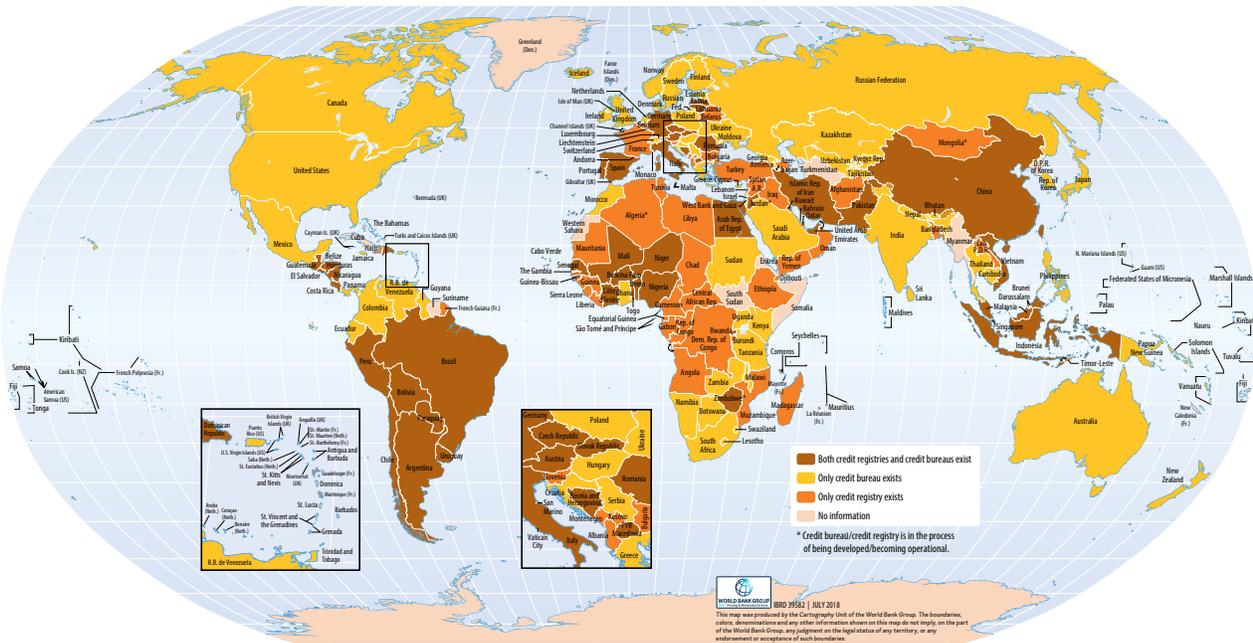
Europe

- Latvia and Lithuania
- Sweden, Finland, Norway, and Denmark
- Cyprus and Greece
- Germany, Austria, and Switzerland

Moreover, the systems that exist show different depths of integration, which will be explained herein first.

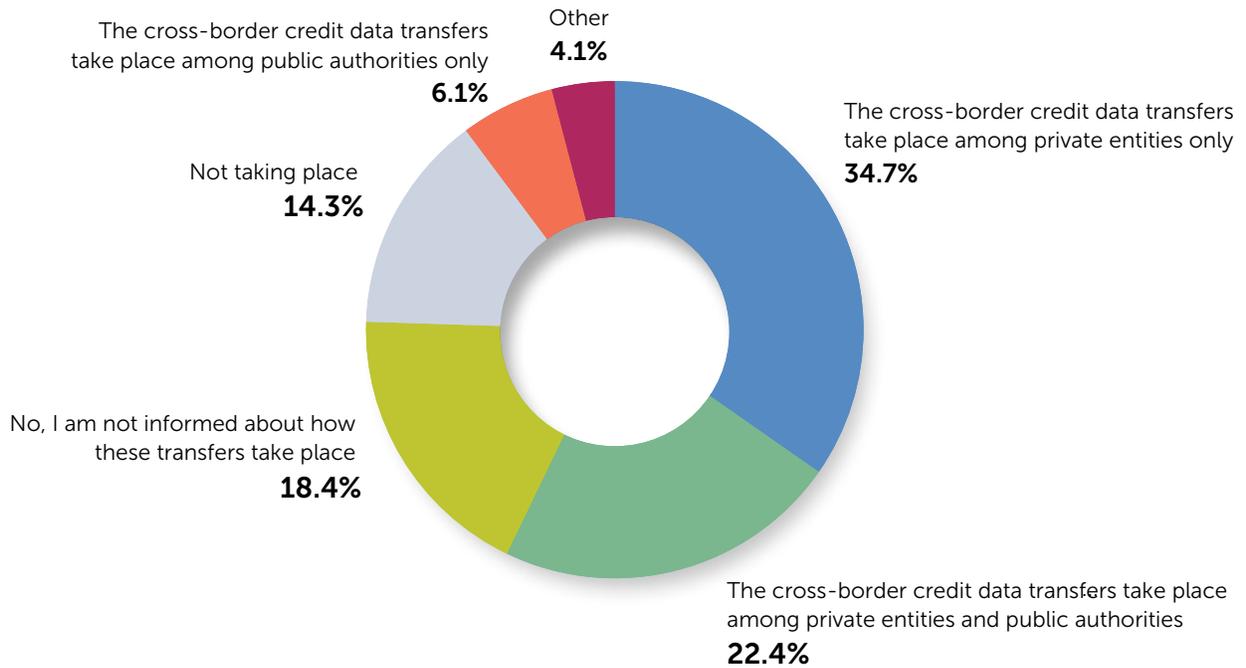
For this report, an international survey was conducted. (The details of the consultation are presented in appendix A.) This survey was not representative, because it is very difficult to achieve representativeness, given the diversity of stakeholders. Most of the survey participants (about 50 percent) were from Europe, followed by East Asia and Pacific, as well as Sub-Saharan Africa. Of the participants, 34.7 percent replied

FIGURE 2: Global Overview of Public Credit Registries and Private Credit Bureaus



Source: World Bank Group (2019a). Figure refers to situation in 2018.

FIGURE 3: Entities of Cross-Border Credit Data Transfer



that cross-border credit reporting—of which they are aware—takes place among private entities only, 22.4 percent reported that it occurs among private entities and public authorities, and 4.1 percent said credit reporting took other forms.

Participants of the survey were asked to rank the primary factors that affect cross-border credit reporting. Moreover, they were asked what kind of solutions they see and whether they knew best practices. Figure 3 shows the kind of credit reporting schemes that are in operation in the participants’ countries or regions. Key insights provided by the participants were that (1) most participants claimed it was possible to access credit information across borders; (2) most found those cross-border activities important for cross-border trade; and (3) there was no clear agreement on whether the lack of demand from consumer/businesses for cross-border credit was the primary factor behind the absence of cross-border reporting.

2.3.1 Differing Depths of Integration

A number of different cross-border initiatives have evolved over the past years that vary in terms of integration depth. Examples from trade theory can be used and adjusted for the purposes of this report to map these different levels of integration (see figure 4.) Before activities are initiated, international institutions often conduct a number of awareness measures and capacity-building projects to put the matter on regulators’ radar. At the

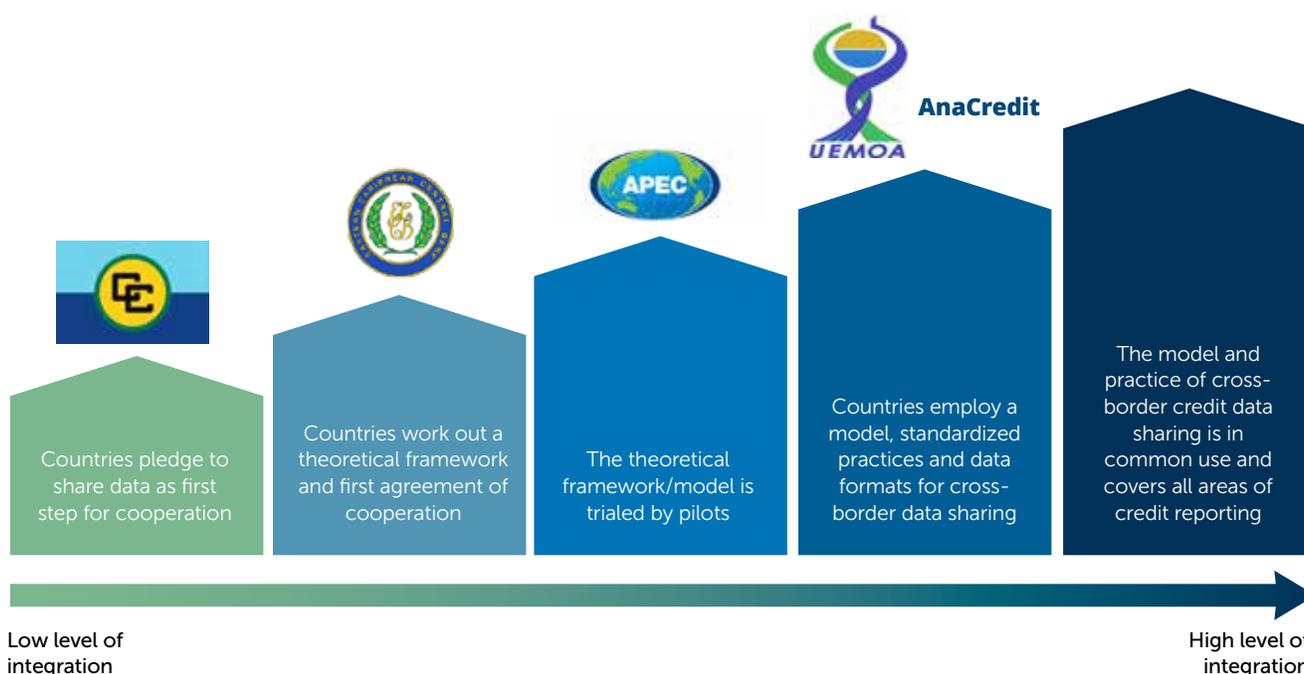
initial stage (and most basic level), it is a common expression of intention to share cross-border credit information by countries.

Further advancement is established by working out a theoretical framework or model for how credit reporting could be implemented—for example, through the direct or indirect credit-information sharing (second stage). Countries’ regulators and/or credit registers or bureaus have to agree which model to choose or whether there should be a combination of both. However, at the moment, the indirect-access model seems to be dominant.

In the third stage, the theoretical framework or model is trialed by pilots. These pilots can involve sharing data on only specific kinds of institutions, among a subgroup of credit registers/bureaus, or on only a sub-selection of borrowers. In more advanced stages, countries adopt the same model, standardized, thoroughly cross-border practices and data formats for sharing data. These countries are beyond the trialing phase.

At the highest level of integration, cross-border data sharing is in common use. This is only the case if economic integration between countries is deep and the cross-border movement of workers, companies, and trade and services is unhampered, creating the business case for cross-border data sharing.

FIGURE 4: Potential Levels of Integration for Cross-Border Credit Reporting [among Credit Registers]



Note: Figure uses public initiatives as example. The figure reflect the status in 2019/2020.

2.3.2 Public Credit Reporting Initiatives: Cross-Border Perspective

Around the world, more and more countries operate PCRs as supervisory mechanisms under the purview of central banks. These mechanisms exist in an increasing number of countries. (See figure 5.) They are based upon legislation and statutory rules and collect information primarily from regulated reporting institutions (financial institutions and also sometimes non-financial institutions).

The primary objectives of such registers used to be the supervision of the regulated financial system and an improvement in the quality and availability of data from regulated financial institutions. They allowed micro and macro prudential analyses to monitor the stability of individual banks as well as of the financial systems—for example, by providing transparency on risk accumulation and clusters. As a response to the financial crisis of 2007 and 2008, policy makers felt that only the availability of detailed information about economic agents' positions (including cross-border ones) would allow the relevant policy authorities to thoroughly analyze the exposures of an increasingly interconnected global financial system. Therefore, some PCRs switched toward more granular databases.

