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Chapter 3

E-Credit Information, Trade Finance and E-Finance: Overcoming Information Asymmetries

A. Introduction

In most developing countries financial service providers are not yet in a position to use modern credit risk management techniques to provide short-term working capital and trade finance to local enterprises at competitive terms. An important reason for such a situation is the lack of credit reporting systems. Many developing countries still need to establish functional credit information systems in order to improve the quality of financial information on enterprises and rate them as credit risks.

The inability of creditors to assess borrowers' risk owing to a paucity of credit information flows – regularly updated information on the financial state and payment record of borrowers – is the root cause of information asymmetry between these two principal economic agents. Weak and fragmented public record systems, laxity in disclosure of companies' financials and the nascent state of both public and private credit information entities are among the reasons for deficient credit risk management in many developing and transition economies.

Enterprises in the formal economy may not have access to credit partly owing to their own weaknesses and partly owing to structural and institutional deficiencies. These may include inefficient public records systems, inadequate credit reporting and a lack of sharing and pooling, by financial service providers, of information on borrowers. The situation is further aggravated by the fact that many companies still operate in the informal economy. They are not officially registered and they do not pay taxes. Such firms mainly transact with cash and are subject to usurious terms of credit, and they are excluded from the formal financial intermediation.

Payment systems have been using proprietary electronic networks since the beginning of 1970s and

were based on private telecom infrastructures and networks belonging to the banking industry. Nowadays the e-payment systems are increasingly networks, based on the public network infrastructure of the Internet (UNCTAD, 2001, 2002). In spite of concerns about security and interoperability, the financial services sector is continuing its adoption of Internet technologies and Internet-based applications for e-credit information, e-credit scoring and e-rating of enterprises, thus permitting a wider use of e-payments and e-finance techniques.

In developing and transition economies the problems of transparency and information sharing in the formal sector and the persistence of the informal economy are the main obstacles to introducing innovative electronic credit information and risk management techniques. As a result, many of them are forgoing the opportunity for considerable improvements in access to trade-related finance and e-finance. Internet-based information and communication technologies (ICTs) permit firms to communicate, network and transact at much lower costs, and are improving the quality of information flows. In particular, managing trade-related credit risks and payments online greatly reduces the costs of financial intermediation (see UNCTAD 2001 and 2002). Therefore, actively using the Internet and ICTs to build modern credit information services has the potential for leapfrogging towards the latest and most efficient e-credit information technologies and systems and thus embracing the information economy by considerably diminishing information asymmetries in creditor–borrower relations.

Enterprises in developing and transition economies are becoming increasingly aware that successful international, regional and domestic trade requires access to trade finance and e-finance on competitive terms. For such access they need to be assessed using procedures that are increasingly technology-enabled, such as e-scoring and e-rating. That implies a respect for

accuracy and transparency in information flows concerning their finance and payment records.

The international banking regulatory capital standards known as Basel II make the rating of enterprises a necessary condition for providing credit. The regulatory challenge of Basel II may motivate countries and their financial service providers and enterprises to move towards modern e-credit, e-rating and e-financing techniques. Alternatively, not meeting the requirements of Basel II – scheduled to come to force in 2007 – will further complicate developing country enterprises' access to trade finance and e-finance. Non-bank trade finance sources that will compete with banks burdened by Basel II rules will also need to carry out e-rating in order to adequately assess risks while providing trading enterprises with short-term finance and e-finance.

In response to the problems outlined UNCTAD XI initiated a discourse on the prospects of development of e-credit information systems and trade finance and e-finance for enterprises in developing countries. Major credit information and credit insurance agencies, banks and others exchanged information on their achievements and problems and shared ideas on the ways forward in this new and promising domain. Further details of this dialogue are provided in the Annex.

This chapter suggests that an important avenue for improving developing countries' access to trade-related finance and e-finance and leading them towards the information economy is the use of opportunities provided by the Internet to help overcome information asymmetries between creditors and borrowers. Part B underscores the importance of credit information, the need to meet the challenge of the Basel II framework and the need to move away from an informal economy. It underlines the importance of creating business-friendly and transparent conditions for collecting credit information on developing countries' enterprises, establishing e-credit information infrastructures and using e-credit scoring and e-rating techniques. It also addresses further challenges arising from IT security and interoperability in progressing towards paperless trade and e-trade finance. Part C considers credit insurance as a financial service that relies heavily on credit information, and its migration towards greater use of Internet-based technologies. Part D reviews the progress in trade-related e-banking, integrated e-trade finance platforms and other e-trade finance related techniques, and presents selected examples from devel-

oped and developing countries. Part E, in conclusion, discusses the conditions that developing countries should create to introduce improvements in their e-credit information capacities that will permit enterprises to have better access to trade finance and e-finance.

B. Information economy for accelerated development: The case for credit and e-credit information

The existence of information asymmetry in the markets has been at the centre of economic debate for quite some time (see Arrow, 1963; Akerlof, 1970; Stiglitz and Weiss, 1981; and Stiglitz 2000 and 2001). Although an extended discussion of this debate lies outside the scope of this chapter, it should still be stressed that in the context of lender–borrower relations information asymmetries raise the problems of adverse selection and moral hazard, in particular in developing countries. Information asymmetry refers to a situation in which transacting parties do not have access to the same information and as a result one party can take advantage at the expense of the other. The intervention of a third party (say banks in creditor–borrower intermediation) may provide a remedy to this problem. Adverse selection in the case of credit consists in financing a borrower without much concern for the probability of default. That creates the problem of moral hazard, as in the case of default the costs will normally be borne by the debtors rather than by the creditors who made the mistake in the first place.

Overcoming as much as possible information asymmetries between economic agents is one of the main features of the emerging information economy. The latter is characterized by instantaneous and networked electronic communications and drastically decreased transaction costs for all information-intensive operations (including those of collecting credit information), which thus increase labour productivity and make possible major efficiency gains and improved organization. Such communications are valuable tools for overcoming information asymmetries and can become one of the building blocks of the emerging information economy in those countries.

The regulatory and institutional environment, and a culture that is conducive to accumulation and updating of information, in a standardized electronic for-

mat, on enterprises and households as credit risks, are among the key characteristics differentiating a developed economy from a developing one. The quality of credit information here is of primordial importance. First, public record infrastructure and accounting and audit standards stipulate accurate general and financial statements and their issuance by enterprises. Second, credit information can be collected not only from the public sector and enterprises, but also from third parties and independent sources; this makes it possible to have an additional check on the quality of information. The regulatory and institutional back-up for credit information should ensure that it is provided at low cost. By definition, credit information services are limited to enterprises operating in a formal economy.

The high level of information asymmetry in creditor–borrower relations in the developing countries can be explained by weak credit information infrastructure, ineffective public records, lack of credit management skills and underdeveloped financial intermediation. A generally restrictive and cumbersome regulatory environment and a large informal cash-based economy, make the matter worse. Those and other obstacles make it difficult for financial intermediaries to build up objective and verifiable databases on credit risks.

1. The importance of credit information

Credit information is a set of data used by creditors to verify the financial status and payments record of borrowers. Limited research on this subject suggests that there is a strong positive correlation between the availability and cost of credit and the level of development of credit information (Miller, 2003). Thus, according to Japelli and Pagano (1993), the exchange of information on borrowers between financial service providers decreases default rates and average interest rates. Some available analysis also suggests that it is important for creditors to share not only negative information (state of arrears on credits) on borrowers but also positive information (volume and terms of credits paid on time). As suggested by recent research by the World Bank (Majnoni et al., 2004), combining negative and positive information on borrowers gives creditors more predictive power and permits more borrowers to have access to credit than would be the case if only negative information had been shared.

Credit information enables the creditor to assess more adequately the creditworthiness of the bor-

rower. The difficulty involved in obtaining that information remains substantial in the majority of developing countries and in many economies in transition. In granting credit, finance or credit insurance the decision maker looks for two main elements: “ability to pay” and “willingness to pay”. The latter is sometimes referred to as “commercial morality” or “reputation collateral”. In developed countries firms pay because if they fail to do so they will be put out of business. This is because the laws and courts permit the creditor to pursue the debtor. In many developing countries this infrastructure is still not very effective and therefore there is no compelling reason for a buyer to pay. Foreign suppliers can still rely on larger enterprises that want to purchase from abroad and are aware that damaging their reputation can inhibit their ability to import. However, if the importer is an SME the case is less compelling. Hence, for the successful functioning of credit and e-credit information systems, developing countries have first to address adequately the above issues of fundamental commercial law and enforcement and adequate accounting and auditing standards.

In developed economies businesses and consumers have relatively easy access to finance. One of the reasons for this is the ability of the financier to assess the credit risk of the applicant rapidly and efficiently. This ability stems from the highly developed, electronic systems of formatted and standardized information on the financial state and behaviour of companies and households (primarily as borrowers but also as suppliers, trustees etc.) in the hands of specialized information companies. These include public credit registries (PCRs), private credit bureaux, credit insurers, banks, credit card companies and other creditors. Another important characteristic is that this commoditized credit information is available instantaneously and at low cost. Moreover, the existence of PCRs permits central banks to gauge the debt outstanding of the banking industry and hence its financial robustness, while individual banks can evaluate a potential debtor’s exposure with other banks. The credit bureaux collect more extensive information from a variety of sources on companies’ financials, credit history, current state of debt repayments, and so forth, before extending any credit opinion, scoring, or rating on a particular debtor. Tradition and adequate regulatory requirements for the disclosure of financial state and payments records of corporate and individual debtors contributed to the creation of a highly sophisticated and commoditized credit information industry, particularly in the United States. The scoring given to companies by Dun & Bradstreet (D&B), as

well as by other major US credit bureaux (Equifax, Experian and TransUnion) are considered sufficient by US banks for taking decisions to extend credit to those companies. At the same time the bulk of credit information in continental Europe is produced by major credit insurers that use credit information as an input into their business model of credit insurance (Atradius, Coface and Euler-Hermes; for more details see box 3.2). To produce credit information major credit insurers also maintain an ownership position in credit information companies (Graydon and SCRL). They also purchase credit information from other credit bureaux.

The US banks while relying on D&B and similar scorings are assuming the risk of borrower's default by themselves. Similarly, the credit scoring services of US credit bureaux are actively supporting credit managers of US firms while the latter are deciding whether to supply goods and services on credit. In fact, credit scoring and management services are becoming a more important part of services provided by European credit insurers. At the same time in Europe credit information on buyers permits credit insurers to issue a credit insurance policy covering sellers against default risks of buyers. Banks assume a lower risk since in the case of a credit request from a seller for, say, working capital financing, the credit insurance policy is assigned as collateral to the creditor bank and in the case of default of a buyer the credit insurer reimburses the bank directly.

It is also important to stress that in developed countries banks, credit bureaux and credit insurers generally trust the quality of the financial reporting of the borrower companies. However, one of the main challenges in the developing and transition countries is the quality of financial information provided – the accounting is frequently not up to international standards and the audits are not always reliable. Therefore, accurate periodic financial statements of the borrowers are as important as the parts of credit reports on their payments record and commercial morality. The need to improve the quality of accounting and audit in these countries is one of the most important factors for credit reporting systems to operate effectively and for permitting better access of enterprises to trade finance (and to finance in general).

Since 1999, the World Bank has conducted several global periodic surveys of PCRs and private credit bureaux. An important systemic consideration of the financial supervisory authorities while creating PCRs was to measure the debt outstanding to the banking

industry and the rate of delinquency among borrowers. Credit reporting by banks to supervisory authorities is compulsory, as the system should at least have negative information on borrowers. PCRs are helping bank regulators to strengthen supervision, promote competition, examine monetary and financial aggregates and improve other aspects of regulation. PCRs exist in more than 60 countries and are continuing to proliferate in developing and transition economies.

Private credit bureaux could be independent entities or closely related to banks or credit insurers, or corporate rating agencies. While PCRs cover mainly bank-related credit risks, private credit bureaux accumulate information on borrowers from both the public and the private sector. An important part of credit information collected by credit bureaux is public sector information, such as company registers, court records and collateral filings. These are then verified by means of extensive information collection from the companies (financial statements, trade data, publications, annual reports and payments records) and third parties (specialized press, chambers of commerce, partners etc.). Moreover, credit bureaux help major suppliers of goods and services to develop databases on their buyers. The sellers either apply credit scoring software to better manage their customer-related risks or outsource such credit management to credit bureaux and other financial service providers (for more details see section B4).