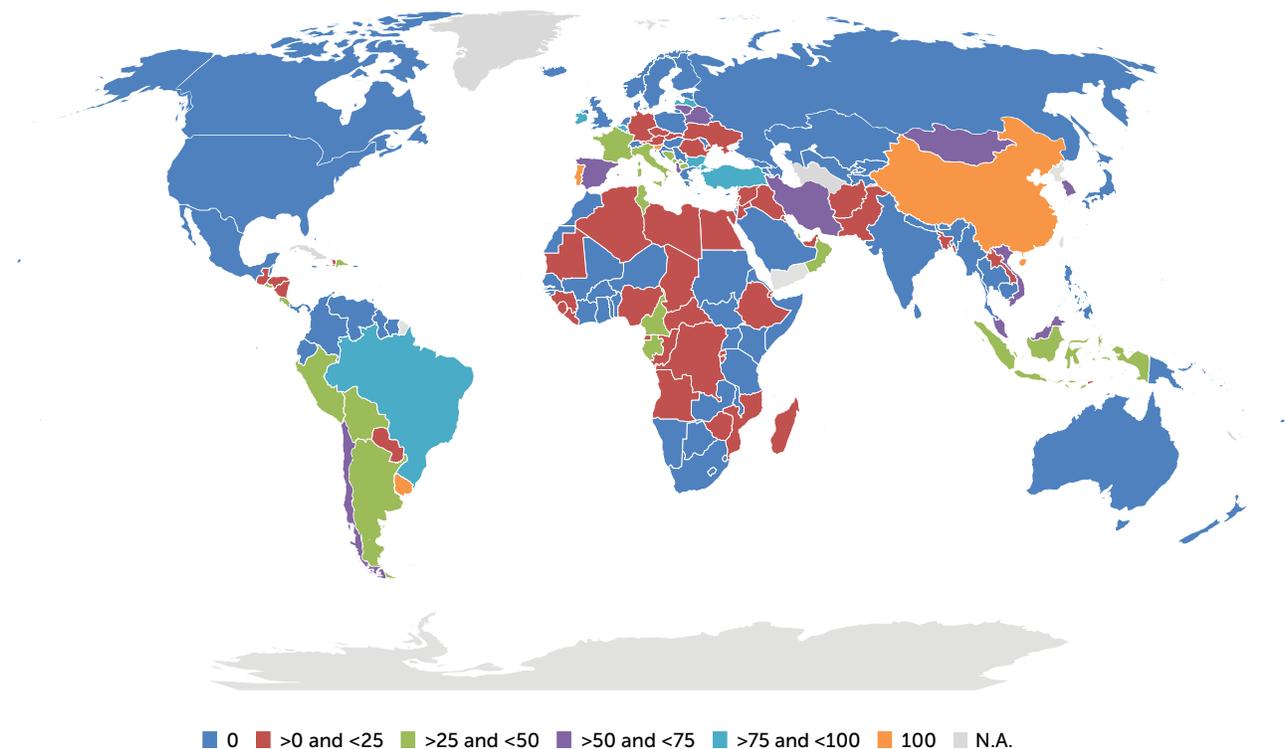
The enabling framework for cross-border data exchange among PCRs is derived primarily from their clear mandate of supervision. The clear mandate and the restrictions on the use of data limit the risks that are in general related to data sharing, such as unauthorized access and leakage of data.

Apart from the purely public and the purely private systems, there are also “hybrid systems” in which some countries use a contracted/licensed credit bureau as a substitute for a PCR.

2.3.2.1 Early Integration: Memorandum of Understanding of Public Credit Registers in Europe

In the past, an MOU⁴ was in place in Europe between a subgroup of EU countries with a PCR. Seven EU countries (Austria, Belgium, France, Germany, Italy, Portugal, and Spain) signed this agreement in 2003 and started the cross-border data exchange in 2005. As the registers from the accession countries were invited to participate, Romania and the Czech Republic joined the cross-border exchange in 2010. The MOU was revoked in 2018 due to the plan to design a more comprehensive feedback loop in the context of the Analytical Credit Dataset (AnaCredit) system, but its basic principles might still be of interest to countries that are not deeply regionally integrated and seek a lighter-touch approach to cross-border information sharing.

FIGURE 5: Population Covered by Public Credit Registers (Percentage)



Source: Doing Business Data. Figure refers to situation in 2019.

The exchange covers legal entities resident in one of the nine countries. The MOU provides a framework for the regular exchange of information among PCRs as well as for handling ad hoc requests from creditors. The main MOU aspects were the following:

- Purpose and definitions
- Principles of sending/receiving data
- Principles for storage of data
- Passing on information
- Data protection and confidentiality
- Nature of the MOU

Regardless of the applicable national reporting thresholds, PCRs provide each other with information stored about a given borrower if the debt exceeds €25,000.

2.3.2.2 Monetary Policy and Financial Stability: AnaCredit in Europe

The statistical AnaCredit system was established by regulation of the European System of Central Banks in 2018⁵ and is part of its Microdata Strategy. In this system, the national central banks (NCBs) report credit data on legal persons collected from credit institutions on a loan-to-loan basis. Reporting agents to NCBs are credit institutions (or branches of foreign banks) resident in a country that report on businesses to whom they have granted a loan.

The pre-AnaCredit situation was one of a fragmented landscape of credit-data collection by NCBs, with varying thresholds across countries and non-comparable information among NCBs. In the financial crisis of 2008, the European Central Bank (ECB) became aware that aggregated statistics were insufficient to allow the relevant policy authorities to understand the monetary-policy transmission mechanism and the massive deleveraging that

BOX 1

Data Collected by AnaCredit Reporting Agents

The harmonized data set collected by AnaCredit reporting agents involves 67 attributes about loans and 22 characteristics about covered organizations (such as national identifiers, legal form of entities, outstanding credit lines, defaults, and bankruptcies). Legal entities with loans outstanding of €25,000 and more (reporting threshold) are covered.

followed. To close these gaps, the Eurosystem promoted a number of projects based on granular information. In a process to harmonize financial indicators across the European Union, AnaCredit was established as a tool for central banks' purposes (monetary policy and financial stability). For countries such as Greece and the Netherlands, which did not use a credit register, data collection had to be established.⁶

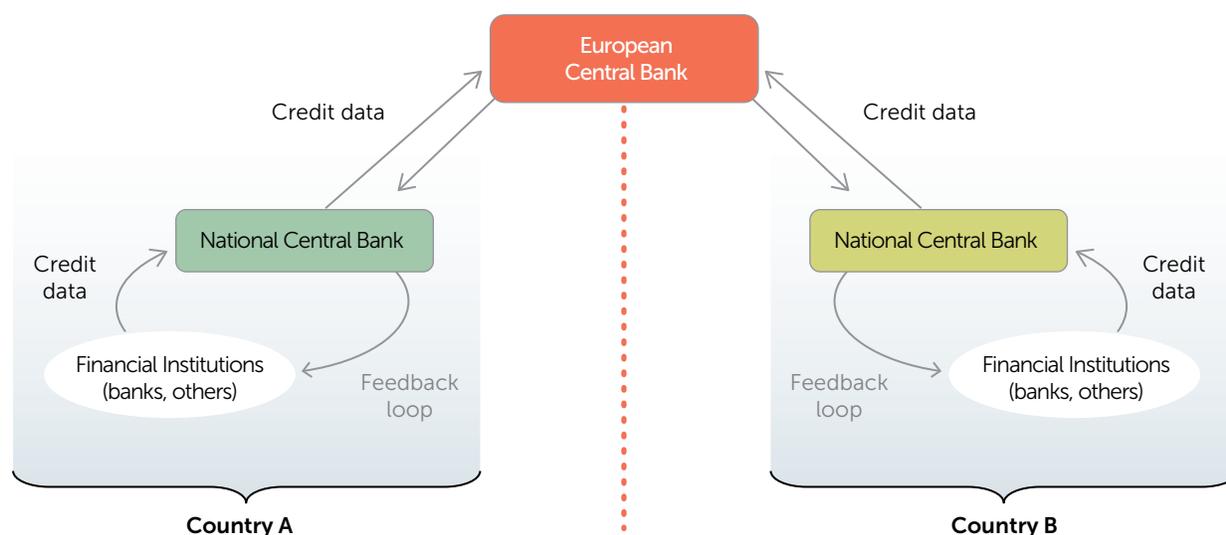
AnaCredit is based on a methodology that standardizes the reporting population, describes all data sets and collected attributes, and instructs about reporting time periods and so on. It also defines the underlying data model (see box 1) and uses case studies. Now, a harmonized data set on legal entities is established. With this data set, the statistical reporting burdens of reporting institutions could potentially be lowered in the future (the once-only principle in data collection), and data could be used for multiple purposes. Because of the sensitivity of the information, the AnaCredit system is subject to a legal confidentiality regime. The reporting is conducted via extranet in XML formats.⁷

The regulations state that all reporting agents may use the data exclusively for managing credit risk and improving the quality of credit information available to them with regard to existing or prospective instruments (EU 2016b, Art. 11, Regulations). A reporting agent is defined in the regulation as a "legal entity or a foreign branch that is resident in a reporting Member State" and that is subject to the ECB's reporting requirements. The data cannot be shared with other parties (unless strictly necessary). Moreover, any further data transmission by the service provider (ECB), including any data sharing with commercial providers of credit data, is forbidden. This is due to statistical confidentiality purposes, as the main goal is monetary policy.

The data (collected locally from financial institutions) is reported to the country-specific NCB. At this level, quality checks are considered. The NCB provides the data to the ECB. The ECB applies an additional filter by reviewing data quality (for example, by validation checks). The outcome of the data-quality checks is then reported back to the banks. Based on national discretion, very small institutions can be relieved from the reporting burden (for example, with a less frequent reporting scheme of a reduced list of attributes).

Cross-border mechanism: The primary feedback loop (from ECB to NCBs) achieves the cross-border reporting. (See figure 6.) NCBs can voluntarily use the AnaCredit data also to offer a feedback loop on credit-related information to their reporting agents (for example, banks), meaning they may provide compiled credit data—for example, the total indebtedness of each of their reported clients. In the sense of cross-border data sharing, from July 2021 on, data collected by another NCB may also be included in the feedback loop to reporting agents. This

FIGURE 6: A Generic View of AnaCredit Reporting



helps the reporting agents to build better internal risk models. Austria, Belgium, Italy, Portugal, Slovenia, and Spain have indicated interest in sharing credit data across borders for feedback loops, so the ECB currently runs a trial with these six countries. However, for the time being, the information to be shared covers a limited number of attributes.

2.3.2.3 Sharing across Central Banks: The West African Economic and Monetary Union

In the West African Economic and Monetary Union (*Union Economique et Monétaire Ouest Africaine*, UEMOA), eight West African countries⁹ cooperate on cross-border credit information sharing. This is facilitated by one common central bank, the Central Bank of West African States (*Banque Centrale des Etats de l'Afrique de l'Ouest*, BCEAO).

The BCEAO's PCR, the *Centrale de Risques*, was established in 1959. In the following decades, the *Centrale de Risques* was the only official organized source of credit information in the UEMOA region (World Bank Group 2019b). Cross-border credit reporting was established in 2015 with the contracting of a private credit bureau (Creditinfo VoLo) to establish a regional private credit reporting system. Until today, it was considered to be one of the few cross-border sharing systems in existence.

There were several limitations with respect to the *Centrale de Risques*. Several types of institutions (such as microfinance institutions, telecom operators, and so on) were not covered. Moreover, the lack of a harmonized national ID number hampered the association of the credit history with individuals.

Cross-border mechanism: The BCEAO opted for a hub-and-spoke model combined with an indirect sharing model. In the hub-and-spoke model, one hub (a database system that is a focal point between data providers) hosts the data from different countries, while each spoke receives and delivers data from the country in which it is based.⁹ This reduces the cost of staff and hardware. Still, Creditinfo VoLo reports that it opened offices in all eight countries.¹⁰

Data on regulated entities and other institutions (not under supervision of the BCEAO) are shared by lenders with the private credit bureau. This allows a more complete credit history across different types of lenders.

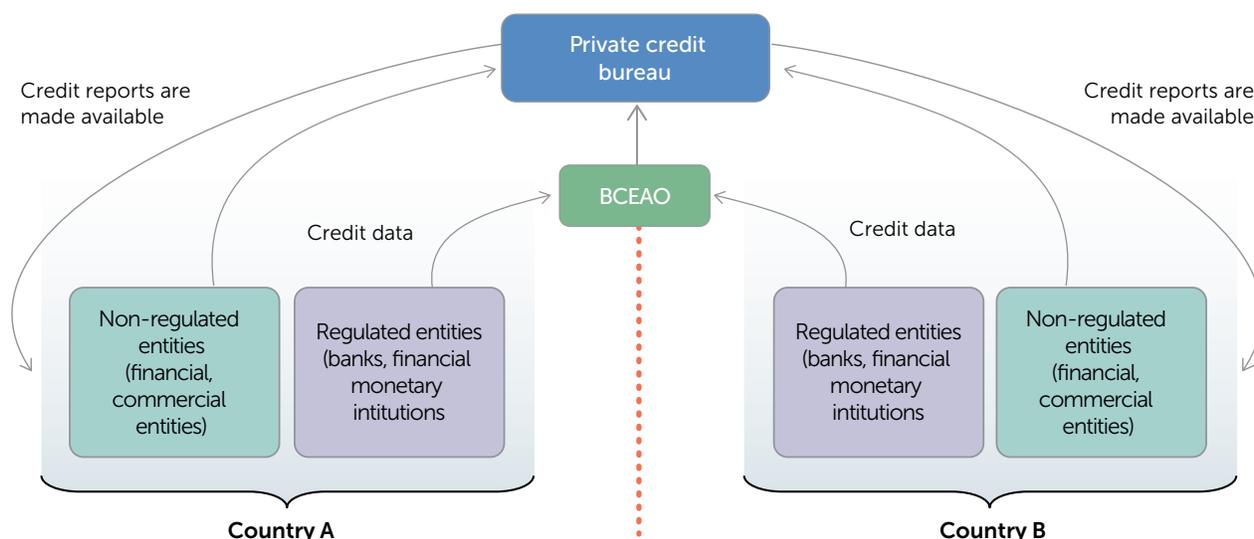
The BCEAO, on the other hand, aggregates information provided by regulated entities (see figure 7) and serves as the supervisor for the credit information sharing system.