In other words, there are complementarities in the nature of credit information collected by PCRs and credit bureaux. Such complementarities should normally generate efficient communication lines between both institutions, but this is not the case in the majority of developing countries as observed by the World Bank. PCRs by and large do not share data with credit bureaux. While the main users of information provided by the former are the central banks and commercial banks, the latter sell credit information to non-bank users such as credit insurers, factors and lessors, as well as to companies selling and buying goods and services. The existence of both types of credit bureaux has a very important disciplinary effect on the borrowers, as no company or consumer would like to be blacklisted as delinquent and thus lose its “reputation capital”.

In developed countries other than the United States, the availability and the transparency requirements for credit information vary from country to country in line with their legislations. In Europe and Japan credit reporting systems are well developed. In the United

States, however, an extensive credit information industry exists in its own right, while in Europe credit information supply is mainly in the hands of major credit insurers. For the latter their large credit information databases are primarily an input that makes it possible to run credit insurance business (for more details see section C). In developed countries the applicants (corporates and countries alike) with a good credit profile are beneficiaries of the credit reporting system and have access to credit on time. The credit information providers and financial institutions put on notice those applicants whose borrowings have earned them a poor reputation. Many of them possess not only information about the payments behaviour of individuals and companies but also comprehensive ratings for companies and countries that help to assess respectively their commercial and political risks.

Domestic providers of credit information apart from PRCs and credit bureaux could include other public entities, banks, credit insurers, debt collectors, specialized information companies, utilities, and so forth. Foreign entities such as international specialized information companies, credit insurers, banks and credit card companies could also be information providers for local commercial and political risks. Those involved in the creation of local credit information facilities should be able to collect information at low cost from the commerce registry, pension fund, tax, statistical and other information-related public offices. They should also have an authority (given by clients) to make inquiries using banks' and other private information providers' databases. Local debt collectors and credit insurers (if any) would be the parties most naturally interested in the creation of national credit information facilities.

In the majority of developing and transition economies the system of organized credit information is still at an embryonic stage. The main problem is the lack of uniform, reliable and accurate public sector information, lack of disclosure requirements and lack of willingness to disclose voluntarily. The absence of standardized and detailed credit reporting is one (though not the only) limiting factor for the development of a modern financial sector. Simple bank lending or financing of SMEs is still problematic in most cases. The absence of trade finance hinders exports, and such commonplace instruments in developed countries as credit insurance and factoring are currently used by only a handful of developing and transition countries that export manufactures. However, some of those countries have already developed quite

elaborate credit information, credit insurance and export-import financing systems. One of the best examples of credit information is to be found in Brazil (see box 3.1). The Asian financial crisis was a "wake-up call" for those countries in terms of the creation of credit information services. In fact, it was part of the Bretton Woods institutions' conditionality for bailing out those countries. As a result, credit bureaux started to spread in the late 1990s and the banking communities in the region started to accept the idea of pooling information on their debtors. Gathering information on SMEs and other companies is also emerging (Bartels 2003).

An example of an early stage in the development of credit information infrastructure is the Russian Federation. In the command economy, with its rigid quantities and administrative prices, the planners and enterprise managers used to know and could predict the reciprocal products and payments flows between public enterprises. However, the poor quality of products, shortages, increasingly phantom reporting and the emerging grey economy signalled the weaknesses of the system. After the liberalization of prices, which started the replacement of the command system, the emerging quasi-privatized enterprises found themselves trapped in huge payment arrears owing to the collapse of old inter-enterprise relations and the precarious state of new business linkages. Although the situation has since improved, there are still virtually no market-based systems supporting the dissemination of credit information. Creation of credit bureaux, including a non-profit organisation under the auspices of the Russian Bankers Association (RBA), restarting of the Russian Eximbank and the emergence of factoring operations are the first steps in that direction. However, as the RBA is a voluntary organization and not a credit registry under the Central Bank, the commercial banks belonging to the credit bureau might be reluctant to share positive information on their good clients. At the same time the improvements in the tax regime, the need to access bank credits and the rapid dissemination of Internet-based solutions are improving prospects for acceptance of modern methods of trade-related credit information and debt collection. Meanwhile, some transition economies in Eastern Europe have already managed to develop credit information, credit insurance and factoring, and have started rapidly to introduce e-finance services, considerably filling the gap in that critical domain.

More transparent and equitable banking and data protection legislation, debtor and creditor-related laws

Box 3.1**Basel II ratings and changes in capital requirements for a trade finance risk**

Basel I considered short-term bank-guaranteed trade finance to be a good, tier 1 bank risk (letters of credit, other bank-guaranteed negotiable instruments), assigning only 20 per cent capital weighting for OECD bank assets with both OECD and non-OECD banks. Thus the Basel I risk weight for, say \$100 million of such assets was 20 per cent, and with a minimum capital ratio of 8 per cent, this demands regulatory capital to the tune of \$1.6 million (8 per cent of 20 million). As the table below shows, for all Basel II options the demand for regulatory capital is higher and in the case of Standardised option 1 and Foundation IRB uncalibrated (specific default characteristics of trade finance product) it is much higher.

Basel I	Basel II					
	Standardised Option 1	Standardised option 2	Foundation IRB Uncalibrated	Foundation IRB Calibrated	Advanced IRB Uncalibrated	Advanced IRB Calibrated
1.6	7.6	4.7	8.7	4.3	4.3	2.6
	+375%	+194%	+444%	+169%	+169%	+63%

Source: LTP Trade in Global Trade Review, September/October 2004, p. 3.

permitting enforcement of bankruptcy, and other regulatory requirements are prerequisites for the creation of effective credit information systems. Such a regulatory system should include in particular:

- Effective commercial legal and judiciary systems, including registration laws, bankruptcy laws, and public and court registers;
- Standards for adequate and timely reporting and disclosure by private sector operators;
- Adoption of international accounting standards and standards for auditors;
- Adequate public data dissemination and publishing requirements;
- Possibility of collecting, processing and disseminating public records, suits and judgements;
- Permission to access companies' track records with banks for authorized institutions and other creditors.