Within a few years, the Creditinfo VoLo database accumulated 6.9 million loan records (2018). For future development, the project is expected to be able to offer such value-added products as credit scores and monitoring alerts, provided that lenders keep on participating, new ones join, and data with sufficient quality is provided.

2.3.2.4 Cross-Border Credit Information Sharing in the Eurasian Economic Union

The Eurasian Economic Union is an international organization whose goal is deepening regional economic integration, including the free movement of workers across borders. It was

FIGURE 7: The BCEAO Indirect Data-Sharing Model



established in 2014 by the Treaty on the Eurasian Economic Union. The members are the Republic of Armenia, Republic of Belarus, Republic of Kazakhstan, Kyrgyz Republic, and Russian Federation.

From early on, the Eurasian Economic Commission started to develop an agreement that enabled the exchange of credit reports within the union. By 2021, nearly all members gave preliminary approval to the agreement, which is expected to be signed soon. The draft agreement defines high-level requirements and conditions for cross-border data flows within the union.

The key provisions state, for example, that cross-border credit information sharing is to be organized among authorized credit bureaus (indirect model). These have to sign bilateral contracts. If there are many credit bureaus in a country, an interested (and authorized) credit bureau needs to sign contracts with all of them. The cross-border agreement also states the individual conditions that bilateral contracts need to include (for example, language of the report, data format, or dispute-resolution mechanism).

While the number of migrants within the union is quite high due to deep economic integration, it is not foreseeable that the volume of credits to foreigners (at least migrant workers) will rise a lot due to their low average income and banks' risk policy. Still, the cross-border credit information sharing in the union has the potential to improve and deepen regional integration among the member states.

2.3.2.5 Asian-Pacific Economic Cooperation Credit-Reporting Initiative

Asia-Pacific Economic Cooperation (APEC) is an intergovernmental forum for 21 economies in the Pacific Rim. It assembles diverse countries to work on a consensus basis and provide strategic policy recommendations to APEC leaders and ministers.

In 2010, the ministries of finance decided to discuss credit reporting (as a component of critical financial infrastructure) at the APEC level. Several dialog forums¹¹ put the topic on the agenda and helped in capacity building and awareness raising.

Within APEC, there was a decision *against* creating standards; instead, the organization developed high-level principles that are not binding. These are modeled primarily on the OECD Fair Information Principles. The Financial Infrastructure Development Network¹² developed the credit infrastructure topic further as an initiative of the APEC Cebu Action Plan (2015). The Credit Information Work Stream under the Financial Infrastructure Development Network focuses in one area on "cross-border arrangements between credit registries/bureaus to share credit scores of entrepreneurs and migrants seeking financial services in host jurisdictions" (APEC 2019). This work stream funneled ideas into the APEC Roadmap for a New Financial Services Data Ecosystem initiated in 2018.

The Asia-Pacific Financial Forum now hosts the credit reporting matters, and the APEC countries work toward developing the roadmap. There are currently no steps toward developing pilots or other concrete use cases.

LESSONS LEARNED FROM PUBLIC-SECTOR INITIATIVES

Public initiatives involve regional (trade) blocs and/or initiatives by central banks.

These initiatives are at **very different stages of integration**, depending on the economic integration of the participating countries.

The main demand for public cross-border credit reporting initiatives stems from the requirement for cross-border financial supervision and regulation cooperation.

The **most advanced initiative is AnaCredit in Europe**, where Euro area member states adopted a common model, standardized practices, and data formats for cross-border credit data sharing.

In this context, the **least advanced initiative** seems to be the Caribbean Community.¹³ No extra information is available on the Eastern Caribbean Central Bank, where no common policy had been adopted as of August 2020.

KEY RECOMMENDATIONS

One size does not fit all: A key recommendation is that policy makers in countries that want to develop cross-border credit reporting should analyze their current situation in terms of the institutions that already exist and the demand factors. The World Bank could enable this by developing a (web-based) self-assessment tool for policy makers or regulators.

Improving implementation through standards: International institutions could also develop standard frameworks for cooperation, based on the European MOU but tailored to the situation of the individual country. The MOU could be applicable to the sharing of data among PCRs (and eventually PCRs and private credit bureaus) across borders.

2.3.3 Private Credit Bureaus: International Overview

Around the world, more and more private credit bureaus are being founded. Moreover, the percentage of the population in different world regions that is covered by credit bureaus increased noticeably over the past years. (See figure 8.)

Professionalism is also increasing across world regions, as credit bureaus organize into industry associations that could potentially help to facilitate cross-border credit reporting in the future. (See table 1.) In the following section, three examples

of cross-border exchanges among private entities will be presented. These represent different types or “configurations” of private exchanges: an association, a “translator” model, and a traditional credit bureau solution.

2.3.3.1 ACCIS Cross-Border Data Exchange Model

The Association of Consumer Credit Information Suppliers (ACCIS), located in Brussels (Belgium), is the representing body for the credit reporting industry in Europe. It has 42 members from 29 European countries and 10 associate and affiliate members from all other continents. Every two years, it carries out a membership survey to map the types and quality of data held by credit bureaus, and since the 1990s, it has undertaken activities to facilitate cross-border credit reporting.

In general, credit markets in Europe are rather national in nature; there is not much demand for cross-border credit reporting (in particular with respect to individuals). The reasons for national credit markets are manifold, but among them are legal, linguistic, and cultural differences among the countries and markets.

The setting for a harmonized consumer credit reporting market is complicated: the bureaus are competitive, and the industry is subject to strong network effects. In addition, the bureaus operate differently from country to country, and some of the countries do not have a private credit bureau at all.

Cross-border mechanism: In 1996, ACCIS established the Cross-Border Data Exchange model, which is based on bilateral agreements of credit bureaus. Under the model, the creditor (interested in a borrower in another country) can obtain the information by a request routed through the national/local credit bureau to the foreign credit bureau (indirect-access model).¹⁴ If there is a dispute, ACCIS is the appointed mediator. The system is presented in figure 9.

This model was updated (legally) after the implementation of the General Data Protection Regulation (GDPR) in 2018 (EU 2016a), as ACCIS clarified and developed the model template further (see box 2) while leaving its working premise unchanged. The number of bureaus that have signed such bilateral agreements is relatively limited. In 2019, the percentage of cross-border inquiries to total inquiries between any two given signatories in a bilateral agreement varied—according to ACCIS numbers—from zero to 16 percent. It is observable that cross-border exchange follows “natural economic zones”; it occurs more among the Scandinavian countries,¹⁵ Greece and Cyprus, or Germany and Austria.

The legal framework for such reporting is the GDPR, which facilitated the creation of one common data space in Europe. Individual country-level interpretation of the GDPR and supervisory guidance as well as enforcement are, however, not fully consistent yet.

FIGURE 8: Historic Coverage of Private Credit Bureaus by Regions (Percentage of Adults)

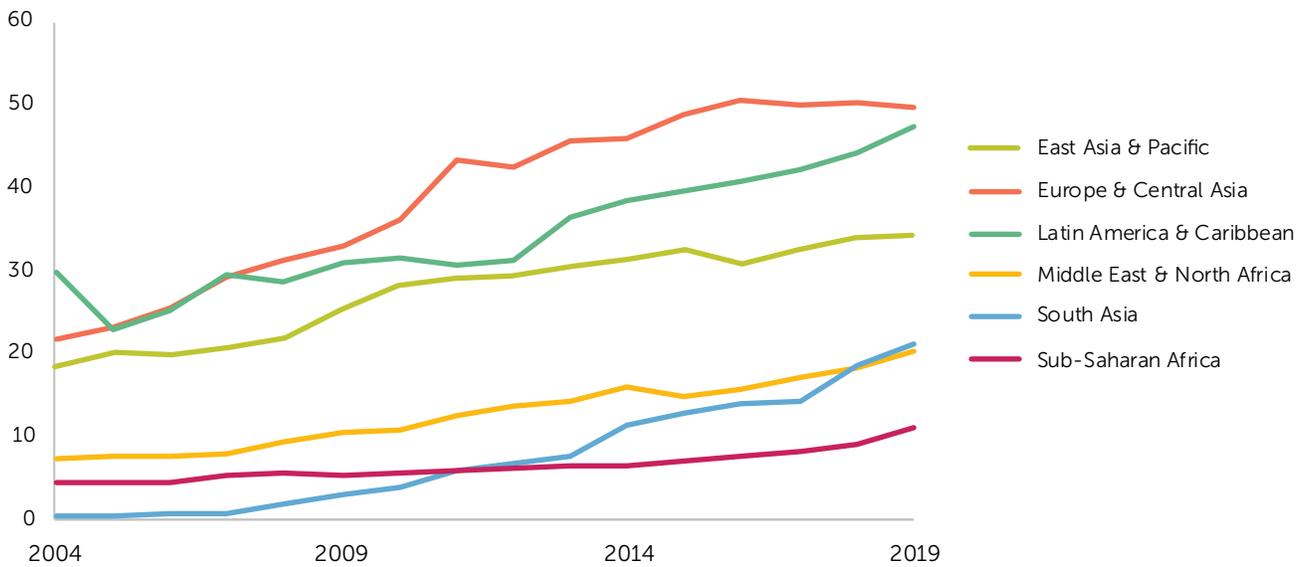
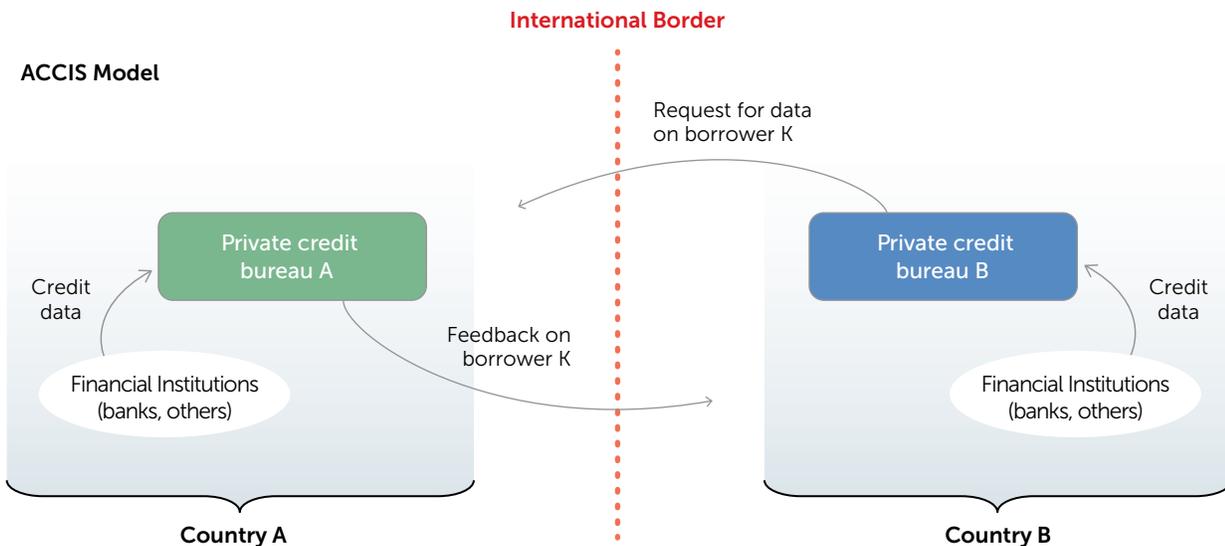


TABLE 1: International Overview of Credit Reporting Associations

REGION	ASSOCIATION
United States	Consumer Data Industry Association
Europe, international members	Association of Consumer Credit Information Suppliers Federation of Business Information Services
Africa	East African Credit Bureau Association
Asia, Europe, Americas	Business Information Industry Association
Latin America	Asociación Latinoamericana de Burós de Crédito

Source: Doing Business Data

FIGURE 9: ACCIS Cross-Border Data-Exchange Model



BOX 2

ACCIS Cross-Border Data-Exchange Model (2020)

The harmonized model is applied to business and consumer information. It contains duties and tasks for participants in cross-border exchange, the timelines to commit to, and how to communicate the information.