2. Facing the Basel II challenge

One of the challenges that underscores the need to build up modern credit information and risk management systems, thus making it possible to develop the rating of enterprises as credit risks, is the emerging new international banking regulation known as Basel II. Rating the credit risks of potential borrow-

ers is becoming a condition for their access to bank loans. Moreover, Basel II recommends new, more differentiated and stricter regulatory capital criteria for various types of ratings. Already the majority of more than 100 central banks from developing and transition economies that applied capital standards and other regulations based on existing Basel I have announced their commitment to adopt Basel II (Bank for International Settlements, 2004b).

To improve financial sector stability and banks' management of their credit portfolios the Basel Committee on Banking Supervision (comprising the central banks of 13 leading developed economies) has recommended a move from the Basel I to the Basel II regulation starting in 2007. The latest June 2004 framework for Basel II entitled "International Convergence of Capital Measurement and Capital Standards: a Revised Framework" comprises three Pillars. The first Pillar is about minimum capital requirements, the second the supervisory review process and the third market discipline.¹ While Basel II maintains the minimum capital requirement of Basel I at 8 per cent it introduces a much more differentiated and complex assignment of weights based on the credit profile of borrowers.

Another innovation related to capital requirement is regulatory capital provisioning for so-called operational risks (failures due to internal and external errors and attacks; see chapter 5). Banks basically can

choose two approaches for calculating the regulatory capital for credit risk: the standardised approach or the internal rating based (IRB) approach. In the standardised approach the ratings for corporate, sovereign and banking borrowers are based on ratings as given by external credit assessment institutions approved by the national regulator. Those institutions include well-known credit rating agencies such as Standard & Poor's, Moody's and Fitch,² major credit insurers such as Coface, Atradius and Euler-Hermes (for smaller companies) and national rating agencies approved by a country's regulator (which will raise the problem of comparability between national agencies' credit assessments). Major credit information suppliers such as Dun & Bradstreet, Experian and others might also play a similar role especially for SME ratings, while public credit registries run by central banks could also provide data to develop the latter.

The most important issue from the trade finance perspective is the differentiation of credit risks in Basel II (see box 3.1). In a way Basel I was less stringent regarding borrowers with higher risks, as the regulatory capital requirements were the same for lending to a blue chip company or a company from a developing country (although in the case of higher risks the banks could keep more economic capital, depending on their internal procedures).³

In other words, Basel II explicitly gives a competitive advantage to sophisticated banks by allowing them to assign less capital for the same portfolio of credits than to those obliged to use the Standardised approach. To retain their customer base the latter might resort to selling their trade credit risks to, for example, institutional investors that can operate with less capital since they are not subject to Basel II regulations or using other capital market techniques while structuring their trade finance portfolio (Bayliss and Parsons, 2004).

To help manage the challenges that developing and transition economies are facing with the advent of the complex system of Basel II, a team led by World Bank experts proposed that the calibrated IRB approach be changed into a centralized-rating-based approach (CRB). In such an approach while banks will continue to rate their clients, the regulator will determine the rating scale and default probabilities. They also proposed that credit risk be estimated by a homogeneous methodology of direct sampling as it makes it possible to produce comparable statistics across emerging economies and their banks. According to the team, it will need time for regulators and banks in emerging

economies to acquire resources and enough sophistication to adequately implement the IRB approach (Majnoni, Miller and Powell, 2004).

Apart from the need for further sophistication of their banks, many developing countries that have agreed to implement the Basel II recommendations might face a situation where the lack of credit information and hence possibilities for credit scoring and rating of enterprises might compromise their willingness to follow them. Thus, in a way, Basel II is serving as a catalyst for the creation of credit bureaux in developing countries. Such bureaux might facilitate the provision of trade finance not only by banks but also by financial companies and funds that may arise as a competitive response to the Basel II straitjacket on the banks. These future challenges and opportunities also underscore the need to create incentives for enterprises that are still operating in the informal market and are being cut off from formal finance and e-finance to start considering moving towards the formal economy and eventually have opportunities to benefit from innovations and better terms of e-finance that financial service providers may eventually propose.

3. From informal to information economy

While addressing the need to modernize the credit information systems and face the future challenges of Basel II in developing economies, one should not forget that major parts of these economies are still represented by an informal sector, in which enterprises lack track records and are hence excluded from the above process. The discussion on the formal and informal sectors is part of the long-standing development economics debate (Hart, 1973). While companies in the formal sector pay taxes, more or less follow labour and other regulations and show their financials for various kinds of assessments, those in the informal sector tend to work with less capital, not to pay taxes, provide precarious and unstable employment, and operate in an environment of cash-based transactions and usurious terms of credit.⁴ In the majority of countries this is tolerated because it addresses the problem of high rural and urban unemployment. In one of the first articles on the dual economy model Lewis (1954) forecast that the traditional sector in developing countries, which was the reservoir of surplus labour, would with time give way to the modern sector. However, as this did not occur in the majority of developing countries owing to the

continuing pressure of surplus labour, other views, stressing the important role of the informal sector in providing employment and income to large masses of the population, including through efficient SME and microenterprise operations, also gained importance (Schneider and Klinglmair, 2004).⁵

The median assessment for the informal sector of the US economy is around 10 per cent (Edgcomb and Thetford, 2004). It is higher, and sometimes considerably so, in other OECD countries. In parts of the economy where credit is not important or is managed differently, the informal sector might persist. This is the case for, say, household and rural individual work (even in the OECD area) or for microenterprise activities.

Research shows that the informal sector in developing countries is an important economic feature. For example, according to the Government of Kenya, in 2002 two thirds of urban employees were in the informal sector (in the manufacturing sector the share of informal enterprises was even higher, reaching 83 per cent) (Bigsten et al., 2004). In many countries the estimated growth of the informal sector is higher than that of the formal sector, a fact that reflects the high labour absorptive capacity of the former in the urbanization process of many countries. In rural economies the informal sector is much larger and prospects for its formalization are even worse. According to the same study on informality in Kenya the appropriate development policy should encourage informal firms to be absorbed by the formal sector. In particular, it was stressed that uncertain legal status and absence of proper accounts result in lack of credit rating. Meanwhile, microfinance, owing to its limited scale (it only accounts for a small percentage of financial sector operations), scope (one-man shops) and methods of risk management (peer pressure) cannot be a substitute for a lack of credit information on larger enterprises, as in such cases the latter are merely deprived of access to modern working capital and trade finance. At the same time it should also be recognized that even microfinance institutions are increasingly moving towards more automated and quantitative credit evaluation methods, including credit scoring, and are building a credit information / credit bureau type of database.