In the standardized cross-border contract, terms such as *carrier*, *data controller*, or *data subject* are defined. Costs of inquiries and obligations of parties are defined, and an annex is included in which the inquiring party can find the information that is needed.

2.3.3.2 Cross-Border Credit Reporting: Nova Credit Model

Nova Credit is a United States-based fintech startup, founded in 2016 by Stanford University graduates. Nova Credit enables migrants to bring their credit history from their country of origin to their new home country. Currently, Nova Credit serves migrants moving to the United States and plans to expand into additional markets in 2021. The startup is—in its own words—the world’s first cross-border credit bureau.

Cross-border mechanism: Nova Credit’s cross-border model works as follows: During an application process (for example, for a credit card), a consumer can choose his/her country of origin, verify the identity through a country-specific authentication process, and give consent to transfer the credit report. (See figure 10.) This cross-border transfer occurs in real time. The information is obtained by Nova Credit, translated into a US-standard score and format, and then transferred to the lender requesting it. This means that Nova Credit “translates” the foreign credit data to a US-equivalent score and report format (“credit passport”) that is designed to be compliant with the US Fair Credit Reporting Act. This is done through a proprietary application programming interface (API) that categorizes international credit data according to commonly understood US financial services products and definitions.

The credit passport is then delivered to the US lender from which the consumer is applying for a credit product. This solution solves many of the problems that arise from navigating different regulatory regimes around the world, such as differences in prohibited bases and retention periods, and puts consumers in charge of their own data.

The company’s revenue model for its business-to-business operations involves charging lenders to access international credit reports and paying a fee to overseas credit bureau partners for each report. Nova Credit adds value by seamlessly pulling and standardizing the data in each credit passport. For certain countries of origin, Nova Credit also offers a direct-

to-consumer credit-education service to help immigrant consumers review their report and score, understand what their score means and how they can improve it, and learn what US financial products may provide the greatest benefits depending on the consumers’ particular needs.

The company has established partnerships with credit bureaus in dozens of the top countries of migration origin to the United States, including India, Mexico, Canada, Brazil, and the United Kingdom. The plan is to continue its global expansion on both the demand and supply sides to enable migrants all over the world to bring their credit histories with them when they move from one country to another.

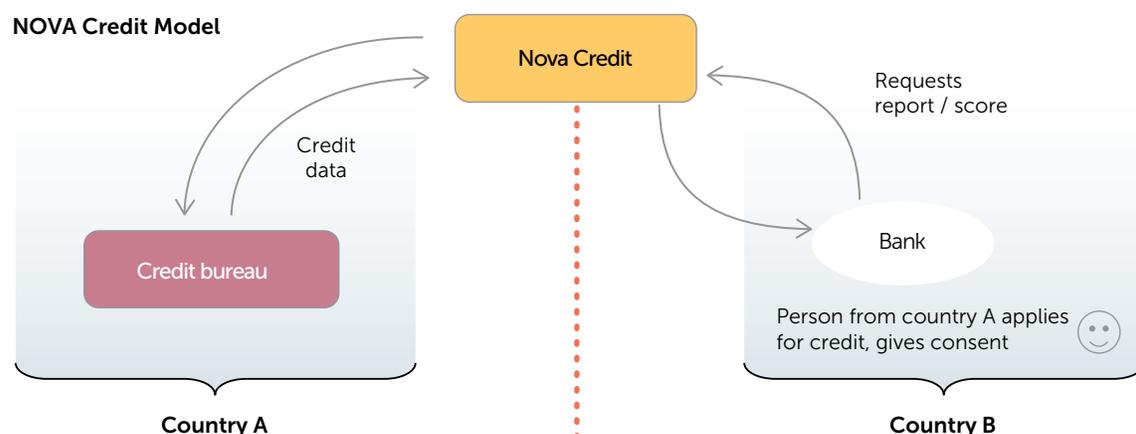
2.3.3.3 CreditInfo Cross-Border Credit Reporting

CreditInfo is an international credit bureau with its headquarters in Iceland. It offers business and consumer reporting services in a number of countries in Europe, Asia, Africa, and South America. CreditInfo supplies primarily analytical services to companies (such as credit scoring) and provides credit information.

Cross-border mechanism: The business reporting services show that demand for cross-border information is greater for businesses than consumers. A number of data partnerships (for example, bilateral agreements with other credit data providers) enable cross-border credit reporting. Especially for business reports, there is an international (internal) standard report that can be accessed through a web interface. If no information is available about a company, creditworthiness data can be bought from local data providers on demand. A further route is manual extraction of information about companies by research, which is the most expensive way to provide data.

The company also has a set of quality requirements for credit-report information, which is predetermined. This is supposed to uphold data quality such that lenders (acting on the basis of credit data) are not at risk of losing their investments.

FIGURE 10: Nova Credit Cross-Border Reporting Model



LESSONS LEARNED FROM PRIVATE-SECTOR INITIATIVES

- The demand for consumer credit reports can be noticed primarily in “natural” common economic areas that are subject to cross-border traffic and migration (that is, Mekong Delta, Venezuela, and Colombia).
- There are a variety of models for cross-border reporting. These can be categorized into three types: the first is based on model agreements developed by industry associations; the second is conducted by international corporations (to share credit reports “within” subsidiaries across different locations or between different credit bureaus); and the third is conducted by intermediary platforms. Due to the legal uncertainties in many regions of the world, however, the sharing within companies is not a dominant modus operandi of cross-border credit reporting.
- There are associations that facilitate cross-border credit reporting. Industry associations, in fact, do play an important role in cross-border credit reporting. However, associations currently do not cooperate with one another across different regions (for example, cooperating to facilitate cross-border exchange between the United States and Latin America).

KEY RECOMMENDATIONS

- Industry associations—especially those with an international membership—can play a very important and active role in facilitating cross-border credit reporting. They can improve cross-border credit reporting among their members by setting up “clearinghouses” or hubs.
- A future route could be the establishment of a global standard for credit reporting that is open and not owned by anyone. This open standard would use common models, attributes, and definitions, including taxonomies, vocabularies, and ontologies.
- The common definitions could include the most important generic terms, such as late payment, default, bankruptcy, and others that are frequently used in credit reporting.
- Where multilateral exchange of cross-border credit data is envisioned, a written cooperation framework needs to be specified. The cooperation framework should refer to a settlement of disputes among participants or participants and consumers, for example.
- Industry associations should explore new ways of using technology to enable cross-border credit reporting. For example, trained artificial intelligence can detect different attributes (defaults, derogations, and so on) through natural language understanding. Artificial intelligence can also detect different codes (Social Security numbers, national ID numbers), concepts (bankruptcy), or even relationships (“Both borrowers are indebted to bank A”).
- Individual players may also develop international credit reporting schemes. Companies that are not part of the company family may interact across borders by concluding standard service-level agreements.¹⁶ This enables the bilateral exchange of credit information.



III. STATE OF AFFAIRS

3.1 Restrictions and Impediments to Cross-Border Credit Reporting

Regulatory regimes can create major impediments to cross-border credit reporting, but the absence of regulations may hamper such reporting as well. In the first case, legal barriers might be due to data and privacy protection or bank secrecy, local data processing requirements, or similar measures. In the second case, it is the *lack of rules* that creates legal uncertainty and leads risk-averse players to refrain from sharing data across borders.

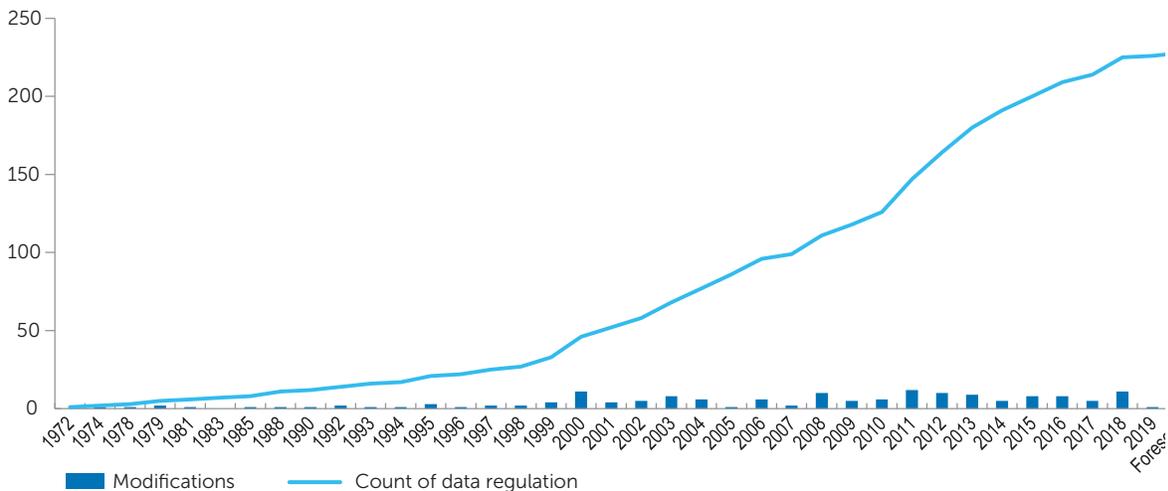
In general, the sharing of data on individuals seems to be more problematic than the sharing of data on companies. The reason is that this type of information is—for good reasons—specially protected in many regions. In some countries in the past, individuals *and* companies fell under data-protection

laws. Further analysis would be required to determine if this is still the case.

Many of the experts interviewed for this study stated that business information sharing is global and largely unregulated. Moreover, there is demand for cross-border credit profiles on companies, as these are often active in several countries. Thus, many global credit reporting agencies are active in this space.

Data-protection legislation goes hand in hand with increasing intermediation of data in markets in general. (See figure 11.)¹⁷ Data regulations quoted by the participants in the survey can be found in data protection laws (for example, obligations on data processors), banking acts (for instance, bank secrecy clauses), cybersecurity laws (such as obligations on the protection of the integrity of database systems), or national ID laws (such as provisions on the protection of personally identifiable information).

FIGURE 11: Cumulative Number of Regulations



Source: OECD Numbers, Working Party of the Trade Committee

3.1.1 Legal and Regulatory Data-Protection and Cybersecurity Requirements

The GDPR, the main data-protection regulation in Europe, can be seen from different angles. For some of the interviewed experts, it creates a common EU data space and allows cross-border data flows within the European Union or regimes of similar protection level. For the others, it does not affect cross-border data sharing, as the countries still apply the rules differently and court rulings are an additional source of variation between countries.

Among the participants of the online survey, the most important challenges for cross-border credit data transfers of personal information about individuals are the regulatory regimes in place and primarily the data-protection rules (such as the GDPR, bank secrecy laws, and various existing national credit reporting laws).¹⁸ For example, across Latin America, there is virtually no cross-border credit reporting, as the definitions of what are considered to be “sensitive data” differ from one country to the next. There is only very limited exchange among few countries (such as Venezuela and Colombia).

Additionally, regulatory obstacles in the form of contradictory legislation complicate the cross-border sharing of credit data as well. Examples are contradictions in the GDPR and Basel II concerning retention periods—the GDPR requires that data not be stored longer than necessary, whereas Basel II requires exact time periods. Additional contradictions exist where there is data-protection legislation and extra credit bureau legislation (for example, in Lesotho, Uganda, Namibia, and South Africa). Where countries have given themselves GDPR-like regulations, transfers of personally identifiable information can occur only if the target countries have an “adequate level” of protection.

In this respect, regional authorities should encourage players, in their jurisdictions, to comply with third countries’ stricter rules—that is, by facilitating legal frameworks enabling protection levels similar to the GDPR’s standards.

BOX 3

GDPR and the Common EU Data Space

The GDPR is the major data-protection regulation in Europe.

It is applicable to personally identifiable information and pseudonymous information about individuals.

Although the original goal was to harmonize a European data space, differences in interpretation could potentially lead to an uneven playing field.

However, the lack of demand for cross-border credit reports also figures prominently as a factor reducing cross-border data flows. This is in particular related to credit profiles on individuals. (Banks simply do not ask for those, one expert stated.) Retail and mortgage credit markets are seen as local or regional markets. At the moment, they are not international.

Somewhat less important to the survey participants were high prices for credit reports and the lack of unique identifiers (a standardized or global identifier).

Other restrictions mentioned in the survey replies were consumer-protection laws and different interpretations by regulatory bodies concerning cross-border data flows. A low level of digitalization and knowledge are named obstacles that go beyond legislations.

Finally, a minority of participants mentioned cybersecurity and IT-related concerns. For example, one participant stated that data was not secure when transmitted across borders, and another stated that there was a lack of cross-border IT systems. Moreover, in some countries (for example, Germany), resolution 2015/5 of the federal government’s IT Council requires information from (critical) infrastructures to be stored on the BundesCloud—that is, servers in Germany.

In the eyes of the participants, major obstacles are created by the regulatory regimes that prevent a level playing field across countries. This leads to differing information environments. Regulations are—on the other hand—the most difficult and slowest measure for change. Moreover, in some regions, a true harmonization might never be reached due to different legal traditions or diverging interpretations of rules by authorities or courts.

3.1.2 Localization and National Requirements on Cross-Border Sharing

Data-localization requirements have been defined as “any obligation, prohibition, condition, limit or other requirement provided for by the laws, regulations or administrative provisions of a jurisdiction... that imposes the processing of data in a specific territory or hinders processing of data in any other territory” (World Economic Forum 2020, 44). Thus, such measures can show up as legislative requirements, administrative rules, or guidelines (EC 2017a). A somewhat different but related description is the term “data residency”: the specification of the geographical location of data storage. The choice is up to the data processor, whereas “localization” is mandated by law.

In 2019, research counted more than 32 countries that have data-localization measures (Ikigai Law 2020). These include China, Russia, India, Vietnam, and Malaysia. For example, Russia

introduced a new data-localization law in 2015. All personal data on Russian citizens needs to be stored and processed in data-bases located in Russia. The same holds for China.

There is little robust academic evidence on the effects of data-localization restrictions. Such restrictions were the primary focus of a survey published by the European Commission in May 2017.¹⁹ Of about 318 respondents to the EU survey, 63 percent confirmed the existence of data-localization measures.

With respect to Europe, an EU reform package in 2018 removed any restrictions imposed by member state public authorities on the geographical location for storing and processing non-personal data unless the restrictions were justified for public-security reasons. In 2019, the European Commission published guidance on how to treat mixed data sets containing personal and non-personal data (EC 2019). It essentially stated that the GDPR held for personal data subsets, whereas such protection was not awarded to the non-personal data.

In the expert interviews conducted for this paper, several countries were mentioned that require data localization that was seen as an obstacle to cross-border sharing of credit data. These measures extend, for example, to tax information, financial or property information, and credit information about individuals. Australia, China, Russia, Mozambique, Indonesia, and Rwanda were among the countries mentioned.

In some of these countries, data localization is justified by oversight capabilities to conduct audits on the institution and quality checks on the information. The credit reporting industry, however, states that once companies are forced to set up local infrastructures, the cost efficiencies and gains from cloud hosting of the data are lost. This makes it more expensive to operate a credit bureau.

It can be envisioned that data-localization requirements will increase in the future due to the political trend in Europe and elsewhere to regain “data sovereignty,” essentially demanding that data is processed locally or regionally.

3.1.3 Differences in Definitions and Concepts

A number of participants pointed to the differences in definitions of technical terms, concepts, and data formats as major obstacles to cross-border exchange. For instance, across different countries, the definition of reporting institutions can vary. The same holds for data (positive and negative credit information) or the definition of a “consumer” or “data subject.” Countries that allow different types of information could face problems when allowing international data transfers.

BOX 4

Sources of Technical Terms

The following are sources of technical terms:

- **International:** ICCR General Principles on Credit Reporting; World Bank Group *Toolkit for Practitioners*; World Bank Group *Credit Reporting Knowledge Guide*; OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data
- **Caribbean Region:** ECCB Harmonised Credit Reporting Bill
- **Europe:** European Expert Group on Credit Histories; AnaCredit Reporting Manual; European Credit Research Institute; ACCIS; General Data Protection Regulation
- **Asia:** APEC Privacy Framework

There is currently a lack of harmonization of concepts and variables and no standardized format to share/update information. For example, in the Southern African Development Community, cross-border transfer is not formalized “despite users and data providers doing business in various jurisdictions” (quote from a survey participant).

Some of the international credit reporting companies use standardized templates for their internal company platform, although the information items may differ from country to country. Moreover, these companies typically transfer reports on companies through internal systems, but not the profiles of individuals, due to data-protection considerations. Similar concerns hold for the users of data (for example, banks).

3.2 Practical Impediments

Regulatory requirements are not the only impediments that hamper cross-border credit reporting, as the interviews and the online consultation showed.

There are a number of differences between nations that have historic origins and arise due to differences in the ID systems (not all countries have a mandatory national ID system) as well as a lack of standardization of common procedures and data formats.

3.2.1 Lack of Unique Identifiers of Individuals and Companies

Identification of financial customers (firms and consumers) is part of the Financial Action Task Force’s anti-money-laundering standards (FATF 2019). Countries need to implement these recommendations nationally in legislation or by other enforceable means. Banks and other financial institutions have to adhere to these recommendations in order to prevent the misuse of the banking system. One of the most important recommendations is the customer due diligence measure, which requires the identification of the customer before establishing business relations or carrying out occasional transactions for the customer.

The recommendations require a financial institution to verify a customer’s identity using “reliable, independent source documents, data or information.” Secure identification is therefore a key ingredient for the integrity of financial markets.

The World Bank estimates that verifiable ID systems could expand financial services to approximately 375 million unbanked adults in developing countries. Secure ID (electronic ID) by security tokens will expand access to many different services, financial services, insurance, or social-transfer programs.

A unique, secure identifier (for example, an ID card, a passport number, and so forth) is also essential for credit reporting. While

it is possible to conduct identification by obtaining and matching more and other information items (name, address, date of birth, birth name, and so on), this increases the costs of the identification process (Giannetti and Jentzsch 2013).

Unique Identification of Individuals

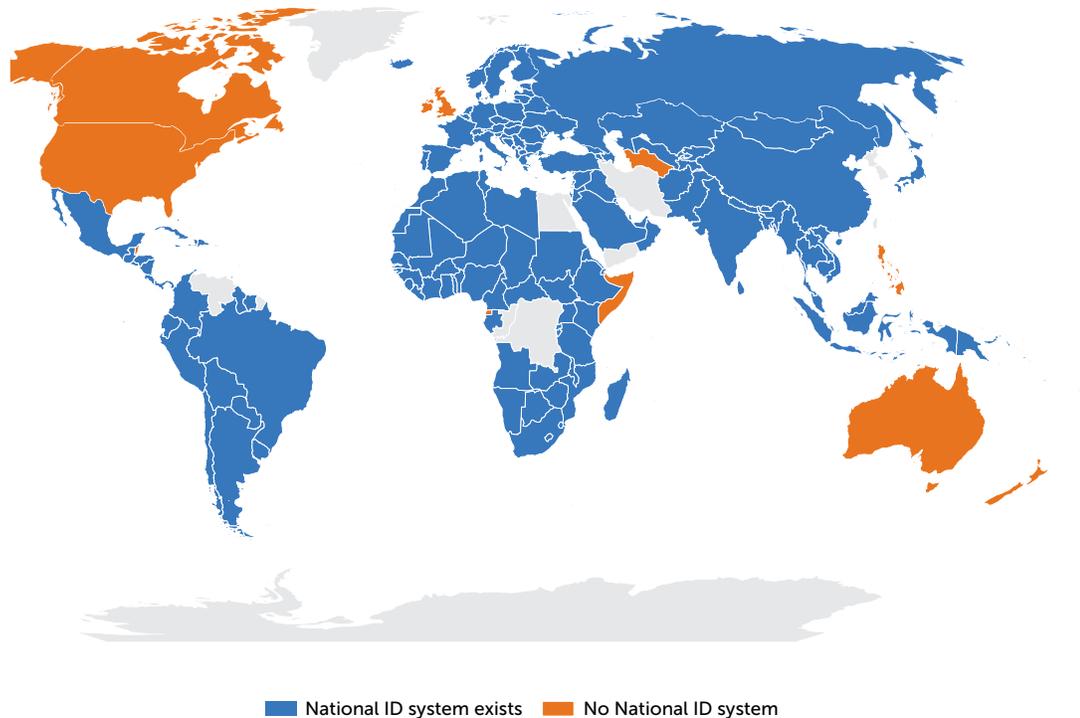
Biometric identification stands a chance of leapfrogging the traditional paper-based ID typically issued by governments. It can be witnessed that these systems—while in general more expensive than traditional non-biometric systems—are being installed increasingly in countries around the world.

Not all countries have a national ID system, but systems now exist in nearly 140 countries (see Figure 12). The past decade has brought major changes: Pakistan, India, and Indonesia have built multipurpose ID databases. In India alone, 1.2 billion people are covered.

However, even when identity systems exist, there are challenges: Sometimes people hold multiple different ID documents, ID numbers are reissued with new passports, or persons have outdated documents only.

For example, in Latin America, Colombian credit bureaus use the national ID number as an identifier. In Panama, the passport is used, and a new passport number comes with each passport reissued. There is much migration between countries, and the region would—in general—benefit from a harmonized ID system.

FIGURE 12: National Identity Systems around the World



Notes: Source is ID4D data (World Bank 2018), reflecting 2018.

At the moment, there are different initiatives to improve the identification of subjects that will prove useful for cross-border credit reporting. The lack of a unique identifier, however, seems not to be the major problem, according to respondents to our survey.

3.2.2 Lack of Standardization of Common Data Formats and Procedures

The lack of standardization in data formats and procedures hampers cross-border exchange of credit information. This is an obstacle on the technical/operational level. Some experts interviewed for this report work internationally with many different information providers. They stated that the formats of the reports look very different from country to country. However, such differences also show up when comparing providers within countries. If data distributions are not uniform across countries, scoring and rating models do not perform very well, and one model needs to be optimized per country.

Organizations can achieve standardization by setting up a master agreement that contains procedures and data formats for international data exchange. There should be an oversight and a dispute-resolution mechanism. This was also emphasized as very important in the deep-dive interviews with experts. The topic of data formats and procedures is discussed in section IV (Recommendations).

3.3 Unwillingness of the Financial Services Industry to Share Data across Borders

Many users of credit reports—the financial services industry, for example—also do not transfer credit data of individuals across borders. These players have contracts with credit bureaus in individual markets. Retail lending thus far is no truly international business; it is more local or regionally organized—consumers often go to their local bank to obtain credit. Therefore, demand for cross-border credit and credit reports is limited.

Although the users of credit reports are strong advocates of harmonizing credit data in credit bureaus across countries (for example, in Europe), cross-border financing is regarded more as a niche business activity that has not taken off yet. In principle, borrowers could port their data from one credit bureau to a bank (with GDPR-based consent). Some might not do this, as they want to keep their business dealings in other countries out of the bank's view.

In fact, sharing consumer profiles between branches in different countries is not widespread among banks. The different profiles cannot be fed easily into the same model. (Models are often optimized for data from one country.) The minimum data that users would like to see harmonized are positive and negative information across credit bureaus, historical data, and ways to source income and/or transactional information.

3.4 Impact of COVID-19: Business Risk Increases

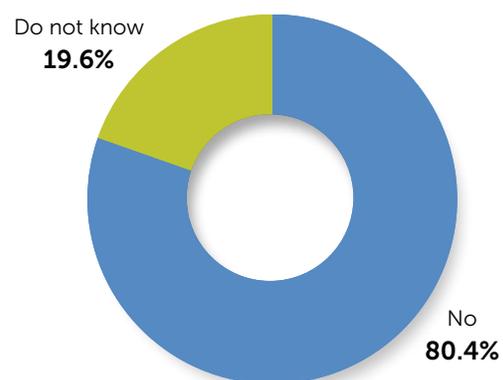
The COVID-19 crisis has had a major—historic—impact on the activity of credit reporting. The historic *business downturn* has slowed economic activity in the trade and services industry around the world, lowering demand for credit reports by 30–50 percent, according to estimates from a couple of survey participants. Cross-border credit reporting is also slowing due to lockdowns and restrictions on cross-border traveling.

Figure 13 shows the replies of the respondents to the discussed survey. (See appendix A.) The vast majority of respondents claim that no new restrictions on cross-border data transfers were implemented during the COVID-19 crisis.

Many countries allowed a *COVID-19 crisis* moratorium on credit obligations (under certain conditions), because of the massive income loss suffered by borrowers.²⁰ In the absence of loan-repayment holidays, those losses would have increased default rates. Borrowers were able to ask for forbearance, and fees and penalties were generally waived. In addition, some countries (such as Germany) have waived and deferred the obligation to notify authorities of insolvency. In this case, insolvency is not reported.