Paradoxically, even in a country with highly developed credit information services such as Brazil, the informal sector continues to endure. According to *The McKinsey Quarterly* (2005a), this situation in Brazil was due to the heavy regulatory burden on enterprises. By

saving money while avoiding taxes and regulations, the informal economy companies can survive with productivity equal to half of that of formal economy firms. While in agriculture informality is very high (90 per cent), those migrating to cities normally also end up entering the urban informal sector. As a result, between 1992 and 2002 the informal employment did not change, remaining at a level of 55 per cent of overall employment. The high level of corporate taxes and administrative costs incurred in paying them, inefficiency and irregularities in the judiciary system were some of the examples of regulatory burdens. In comparison, the low level of informality in relatively advanced market economies in South-East Asia could be explained by the combining of reasonable tax and regulatory arrangements with strong law and law enforcement systems. Moreover, the dynamic increase in the use of ICT makes information flows more transparent and is driving those countries faster towards the information economy.

There are conflicting views on the role of the informal economy and the nature of the formal economy in China. Thus *The McKinsey Quarterly* (2005a) believes that in China the level of the grey economy is low, while other sources, depending on the methodology used for measurement, consider it relatively high. At the same time according to Bartels (2004), the formal part of the Chinese economy is still characterized by a lack of transparency and opaque information flows (poor accounting standards, lack of willingness to voluntarily disclose the accurate financial position of an enterprise), while credit information is highly fragmented and consumer information is not permitted to be used by private information companies.⁶ At the same time China has launched its credit information and credit insurance services. Thus its credit bureau in the Shanghai area achieved a coverage that is quite high by international standards. Its credit insurer, Sinosure, is a member of the Berne Union and is actively cooperating with other credit insurers.

India still continues to have a large informal sector in spite of relatively high growth rates and economic dynamism over the last years. The most comprehensive and official report on unorganized labour is the NSSO (National Sample Survey Organization) Survey of 1999–2000. According to the survey, by the end of last century the main part of the total workforce in the country was still employed in the unorganized sector.⁷ The contribution of the unorganized sector to the net domestic product and its share in total GDP at current prices has been estimated to be over 60 per cent. Presumably, part of this unorganized

labour are working in SMEs and larger companies that are reporting financial information and paying corporate taxes. Hence, they cannot really be considered to be a part of the informal sector. Further research is needed to identify the real share of the latter and the degree of its contribution to GDP growth as compared with the formal sector. According to one estimate, India's informal economy accounts for 40 per cent of the total economy (Bartels, 2004). At the same time, highly successful national strategies to support the development of the ICT services sector in India are opening up new prospects for information flows in the economy and might empower policymakers and market participants to address the problems of the informal sector more adequately. Thus, being able to develop sophisticated software at affordable costs, Indian IT companies could contribute to the development of credit information services in India and other developing countries. There is thus a need for further business-friendly regulatory changes and improvements in government functioning, which might contribute to the expansion of the formal sector and make possible the access of Indian enterprises to competitive trade finance and e-finance provided by banks and other financial service providers. It should also be mentioned that the Indian Export Import Bank and the Export Credit Guarantee Corporation have been supporting Indian trade for quite some time, while in the late 1990s the Indian Central Bank created a PCR to develop credit information services.

As ICTs and the Internet are helping to decrease the transaction costs of information and financial flows, the opportunity cost for enterprises from both the formal and the informal sectors entailed by staying away from this emerging world might eventually be quite high. In their turn the improvements in the regulatory framework and in the development of credit information systems will encourage more enterprises to move to the formal sector and thus contribute to widening the tax base and improving the tax collection situation.

4. E-credit information and related online scoring and rating systems

As noted above, credit information systems can develop only if an adequate regulatory and institutional framework encouraging financial reporting and data disclosure is in place. That should give rise to well-developed public records, including public and court registers, availability of data from independent

sources, and a readiness on the part of enterprises and financial service providers to share and pool credit information. Maintaining and even refining these conditions are equally important for launching and developing their modern variant e-credit information. The main functionalities of e-credit information providers include credit information databases presented in a highly standardized and commoditized manner. It is possible to construct such databases as a result of the regular inflow of detailed information on companies. While rules and regulations requiring company data disclosure provided credit bureaux with opportunities to accumulate detailed information on trading companies, the advent of ICT made unit costs of collecting and updating of such data lower, thus making it possible to widen the scope and depth of information collection. Normally, each company has a reference number in major databases and should be able to update its files with new proven records. The databases provide such information as companies' details, financial health and payments record. Nowadays all major credit bureaux in developed and in some developing countries have functional websites permitting companies that are registered in their databases to provide inputs directly on the web into their respective files. On the basis of that and other independent information and analysis accumulated in the databases the credit bureaux are automatically assigning a credit rating or a scoring to companies. Major credit bureaux are able to do that thanks to advanced mathematical methods and statistical tools that determine the probability of a company's default (mainly default on paying a short-term trade-related debt). With time, successful ratings are becoming powerful tools to help the credit bureaux attract more enterprises seeking access to trade finance and e-finance.

One of the important services of credit information suppliers is to provide software credit management decision tools (frequently online) to companies to improve the latter's cash flow through better management of their accounts receivable and payable (money that companies should receive or pay as a result of selling or buying on credit). Major sellers need to predict the payment behaviour of their buyers. Providing solutions with software on predictive scoring of buyers' extended payment risk is the main part of services that credit bureaux try to sell to suppliers. In this service credit bureaux compete with banks, and credit insurers (see subsequent sections). In the United States major credit bureaux, such as Dun and Bradstreet (D&B), Experian, Equifax and Transunion, developed such tools in cooperation with major decision software producers, such as Fair Isaac Corpora-

tion (FICO). For companies supplying to a large number of buyers credit scoring software might help in taking quick credit decisions – that is, whether to accept an extended payment from a buyer or not. Using software to find out the borrower's profile is increasingly considered a competitive advantage, accelerating the cash flow of the businesses and preventing excessive paperwork and delays. Major credit bureaux are leveraging such software, trying to per-

suaude companies to outsource the whole credit management process to them. For middle-sized companies that might be an optimal solution given that they are not trapped in cartel prices for those services.

Box 3.2 describes two examples of best practices (one in a developed country and another in a developing country) of a pure credit bureau model with a focus on enterprise-related e-credit information.

Box 3.2

E-credit information: The cases of Dun and Bradstreet (D&B), United States, and Serasa, Brazil

D&B is a publicly quoted company with sales of around of \$1.4 billion, in which credit reports represent the bulk of the business. It is the largest credit information supplier on enterprise risks, claiming that it keeps online databases on more than 92 million companies worldwide, of which 66 million are active companies.¹ Although historically a US-centric company, it actually has more foreign companies in its databases. The credit information in those databases is presented in a highly standardized and commoditized manner. Each of the companies in D&B online databases is identified by its individual D-U-N-S® number. D&B indicates that it undertakes massive (more than a million a day) updating of the elements of databases it possesses. Customers, including sellers, creditors, and other private and public institutions, can obtain updated information for a fee; this enables them to take informed business decisions, primarily those about extending various forms of short-term trade credit of reasonable volumes (known also as credit limits) to different types of borrowers. To help customers better read such information and identify risks, D&B also gives various types of credit scores to companies mainly as payers. Through a quality process known as DUNSRight, D&B not only tries to give its customers the possibility of making informed decisions about their credit risks, but also provides information on suppliers (McKinsey, 2005b).

D&B considers credit management services rendered to enterprises to be one its important business lines. One of its credit management products is the Global Decision Maker, which is an Internet application for immediate use by SMEs, hosted and managed directly by D&B. To leverage core competences, D&B entered into cooperation with FICO in providing online analytics to help SMEs take credit decisions vis-à-vis their buyers. It is estimated that 90 per cent of top US small business lenders use FICO software to approve loans (*DMReview*, 2005). Similar solutions are available also for larger enterprises and especially for major suppliers of consumer durables that prefer to embed such scoring techniques in their in-house credit management rules and systems (see further discussion in B.5).

Serasa of Brazil is the first major credit bureau in a developing country that can currently be considered a best practice example not only for developing countries but also for some OECD countries. More than 35 years ago the Brazilian banks that became its shareholders established the company called Serasa. It is now the leading credit bureau in the developing world and has the largest database in Latin America on the financial state and payments behaviour of companies (in fact, D&B relies on Serasa reports for information on Brazilian companies). Serasa is a profitable company and is paying dividends to its shareholders, namely banks.² It has developed a quite sophisticated system of information gathering on companies, which comes from different sources such as banks, chambers of commerce and notaries. Currently, Serasa has a nationwide presence in 140 cities in Brazil and maintains a relationship with over 300,000 enterprises, including data collection and information consulting. The Serasa database serves three million consultations daily, related mainly to SMEs. Brazilian SMEs number approximately four million, representing 98 per cent of Brazilian companies, producing 20 per cent of the country's GDP and employing 45 per cent of formal labour force.

Serasa has developed a credit risk scoring system on the basis of an advanced statistical tool, which indicates the probability of default by a firm for a given period of time. The Serasa database allows for constant updating of information on firms and their constituent parts. Based on reference files and behavioural information that are available in the market, the system makes it possible to classify the credit risks of Brazilian SMEs. During the transaction cycle Serasa helps companies make credit decisions, monitor risks and manage portfolios. Serasa also monitors firms at the level of conglomerates and consortia. Analysing the situation of whole industries or warning firms against various forms of fraud practices is also a part of Serasa's services.³

¹ See: www.dnb.com.

² www.serasa.com.br.

³ Serasa presentation at the e-finance event of UNCTAD XI, São Paulo, 16 June 2004.

The above example of Serasa shows that determination on the part of commercial banks in a developing country to establish a private credit bureau was enough to develop an elaborate credit information pooling and sharing system. While banks and other financial service providers are the driving forces behind the credit information industry its development is becoming a multistakeholder process whereby suppliers of goods and services and Governments are equally trying to reap the new benefits coming from ICTs and the Internet, which are greatly facilitating the developments in this field.

The proliferation of credit bureaux in developing countries is gaining momentum. An impetus for their proliferation in Asia was the severe financial crisis in the late 1990s. For example, in 1999, the Thai Ministry of Finance initiated with the Government Housing Bank and a local technical partner the creation of Thai Credit Bureau Company Ltd. In 2001 the State Bank of India established a PCR, Credit Information Bureau India Ltd, in cooperation with D&B and Trans Union as technical partners.⁸ Meanwhile, Serasa took the lead in cooperating with other credit bureaux in Latin America and recently initiated the establishment of an association of the Latin American credit bureaux. The existing and emerging credit bureaux develop websites with various levels of functionalities and are actively trying to promote their web-based operations at national and regional levels.

5. Emerging e-credit management and scoring systems for sellers

In domestic and increasingly in international trade sellers themselves provide the bulk of short-term supplier credit. Normally it represents an extension of payment from 30 to 90 days. In many cases, companies still base their credit decisions on traditional confidence-building methods. However, they are often not able to analyse the previous payment behaviour of new customers as they do not have access to formal credit information. As mentioned above, the software and credit risk management firms (credit information and insurance providers) offer a variety of software tools to help companies automate their credit analysis and management processes, which frequently involve internal credit scoring of their customers. Such programs collect and aggregate data throughout the organization and make it available for all departments of companies and especially for those taking decisions to sell on credit. While many SMEs may not be able to afford in-house sophisticated

credit decision systems, large companies may be able to use modern software tools to support their credit decisions and improve the efficiency of their credit and collection functions. Instead of screening each customer manually, the new software programs make it possible to focus only on those that manifest abnormal payment behaviour. Such systems normally make it possible to identify individual delinquent borrowers and treat them on a case-by-case basis (see example of SMEloan in section D.6). In some cases, companies take credit decisions directly while relying on the support of software providers and specialist management consultancies, which help to absorb those programs and adapt them to company internal structures. In other cases companies prefer to out-source the credit management functions to specialist firms or even to banks with which they keep their main accounts.