The crisis is proving a challenge from a statistical point of view for scoring-model developers and users, as the statistical probabilities of default may change once the moratoria come to an end. Income streams are also affected: When discontinued, public relief, where available, is only partially covering the loss. Model developers may need to recalibrate their models. It has to be ensured that scoring models are neither overly pessimis-

FIGURE 13: No New Restrictions for Cross-Border Credit Reporting due to COVID-19



Notes: The question read, "Are you aware of any restrictions on cross-border data transfers that were implemented during the COVID-19 crisis?"

tic nor overly optimistic (by using past information)—a problem that also occurred in the financial crisis of 2007 and 2008.²²

The COVID-19 crisis also affected the quality of information. For example, in the United Kingdom, courts and civil registries were closed during the lockdown. It therefore took longer to file and process documents.

Finally, for some firms, the crisis sparked creativity. They built COVID-19 scores and indices to account for the special circumstances (irregularities in financial behavior as well as statistical breaks that harm financial forecasting) during the crisis. One example is the FICO Resilience Index. Another example is the Vantage Score, which will put more weight on trends. Moreover, some companies that produce indices ask firms to volunteer information about their situation “to help themselves.” In some countries, additional borrower-protection measures encompassed the issuance of free credit reports to allow additional monitoring by consumers.²²

3.5 Solutions for Tackling Cross-Border Exchange

The impediments to cross-border reporting vary across regions and institutions. Differences in laws and regulations are among the prime obstacles cited by respondents to the survey. But there are also other types of obstacles: lack of awareness of cross-border reporting types and lack of demand for cross-border credit reporting in the market. Depending on the type of obstacles, solutions must be developed. For example, most respondents to the public-consultation survey (see figure 14 and appendix A for details) preferred a change of regulations (72.5 percent), while 51 percent found codes of conduct to be the solution. The development of service-level agreements was preferred by 51 percent, followed by those who found an MOU to be a suitable solution.

TABLE 2: Best Practices in the View of Survey Participants

AnaCredit regulation of the European Central Bank (including guidelines on feedback loops)
MOU on the exchange of information among national central credit registers in Europe
Regulator MOU to enable regional cross-border data sharing in East African Community
Cross-Border Data Exchange contract template from ACCIS
BIGnet Network
Global legal identifiers
Internal MOU
Service-level agreements among the relevant stakeholders

Notes: Answers by participants of the public consultation survey.

Participants also suggested further solutions. Among them were regional ID systems and a business registry number or the stimulation of demand for cross-border reports in the financial sector as well as educating policy makers and regulators on the benefits of cross-border credit reporting.

Changing Regulatory Regimes

Changing regulations is among the most difficult, slowest, and most profound changes. Internationally, however, there are examples of countries that have changed their laws in order to introduce cross-border reporting. Examples are Singapore and Cambodia. Vietnam issued a practice note, and Thailand is in the process of amending its legislation with respect to cross-border credit reporting.

Multinational agreements might also take very long time, as the following example shows. In 2015, the Caribbean Community, a group of 15 member states, developed a draft policy on a harmonized framework for credit reporting.

This draft policy needed to be approved by the Council of Finance and Planning. This was finally scheduled in July 2020 but postponed due to the COVID-19 crisis. The draft policy is the condition for the Model Law for Credit Reporting. Table 2 lists best practices for cross-border credit reporting as described by survey participants. (See appendix A for explanations.)

International Codes of Conducts or Memorandums of Understanding

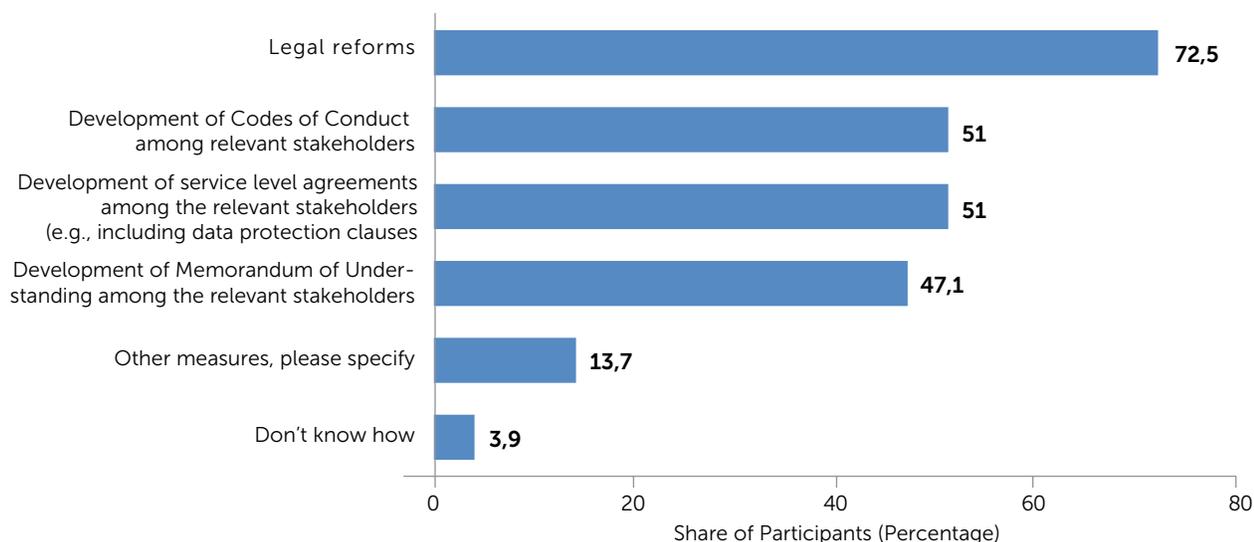
International codes of conducts or MOUs may leapfrog slowly changing regulations. A coordinating mechanism, however, is key to the establishment of an MOU between different regulators.

Establishment of Unique Identifiers

An initiative of governments and financial regulators around the world is the **legal entity identifier (LEI)**, which traces its origin back to the G20 and the Financial Stability Board. The Financial Stability Board is an international organization founded to give international recommendations for and supervise the stability of the financial system.

An LEI is an identifier for legal entities such as companies, foreign branches of companies, funds, public entities, and individuals acting in a business capacity. Natural persons are not allowed to register for an LEI.

The LEI with the reference and relationship data of the legal entity is administered by the Global Legal Entity Identifier Foundation, which has already accredited more than 30 LEI-issuance organizations around the world (for example, data vendors, central banks, or financial exchanges).

FIGURE 14: Tackling Obstacles: The Most Important Solutions

Notes: The instruction read, "Please indicate what you think are the most appropriate solutions for tackling obstacles to cross-border data transfers (multiple answers are possible)."

The LEI is a 20-digit alphanumeric code based on the ISO 17442 standard (ISO 2020) developed by the International Organization for Standardization. It is an open standard and issued in a decentralized manner. LEI references to company information are extractable from a central website.²³ A company's information includes permutations of the company's name, ownership structures, and legal entity information. It is the registrant of the number who pays for the issuance, not the user of the number.

More than 1.7 million LEIs have already been assigned to all kinds of legal entities, primarily due to regulations that require the LEI as a unique identifier. The aim of the Global Legal Entity Identifier Foundation is to establish the LEI as a widely used standard identifier through voluntary adoption. There are cases in which countries have reverted to the LEI in order to secure transactions. For example, the United States and European Union require the LEI to identify legal entities involved in derivatives transactions, India has introduced the LEI for credit reporting, and AnaCredit uses the LEI as an identifier for borrowers, if available. In some countries, value-added or other tax numbers are used as unique identifiers.

A number of commercial identity systems are in competition with one another. For example, there is the Data Universal Numbering System (DUNS) number of Dun & Bradstreet, a United States-based company. It is a unique nine-digit identifier for businesses that identifies and tracks different types of commercial entities around the world. It can also be assigned to a branch office with a link to its headquarters location. It is

currently assigned to more than 365 million businesses of all types, including public entities.

Moreover, newer technical concepts include decentralized, verifiable credentials. Here the aim is to establish an open-source identity layer on the internet.²⁴ This may help to relieve problems in countries where there is no ID system (see section 3.5), but the precondition is access to the internet.

Leapfrogging by Technology

In many circumstances, however, it is technology that has the potential to reduce impediments much faster than any legal amendments are made. With technology, different stages of market integration could be leapfrogged, and information could cross borders much more quickly. Systems of artificial intelligence that rely on natural language understanding provide an example. They allow participants to discover the same concepts expressed with different words (for example, *default* or *late payment*). Well-trained systems of this kind could render cross-country standardization of terminology obsolete.

To reap the benefits of these different technologies, however, two preconditions have to be met. First, there needs to be both access to technology (hardware) and the capacity to work with these advanced methods of data sharing and data analytics. Second, access to the internet needs to be fast enough to enable the deployment of such solutions. However, international associations could pool resources and capacities to enable creative solutions for strengthening cross-border credit reporting.

In many situations, a prime question for a creditor will not be whether there is good or bad information about a prospective customer, but whether there is *any* information about a borrower at all.

Three important ingredients are required to reap the benefits of technological solutions, and each has to do with standardization.

Systems have to be interoperable to allow for a seamless flow of data among different components. The interoperability at the *technical level* is currently the focus of many policy initiatives in industrialized countries (for example, allowing for the flow of messages between Facebook and other social networks). Interoperability, however, may also exist at the semantic level. For example, a root in mathematics is very different from a root in biology. **Semantic interoperability** ensures that the meanings of words are consistent for the specific contexts.

APIs allow access to information, but they need to be standardized, too.

And, finally, **data standards** have to be established. These relate, for example, to data representation, format, structuring, preprocessing (such as tagging), use, and management of data (World Economic Forum 2020, 35). Such data standards aim at ensuring and upholding the quality of the data over the data life cycle.

It is observable that technology has great potential to overcome many of the obstacles that exist in international credit reporting. Some new approaches are discussed briefly in the following section. They are grouped according to their relation to subject identification, user interface, or data analytics (modelling).

LEVEL OF IDENTIFICATION

Decentralized identities: In decentralized identity systems, no central authority issues/assigns an identity to someone. Instead, implementation protocols (for example, in blockchains and distributed ledgers) help to generate elements for the identification for people, companies, institutions, or even digital objects (such as data models).

Decentralized identities are also known as “*self-sovereign identities*.” (SSIs). An SSI describes technical solutions that allow individuals to control their identity without administrative authorities. Examples of such solutions are the Decentralized Identity Foundation,²⁵ W3C Decentralized Identifiers,²⁶ and the OpenID protocol.²⁷ **Decentralized identities could become unique identifiers (or tokens) for cross-border credit reporting systems. These could leapfrog cumbersome and paper-based ID systems.**

LEVEL OF USER INTERFACE

Alternative credit-scoring apps: Alternative credit-scoring apps (such as Gravity or CredoApp) scan mobile phones for usage and other data. Such scanning is often (but not always) based on user consent. Based on the mobile phone and credit application data, the applicant is grouped into a bucket of similar persons and awarded a score. If artificial intelligence is used, these apps can become good at predicting a customer’s behavior. **The apps work internationally; persons interested in taking up credit could use them to bridge international borders.**

LEVEL OF MODELLING

Generic credit data models: Conventional scoring models are trained on data originating in one country. Conventional scoring models, however, can be generalized by using data from several countries.²⁸ Using data compiled from different countries, they can produce a good (industry standard) predictive quality. This means data could potentially be enriched using data from another country, taking into account the individual differences (and potentially diverging economic trends) in the origin location. **“Thin” data files from one country can potentially be enriched by using data/data models from another country (similar to transfer learning).**

Collaborative/federated learning: In machine learning, models are typically trained on data from a “centralized” source—a data warehouse or data lake of one organization. However, models can also be learned in a distributed fashion. In that case, data does not need to be transferred from one place to another. Federated learning exists in two forms: In the first, two parties may each individually train their data models (for example, Neural Networks) and then exchange only parameter updates from these models. This exchange will improve the models. The data does not have to be moved but stays with the data holder. In the second, it is not the data that is centralized, but the models themselves: Different parties can train one common model. Again, the data stays where it originated. Diverging data-protection regimes are not a problem in this case. International cooperation (for example, as data trusts) could train a common model together, overcoming international borders.