Financial service providers may also rely on each other's services. The scoring system Scorex is used by some US banks to identify on a daily basis the delinquent borrowers in commercial and retail lending operations, and hence brings about efficiency gains in collection operations. Credit insurers such as Coface, Atradius and Euler Hermes have also developed their own scoring systems (for further details see box 3.3). Another trade finance service provider, the United Kingdom's LTP Trade, has developed an online solution called Trade Edge, which helps companies by hosting an online sales management system that is adaptable to the individual requirements of each company. According to LTP Trade, the system permits companies to adopt electronic documentation and end-to-end solutions, interface with bank settlement systems and integrate with a company's internal or customer systems.

Using credit scoring techniques helps a well-trained and experienced credit manager to predict the behaviour of a client. Managers add to the automatic extrapolation of clients' past behaviour his or her intuition and hopefully knowledge of clients' current status, and thus predict future risks more accurately. Some credit managers believe that a thorough risk assessment with appropriate payment terms and/or financing arrangements might make it possible to forgo, for example, additional costs of insurance policies and/or discounting schemes often loaded on the seller's price.

This underscores the importance of devoting more resources to training professional international credit and risk managers in enterprises as well as in trade

finance departments of banks and in credit insurance and factoring companies. They are the pivots of timely and successful settlement of a trade or financing transaction provided that they have access to up-to-date e-credit information and e-scoring tools. In the firm's strategy, payment terms are part of the marketing approach.

While simplification of the credit managers' tasks in defining buyers' behaviour has increased their productivity, they continue to cover a wide array of tasks, including verification and approving of credit applications, credit limit management, fraud and identity theft mitigation, dispute resolution, document management, deduction and charge-back processing, measuring, monitoring, and reporting on their department's performance.

6. Issues of security and interoperability

As will be shown in the following sections, it is not possible to achieve a meaningful level of automation of the trade process if the online credit information and credit risk management systems are not in place. However, even if the trading parties and their financial intermediaries have enough confidence to run open-account or documentary-collection-based e-payments, they still might be concerned about exogenous risks such as the security and interoperability of IT systems that they use in their everyday operations.

The story of the credit insurer Euler Hermes (see section C), which needed much time and effort to create an integrated system out of three proprietary IT systems, suggests that this is a major issue. According to *The McKinsey Quarterly* (2003), the traditional build-to-order mindset of companies' IT divisions results in too many application silos and hence an expensive IT surplus capacity. With the increasing need to manage web-centred architectures, the IT infrastructure management should be keener to use off-the-shelf, open and interoperable software applications and environments.

Traders, and especially SMEs, have received many proposals by major financial service providers to host their credit information and management operations and provide e-trade finance on a selective basis. Major players, such as e-trade platform specialists Bolero, tried initially to introduce industry standards. However, banks, including even Bolero's major shareholders, were lukewarm towards such an idea. Instead, multiple standards and fierce competition among the

main players for dominant position have characterized the market for quite some time. This forces decisions and gives rise to dilemmas about selecting a platform that is more promising in terms of interoperability with hopefully less risk of making IT investments a sunk cost in a few years' time.

Concerns about security in the case of card-based and other modes of e-payments that need to be protected from cyber attacks (for more details on issues of security and cybercrime see chapters 5 and 6) sometimes bring about a wait-and-see approach by traders and their financial service providers, thus postponing the removal of expensive and error-prone paper-based trade and trade finance.

Among the major concerns of bank regulators when adding new regulatory capital requirements for an operational risk under the Basel II regime were the risks related to securing smooth operation of the banks' IT systems. That involves not only the issues of human errors or cyber attacks, but also those of standardization and interoperability of electronic documents. One of the best examples of such standardization is the SWIFnet, the interbank e-payment system that has proved to be robust and fairly error-free.

Various forums, including those within the UN, have been discussing the issues that relate to achieving paperless trade, with e-trade finance being an important part of the agenda. Thus, in April 2005 the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) launched a new initiative based on international standards and best business practices to replace paper documents with electronic alternatives. It takes the UNeDocs project as the basis for a new global standard. Based on the latest Internet technologies, the UNeDocs standard is supposed to facilitate exchange of fewer but better data, and to simplify trade procedures and increase security. This concept also allows the conversion of e-documents into paper ones in the event that local regulations so require.⁹

The standardization and unification of credit information documents and formats are important for ensuring their interoperability while migrating from one electronic system to another. Those documents should normally conform to such standards as UN/EDIFACT or EbXML (electronic business using eXtensible Markup Language). Further work at the international level might be needed to help develop best practice on the format and contents of credit information data.

C. Extensive use of credit and e-credit information: The case of credit insurance

1. Insuring buyer's risk based on extensive e-credit information databases

Many countries that developed sophisticated credit information infrastructures also built up related credit insurance systems. In fact, the latter cannot exist without the former. Credit insurance is mainly a method of protecting sellers from the risk of non-payment by buyers. The credit insurer needs information on a maximum number of companies in order to extend the geography of risks coverage as much as possible and thus increase the share of so-called general (i.e. not buyer-specific) insurance policies. That makes it possible to expand the business of short-term export credit insurance. Sometimes traders associate export credit with a purely bank credit to an exporter. Meantime, in countries where banks accept the quality of credit insurers, the credit insurance policy issued by the latter frequently serves as collateral while extending bank credit to a seller in the form of pre-export working capital or post-shipment finance. The literature on the subject is not particularly extensive and only a few books have been written on credit insurance.¹⁰ Recently, the Berne Union (International Union of Credit and Investment Insurers), which includes nearly all OECD and some developing and transition countries' export credit agencies (ECAs), has started to publish a yearbook, devoted to the problems of export credit, project finance and investment insurance.¹¹

Currently, the bulk of credit insurance is concentrated in the OECD area and protects sellers from buyer's risk through mainly short-term credit insurance policies. Generally, these policies protect against political risks related mainly to exchange restrictions, war and social conflicts and natural disasters (normally issued by credit insurers but mainly covered by Governments), and commercial risks, including protracted buyer's default to pay due to financial difficulties or outright bankruptcy (risks covered by credit insurers themselves). In trying to issue a general credit insurance policy for a seller the credit insurer is interested in covering as many buyers as he can. But to cover the risk, the insurer needs to have credit information on buyers. Normally, a general credit insurance policy

stipulates that the seller should seek an authorization for the cover for each buyer. If a credit insurer has no credit information on a buyer, he might be reluctant to extend the cover for that individual transaction. Hence, to insure supplier credit the credit insurer needs to construct his own credit information database or buy credit information from credit bureaux. Major credit insurers have already transformed their credit information files into e-credit information databases and as a result can give automatic authorization for a cover if the seller so requests.