MAIN LESSONS LEARNED FROM THE PUBLIC CONSULTATION SURVEY CONDUCTED FOR THIS REPORT

- **The business of cross-border credit reporting develops primarily in connection with cross-border migration.** This demand typically develops in economic zones that become more integrated (by the migration of workers, establishment of companies in different countries, cross-border trade). Currently, it is less connected to cross-border demand of credit by individuals or small and medium companies.
- Once there is noticeable demand for credit reports on individuals/entities in other countries, **restrictions become effective.** (They are ineffective if there is no demand, because no credit reporting takes place.)
- Restrictions are subject to legal and regulatory inertia. They are the **slowest and most challenging route for change**—they entail the harmonization of legislation (through international agreements) and a bilateral or multilateral cooperation and coordination mechanism in order to obtain some sort of convergence by authorities.
- Although legal changes are the slowest, they **seem to be the most important changes for the stakeholders.** A legal review of different countries and their regulatory regimes could shed light on which laws need amendment in this respect.
- In some circumstances (that is, access to technology, capacity, and networks), **technology could leapfrog the cumbersome legislative changes.** New methods of knowledge transmission, machine learning (transfer learning), or a decentralized issuance of identity infor-

mation to unidentified individuals could promote better information about individuals and companies alike.

KEY RECOMMENDATIONS

- A key recommendation for an international institution such as the ICCR is to **create a mechanism by which data-processing restrictions** can be monitored. This should be related to **cross-border data restrictions, and especially those applicable to credit reporting.** This means that, in a legal survey, indications of such restrictions as well as their rationale could be collected and a mechanism could be introduced (maybe via a web crawl) to dynamically update that information if there are changes in the laws in individual countries/regions.
- National policy makers should **evaluate alternative paths to cross-border credit reporting**—for example, by allowing “registered codes of conduct” (registered with the authority) to enable a quicker path to more cross-border credit reporting.
- Framing policies that improve on cross-border credit reporting ought to involve **public education measures, and transparent and written policies.** For example, public-education measures could explain to migrants how they can transfer their credit reports across borders.
- **Consumer trust is key.** Consumer trust is key to the functioning of the systems of credit data transfers, because many modes of operating will be based on consent. The views of consumers and their associations are rarely included in international discussions of credit reporting, let alone those of civil-society actors.



IV. RECOMMENDATIONS

In the following section, recommendations are tailored to different stakeholder groups. The most important stakeholder groups are international organizations, national policy makers and public authorities, industry associations, and private entities. Each stakeholder group can contribute at their own level to the improved functioning of international credit reporting systems.

4.1 Recommendations for International Organizations

4.1.1 One Size Does Not Fit All: Mapping New Pathways for Developing Countries

Over the past years, the World Bank and International Finance Corporation have committed a lot of resources to raising awareness of credit reporting, as well as to the establishment and regulation of PCRs and credit bureaus in developing countries. Now international institutions could help to map a new development path for national regulators/policy makers. *But one size does not fit all.* The path to international credit reporting needs to be *tailored* to the maturity level of the country or region. International institutions could help to assess the level of maturity by developing a **(web-based) self-assessment tool for policy makers or regulators**. This tool could be a questionnaire that asks about different stages of integration/migration/existence of cross-border services. Based on this information and the maturity-stages model presented herein, it could help to **choose a model for cross-border reporting**.

4.1.2 Monitoring Data-Processing Restrictions

At the moment, there is no **international monitoring of cross-border data restrictions, especially applicable to credit reporting**. Although survey participants report that the COVID-19 crisis has not increased the number of data restrictions, discussions about data sovereignty or data residency (in Europe) might lead to more such restrictions. While the OECD has

started to count the number of data regulations, it seems that only the European Commission has surveyed data-localization restrictions. A full-scale international (legal) survey would be the next step after this exploratory report. The results could be published in the form of an **observatory of data restrictions** (that is, a dashboard presenting the results).

4.1.3 Improving Implementation through Standard Frameworks

International institutions could also develop **standard frameworks for cooperation** based upon the European MOU but tailored to the situation of the individual country. The MOU could be applicable to sharing data between PCRs and among PCRs and private credit bureaus across borders. Also, a standard **code of conduct for cross-border credit reporting** could be developed. This could be accompanied using standardized templates that capture a “minimum” set of indicators (for example, global or at least national identifiers, legal forms of entities, outstanding credit lines, defaults and bankruptcies). However, this set also needs to be the result of a tailored survey of the variables that exist in countries that want to participate in the exchange. Standard contracts of cooperation could also be developed. European **standard contractual clauses for transferring personal data** to third countries provide an example (EC 2001, 2004).

4.1.4 Consumer Trust Is Key: Including the Views of Consumers and Civil Society

Consumer trust is key to the functioning of the systems of credit data transfers, because many modes of operation will be based on consent. The views of consumers and consumer associations are **rarely included in international discussion of credit reporting**, let alone those of civil-society actors. One of the reasons is that consumer associations in developing countries are institutionally weak, and/or they focus on different matters (such as food security). Their voice is wholly absent in

discussions around international credit reporting. International institutions ought to appoint members from organizations from developing countries as well as industrialized countries (for example, the European Consumer Organisation, BEUC) in order to obtain consumers' views at par with industries' views.

4.2 Recommendations for National Policy Makers and Regulators

4.2.1 One Size Does Not Fit All: Assessment of Demand for Cross-Border Credit Reporting

Many industrialized countries practice impact assessments (that is, privacy impact assessments or regulatory impact assessments)²⁹ in order to obtain a **more structured view of the costs and benefits of regulatory changes**. National policy makers and regulators ought to undertake a structured analysis of the demand for cross-border credit reporting and the impact of regulatory changes. A **concise impact assessment** could be helpful in this respect. The purpose of this exercise would be to find out whether there is enough cross-border movement to increase the demand for credit reports. In this case, regulatory changes could be made if restrictions exist. (See recommendation 4.1.2, **observatory of data restrictions**.) Based on this self-assessment, regulators could choose a model of cross-border credit reporting that fits best practices.

4.2.2 Evaluate Alternative Paths to Cross-Border Credit Reporting

Although changing legislation is the slowest and most profound way to update regulatory regimes, it is not the only way to facilitate cross-border reporting. National policy makers and regulators ought to **explore alternative ways within their legal frameworks**. For example, some countries (like the United Kingdom) allow "registered codes of conduct." Industry associations or other stakeholders register those codes with the supervisory authority, which oversees them. This could prove to be a quicker path to more cross-border credit reporting.

4.2.3 Framing of Written and Transparent Policies

The subject of cross-border credit reporting is seldom in the public sphere and rarely discussed. Framing policies that improve cross-border credit reporting ought to involve **(1) public-education measures, and (2) transparent and written policies**. For example, public-education measures could explain to migrants how they can transfer their credit reports across borders. It could also be targeted at small and medium compa-

nies and explain that access to credit might also be improved by scanning offers from banks in other countries. This way, demand for cross-border credit reports could be increased. Formal written policies of cross-border credit reporting (including the self- or impact assessment and a discussion of measures) will help to improve policy making in this rather technical and opaque area.

4.3 Recommendations for Industry Associations and Private Credit Bureaus

4.3.1 Industry Associations: Cooperation at Association and Membership Level

Industry associations—especially those with an international membership—can play a **very important and active role in facilitating cross-border credit reporting**. They can improve on cross-border credit reporting among their members. They can also share knowledge, standards, and templates among each other as *associations*. Associations could set up "**clearinghouses**" or **hubs** within their organizations or in cooperation with other associations. These could develop or share standard reporting templates and data or vocabulary dictionaries, including mandatory elements. These hubs must also mandate formats (for example, machine-readable .json, .xml, or other formats). Associations could educate consumers about credit reports and scores and options for moving credit reports across borders.

4.3.2 Establish a Global Open Credit Reporting Standard

A future route could be the **establishment of a global standard for credit reporting** that is open and not owned by anyone. In this open standard, common models, attributes, and definitions would be used, including taxonomies, vocabularies, and ontologies. Moreover, the standard could piggyback on existing initiatives such as OpenAPI. It should also entail the tracking of data provenance (data lineage) and use a standard approach to data quality. The most adequate organization to conduct this would be the ICCR.

4.3.3 Establish Common Definitions

The **common definitions could include the most important generic terms**, such as late payment, default, bankruptcy, and others that are frequently used in credit reporting. This discussion must be mindful that these terms hide important differences. (For example, "default" can mean 30, 45, or 50 days' late payment.)

4.3.4 Establish Cooperation Policies

Where a multilateral exchange of cross-border credit data is envisioned, a **written cooperation framework** needs to be specified. One example is the aforementioned MOU, which can establish a regional framework. The cooperation framework should refer to the settlement of disputes among participants or between participants and consumers. The associations are well placed to appoint a mediator, for example, to help to resolve such disputes. Key components of these cross-border exchanges are compiled in **appendix B**. If a group of countries agree to take measures, the ICCR's role would be that of an advisor.

4.3.5 Explore New Ways of Cross-Border Exchange: Usage of Technology

Although simple standardization might bring credit reporting ahead, it seems to be a bit outdated. Today, **advanced technologies and methods exist (such as training artificial intelligence) that help to achieve the same results much faster and in an automated way**. For example, trained artificial intelligence can detect different attributes (defaults, derogations, and so forth) through natural language understanding. Artificial intel-

ligence can also detect different codes (Social Security numbers, national ID numbers), concepts (bankruptcy) or even relationships ("Both borrowers are indebted to bank A"). Such methods could also help to display the information in a way that is more standardized than what is currently possible. Moreover, at least one association uses a web-based interface to access credit reports. This access could be combined with artificial intelligence modelling of the information. For this to occur, stakeholders would have to pool depersonalized data in order to train the machine-learning models.

4.3.6 Private Credit Bureaus' International Reporting Schemes

Private credit bureaus may also develop **international credit reporting schemes**. As stated herein, international credit reporting is more developed for company profiles than for individuals. Companies that are not part of the company family may interact across borders by concluding standard service-level agreements.³⁰ This enables the bilateral exchange of credit information.



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APPENDICES

APPENDIX A: Methodology

Work on the exploratory report *Cross-Border Credit Reporting: Aiming for International Practices and Standards* consisted of three parts: a research sprint, in-depth expert interviews, and a public consultation based on an online questionnaire. Due to this approach, it was possible to gain a comprehensive picture of cross-border credit data transfers in 2020.

Research Sprint

The first phase was a research sprint that built the groundwork for the interviews, the online consultation, and the first chapters of the paper. During that time, the current research and use cases on cross-border credit transfer were summarized and analyzed. To get a comprehensive overview of current actions and measures taken, studies and empirical papers by different researchers and institutions were collected. The information obtained laid out the direction for the interviews and the questionnaire used in the online consultation.

Deep-Dive Expert Interviews

The second phase included the in-depth interviews with experts on cross-border credit transfers, obstacles, and possible solutions. The interviewees included representatives of associations, public initiatives, and companies. The questions were based on three different but standardized interview guides (for public initiatives, private initiatives, and companies). The information obtained in these expert discussions were utilized mainly to provide comprehensive use cases with up-to-date facts and insights as well as the recommendations given at the end of the paper.

Online Consultation

In the third phase, a public survey was conducted. The survey was meant to give a broader perspective on cross-border matters regarding credit reporting, capturing more stakeholders. The ICCR secretariat invited the survey participants and hosted it. Over two weeks, about 50 participants filled out the questionnaire's open-ended and multiple-choice questions.

ONLINE CONSULTATION: FACTS AND SUMMARY STATISTICS		
Consultation period	July 21–August 4, 2020	
Number of participants	51	
<i>Sector of profession</i>	<i>Number of participants</i>	<i>Share of participants (%)</i>
Public sector	8	15.4
Credit reporting service provider	39	75
Credit provider/lender	3	5.8
Other	2	3.8
<i>Regional coverage</i>		
Africa	6	11.8
Asia	12	23.5
Europe	24	47.1
North America	1	2
Oceania	1	2
South America	3	5.9
Global	4	7.8

APPENDIX B: Key Components of Cross-Border Credit Reporting

KEY COMPONENTS OF CROSS-BORDER REPORTING	
Governance: Basics	
Written policies	All policies, practices, and rules should be in written form. They should be published on a website
Applicable international standards	The applicable international standards (for example, ISO 27001 and so forth) should be made transparent.
Roles and access management	There should be a written policy describing data governance (roles of data stewards, users, and so on) and tiered access management.
Common set of attributes/variables	Stakeholders conducting international credit reporting ought to agree on a common set of attributes. (See below.) Payment information was seen as especially useful for credit reporting.
Common set of data-quality measures	Stakeholders ought to agree on standards for measuring/monitoring the quality of the credit data in the reports, which are transferred internationally.
Governance: Key Principles	
Reciprocity	The principles of reciprocity state that all entities participating in cross-border credit reporting (for example, by requesting reports) must also deliver information.
Compliance	International exchange of credit information ought to be compliant with an established regulatory regime.
Transparency	Transparency as a principle has established that policies, rules, and frameworks should be published. Moreover, the transactions across borders ought to be transparent for the subjects of the credit reports.
Non-discrimination	Non-discrimination as a principle states that the cooperation agreements ought not to discriminate unfairly against some entities (for example, by requiring higher membership fees for small entities or entities from specific countries).
Key Information Items I	
Unique identifiers	There are no global systems of unique identifiers at the moment. The minimum to be captured ought to adhere to the customer due-diligence rules of the Financial Action Task Force.

APPENDIX C: Glossary

TERM	DEFINITION	SOURCE
Applicant	A person who makes an application, under section 5, for a license.	ECCB (2016)
Arrears	Failure to pay an obligation when due.	World Bank (2011)*
Branch, foreign	An institutional unit that is a legally dependent part of a legal entity and is resident in a country other than where the legal entity is established, in accordance with the concept of a "single branch" as defined under Article 2(3) of Regulation (EC) No. 2533/98.	ECB (2016a)
Branch office	An individual place of business, as defined under Article 4(1)(17) of the Regulation (EU) No. 575/2013.	ECB (2016a)
Code of conduct	A self-regulatory framework for credit reporting service providers governing their relationship to data providers, users, borrowers, other bureaus, and the supervisory authority. It specifies, among other things, policies and procedures for resolving conflicts and borrower complaints. In the absence of legislation, a code of conduct can contain provisions similar to what could be expected in regulatory framework.	World Bank Group (2018)
Consumer	See <i>data subject</i> .	World Bank (2011)*
Consumer consent	A data subject's freely informed and specific agreement, written or verbal, to the collection, processing, and disclosure of personal data.	World Bank (2011)*
Credit agreement	An agreement whereby a creditor grants or promises to grant to a borrower a credit in the form of a deferred payment, loan, or other similar financial accommodation, except for agreements for the provision on a continuing basis of services or for the supply of goods of the same kind, where the consumer pays for such services or goods for the duration of their provision by means of installments.	Expert Group (2009)
Credit bureau	Model of credit-information exchange whose primary objective is to improve the quality and availability of data for creditors to make better-informed decisions.	World Bank (2011)*
Creditor	One to whom a financial obligation is owed. Also, an individual or legal person who is engaged in the business of lending money or selling items for which immediate payment is not demanded but an obligation of repayment exists as of a future date.	World Bank (2011)*
Credit register	Model of credit-information exchange whose main objectives are assisting bank supervision and enabling data access to regulated financial institutions to improve the quality of their credit portfolios.	World Bank (2011)*
Credit report	The report that details the information that is stored by the credit register on a specific client.	Expert Group (2009)
Credit reporting service provider	An entity that administers a networked credit-information exchange.	World Bank (2011)*
Credit risk	The risk that a counterparty will fail to make any payments that it is contractually obliged to make.	ECB (2016a)
Credit score	An output from a credit-scoring model, a numeric summary of the creditworthiness of a credit applicant, most commonly based on the estimated probability of default.	Barci, Andreeva, and Bouyon (2019)
Credit scoring	A statistical method for evaluating the probability that a prospective borrower will fulfill the financial obligations associated with a loan.	World Bank (2011)*
Creditworthiness	The ability of a borrower to repay current and prospective financial obligations in a timely manner. It is used as an assessment of a borrower's past credit behavior to assist a potential lender to decide whether to extend new credit.	World Bank (2011)*
Data protection	Discipline that aims at creating adequate safeguards to prevent the misuse of an individual data subject's information. Comparable to consumer protection in other areas.	World Bank (2011)*

TERM	DEFINITION	SOURCE
Data provider	Creditors and other entities that proactively and in a structured fashion supply information to the credit reporting service providers.	World Bank (2011)*
Data subject	An individual or a business whose data could be collected, processed, and disclosed to third parties in a credit reporting system.	World Bank (2011)*
Default	Failure to complete a payment obligation under a credit or loan agreement.	World Bank (2011)*
Financial infrastructure	The underlying foundation for a country's financial system. It includes all institutions, information, technologies, rules, and standards that enable financial intermediation.	World Bank (2011)*
Financial institution	Any natural or legal person who conducts as a business one or more of the following activities or operations for or on behalf of a customer: <ol style="list-style-type: none"> 1. Acceptance of deposits and other repayable funds from the public 2. Lending 3. Financial leasing 4. Money or value-transfer services 5. Issuing and managing means of payment (for example, credit and debit cards, checks, traveler's checks, money order, and banker's drafts, electronic money) 6. Financial guarantees and commitments 7. Trading in (a) money-market instruments (checks, bills, certificates of deposit, derivatives, and so forth); (b) foreign exchange; (c) exchange, interest rate, and index instruments; (d) transferable securities; (e) commodity futures trading 8. Participation in securities issues and the provision of financial services related to such issues 9. Individual and collective portfolio management 10. Safekeeping and administration of cash or liquid securities on behalf of other persons 11. Otherwise investing, administering, or managing funds or money on behalf of other persons 12. Underwriting and placement of life insurance and other investment-related insurance 13. Money and currency changing 	FATF Glossary
Late payment	Any payment posted after the due date. (See <i>arrears</i> .) Represented in the credit report by the number of days after the due date.	World Bank (2011)*
Legal entity identifier	An alphanumeric reference code in line with ISO 17442 assigned to a legal entity.	ECB (2016a)
Legal person	Any entities other than natural persons that can establish a permanent customer relationship with a financial institution or otherwise own property. This can include companies, bodies corporate, foundations, anstalt, partnerships, or associations, and other relevantly similar entities.	FATF Glossary
Lender	See <i>creditor</i> .	World Bank (2011)*
National credit reporting system	National credit reporting system: Describes the broader institutional framework for credit reporting in an economy, including the following: (1) the PCR, if one exists; (2) private credit reporting firms, if they exist, including those run by chambers of commerce, bank associations, and any other organized database on borrower performance available in the economy; (3) the legal framework for credit reporting; (4) the legal framework for privacy, as it relates to credit reporting activities; (5) the regulatory framework for credit reporting, including the institutional capacity in government to enforce laws and regulations; (6) the characteristics of other pertinent borrower data available in the economy, such as data from court records, utility payments, employment status; (7) the use of credit data in the economy by financial intermediaries and others (for example, the use of credit scoring or use of credit data in creating digital signatures); and (8) the cultural context for credit reporting, including, for example, the society's view on privacy and the importance accorded to reputation collateral.	World Bank (2011)*

TERM	DEFINITION	SOURCE
National ID	A unique national identifier for all citizens.	World Bank Group (2018)
Negative information	Statements about defaults or arrears and bankruptcies. It may also include statements about lawsuits, liens, and judgments that are obtained from courts or other official sources.	World Bank (2011)*
Networked credit information exchange	Mechanism enabling the collection, processing, and further disclosure of credit information to users of data, as well as value-added services based on such data.	World Bank (2011)*
Other data	Entities that collect information for purposes different than credit granting, decision-making, and/or financial supervision. These entities typically do not proactively provide the information they collect to credit reporting service providers but will provide consultation upon request.	World Bank (2011)*
Payment history	A detailed compilation of past and current payment behavior.	World Bank (2011)*
Personal data/information	Information relating to an identified or identifiable natural person ("data subject"). An identifiable person is one who can be identified, directly or indirectly, in particular by reference to an ID number or one or more factors specific to a physical, physiological, mental, economic, cultural, or social identity.	Expert Group (2009); EU (1995, Article 2)
Positive data	Information that covers facts of contractually compliant behavior. It includes detailed statements about outstanding credit, amount of loans, repayment patterns, assets, and liabilities, as well as guarantees and/or collateral. The extent to which positive information is collected typically depends on national legislation, including the data-protection regime.	World Bank (2011)*
Public credit register	Registers operated by central banks collecting information from reporting institutions about the indebtedness of borrowers.	Expert Group (2009)
Reporting agent	Either a credit institution or a foreign branch of a credit institution that is resident in a reporting member state and subject to the European Central Bank's reporting requirements pursuant to the AnaCredit Regulation (Regulation (EU) No. 2016/867).	ECB (2016a)
Reporting institution	Those institutions that, according to national rules or contractual agreements, transmit personal information about borrowers to a credit register.	Expert Group (2009)
Sensitive data	Personal data that affects the individual's most intimate sphere or that could lead a party that obtains such data to discriminate against, or create a serious risk to, certain individuals. Sensitive data typically includes gender, health status, marital status, national origin, political affiliation, race, sexual orientation, or union membership, among others.	World Bank (2011)*
Structured data	Information normally in a numeric form that follows a fixed format and can be stored easily in databases and spreadsheets. The formal structure makes it easy to enter, store, and analyze.	World Bank (2011)*
Unstructured data	Information that does not follow a fixed format and is not organized in a predefined manner. Examples include text files, images, social media data, and sensor data.	Barci, Andreeva, and Bouyon (2019)
User	An individual or business that requests credit reports, files, or other related services from credit reporting service providers, typically under predefined conditions and rules.	World Bank (2011)*

* Alternative definitions of the terms are given in ECB (2016b), Expert Group (2009), and Barci, Andreeva, and Bouyon (2019), among others. The degree of differentiation depends on the publishing institution.



ENDNOTES

1. In the following, the term “credit reporting” covers both—reporting on consumers and on businesses. Where necessary, it will be specified if consumer or business reporting is meant.
2. In 2009, Charlie McCreevy, at that time internal market and services commissioner of the European Commission, said: “Financial institutions’ access to credit data on their clients is key for the sound development of competitive financial markets.” In 2008, the situation in credit reporting in Europe in that respect was reviewed by the Expert Group on Credit Histories.
3. The scope of data reported by the creditor in country A to the credit register in country B will depend on the rules applicable to the credit registers in both country A and country B and will be subject to local data-protection regulation.
4. The former framework for (bilateral) cross-border credit information sharing was established by the MOU on the exchange of information among credit registers for the benefit of reporting institutions (ECB 2010).
5. EU (2016b). AnaCredit regulation was passed in 2016, and the system was established during the following two years, so that credit reporting started in 2018.
6. Other projects implemented at the level of the Eurosystem are the Securities Holding Statistics Database (which contains exhaustive security-by-security information about European portfolios) and Money Markets Statistical Reporting, where daily information at the transaction level is collected from financial institutions.
7. See Deutsche Bundesbank Eurosystem, n.d.
8. Namely, Benin, Burkina Faso, Côte d’Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo.
9. See also World Bank Group (2019b, 67).
10. See the company’s website: <https://adventure.creditinfo.com/contact-us/volo-west-africa/>.
11. For example, the APEC Financial Infrastructure Development Network conference “Strengthening Credit Infrastructure—A Roadmap to MSME Innovation,” Manila, 2016.
12. FIDN consists of APEC member economies, the International Finance Corporation, the APEC Business Advisory Council, the SME Finance Forum, and the Organisation for Economic Co-operation and Development.
13. The Caribbean Community and Common Market is an international state organization that pursues the Caribbean single-market economy project. A goal of this project is the exchange of credit information across borders, but there has not been progress beyond drafting a legal and regulatory framework.
14. The direct and indirect cross-border credit reporting models were defined by the European Expert Group on Credit Histories (2009). Direct access (that is, a bank in country B directly approaches the credit bureau in country A) is available but rarely used.
15. That is, Sweden, Finland, Norway, and Denmark.
16. For example, the template for data-processing agreements available at GDPR.EU, which is the official resource for companies and organizations seeking information about the GDPR. See <https://gdpr.eu/data-processing-agreement/>.
17. The same can be stated of data intermediation in credit markets. See also Jentzsch (2007).
18. Participants mentioned the Credit Institutions Acts, personal data laws, or credit-reference laws.
19. The questions about data localization were part of the “Building a European Data Economy” process (EC 2017b).
20. In the United States, this is basically laid down in the Coronavirus Aid, Relief, and Economic Security (CARES) Act.
21. For example, once credit reports are used to sell not only credit but also insurance and other products, a borrower who records defaults on credit might also get no insurance or other products or only on worse terms.
22. In the United States, the three major credit bureaus increased the number of free credit reports from once a year to once every week (<https://www.cdionline.org/covid-19/>).
23. See <https://search.gleif.org/#/search/>.
24. See also <https://decentralized-id.com/specs-standards/verifiable-credentials/>.
25. See <https://identity.foundation/>.
26. See <https://www.w3.org/TR/did-core/>.
27. See <https://openid.net/>.
28. An example is discussed in Andreeva (2006).
29. The OECD is conducting a regulatory impact assessment (see <https://www.oecd.org/regreform/regulatory-policy/ria.htm>), and the GDPR includes a mandatory privacy impact assessment (Art. 35) when processing could “result in a high risk to the rights and freedoms of natural persons” (<https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32016R0679&from=EN#d1e3546-1-1>).
30. For example, the template for a data-processing agreement available at GDPR.EU, which is the official resource for companies and organizations seeking information about the GDPR. See <https://gdpr.eu/data-processing-agreement>.