It is hard to quantify the exact volume of short-term trade credits extended by exporters themselves. However, it is known that open-account trade constitutes around two thirds of world trade, which is nearing the figure of \$9 trillion.¹² While banks mitigate through letter-of-credit (LC) arrangements the payments risks related to the remaining one third of world trade, the exporters manage themselves the risks related to the bulk of extended, mainly open-account payments by importers. They also mitigate a part of these risks by resorting to such instruments as export credit insurance and factoring (see D.4). Demanding prepayments from importers is recommended for a very few high-risk countries, such payments representing only a very small share of trade-related payments.¹³

It is interesting to note that the short-term credit insurance provided by members of the Berne Union accounts around 7 per cent of world trade. These highly repetitive and automated operations of insuring buyers' risks mainly cover intra-OECD, short-term, open-account trade. In 2003 the volume of short-term export credit insurance was \$570 billion, representing 90 per cent of all credit insurance business (Berne Union, 2005).

The short-term insurance covering risks of importers from many developing countries might be either very expensive or non-existent mainly owing to a lack of credit information on corporate risks in those countries. E-credit information on reliable companies located in relatively risky countries might permit the credit insurer to overrule country limits based on political risk and extend cover for a trade on credit to those companies.

Hence, the important role that credit information plays in credit insurance. It is symptomatic that Atradius, Coface and Euler Hermes, the three dominant players in the short-term credit insurance market, are at the same time the main producers and users of online credit information. Each of them has

access to online credit information on more than 40 million companies (see box 3.3). While credit information is globally available in those companies' intranets, the credit decision on existing buyers that are in the database is normally taken by a branch of the credit insurer that is in geographical proximity to a buyer. Credit insurers collect information themselves as well as sourcing it from credit bureaux (D&B, Graydon), rating agencies (Moody's, S&P) and other sources. For example, when Atradius processes a credit limit application, it has access to information on 45 million companies, while its own database has a capacity of around 10 million companies (Berne Union, 2005, p. 150). Maintaining, upgrading and integrating such sophisticated databases require major investments in IT systems. That is one of the explanations for fierce competition and consolidation of the market for short-term credit insurance, which is so dependent on a wealth of e-credit information.

2. The main features of e-credit insurance

As was noted above, all main credit insurance companies have developed their in-house e-credit information databases on credit risks. They also buy credit information on the market. Both sources help them to overcome information asymmetry and extend credit insurance coverage, issue bonds and guarantees, develop e-credit rating and scoring, and provide credit management services for enterprises. Like credit bureaux, credit insurers update e-credit information on a daily basis. Credit rating or credit scoring

is provided on the basis of analysis of the risks of enterprises present in their e-credit information databases. If the buyers of an insured are not present in the database of a credit insurer it acquires missing credit information from credit bureaux or other credit insurers. In the event of a lack of credit information, the decision to insure a supplier against a given risk is at the discretion of the credit insurer and is determined by various factors, including the risk appetite of the credit insurer. When working with other credit insurers, major credit insurers might also propose a reinsurance capacity.

Typically, the e-credit insurance platforms insure online sellers against the risk of buyers' non-payment. They also provide such services as e-credit opinion and/or e-credit rating. When an enterprise visits the website of a credit insurer it can choose between getting a credit opinion on an individual buyer or subscribing to various credit insurance policies, including the one covering the default risks of all buyers. If those buyers receive a credit rating from a credit insurer, the seller automatically gets the insurance coverage on the former. If that is not the case, the seller can still subscribe to a general insurance policy online, but the cover extension on each buyer would be on a case-by-case basis. Apart from online credit insurance, credit information and rating, major credit insurers can provide electronic receivables (credit) management and factoring services (see section D.4).

The biggest global players in the short-term credit insurance market with a strong presence on the Internet are Coface, Atradius and Euler Hermes.¹⁴ A summary of their business models is presented in box 3.3.

Box 3.3

E-credit insurance: The cases of Atradius, Coface Group and Euler Hermes

Atradius is a renamed version of Gerling NCM, itself the result of a major merger in late 2001. The rebranding of the group was a result of the need to separate credit insurance from other insurance activities of the Gerling group. As a result, Atradius emerged in January 2004 (Atradius, 2004, p. 11) with Deutsche Bank and Swiss Re as its major shareholders.

Having also a major database on buyers and business conditions, Atradius provides e-credit insurance as its main service. At the same time it puts emphasis on diversification into such services as bonding and guarantees, and credit management for enterprises. In addition to online underwriting of credit risks for sellers, Atradius is trying to provide the latter with services to help diminish pressures on working capital and collect debts.

Consecutive mergers of its constituent parts raised the problem of integrating three different IT platforms. The fact that it took two and half years for Atradius to integrate those platforms shows the complexity of this process (Atradius, 2004, p. 98). By the end of 2004 customers and underwriters were able to plug into an online platform with access to information on more than 45 million companies. Access to the new platform is through an interface called Serv@net, which makes it possible to give online credit opinions, get information on claims and perform many other operations. Like COFACE, Atradius extends, if requested, an e-credit insurance coverage for companies that received its e-credit opinion.

Box 3.3 (continued)

One of the successful online solutions launched by Gerling in 2000 was the so-called Trusted Shops Services (UNCTAD, 2002, pp. 143-144). The idea was to give the label of Trusted Shops to reliable e-commerce operators and collect premiums as a percentage of purchase from customers preferring to buy from such shops. Given the problems of reliability and security of B2C e-commerce and e-payments, the project started successfully and by the end of 2004 it had handled risks totalling 250 million euros, covering the increasing number of consumers that are purchasing online. So far, the subscription of online shops to that service continues to double every year and since 2003 the Trusted Shops have been making a profit.²

Coface Group is a leading provider of e-credit insurance, e-credit information and e-credit management services. It is active in developing and transition economies and has set up branches and subsidiaries in 58 countries in Europe, the Americas, Asia and Africa. It has also entered into cooperation agreements with more than 40 local credit information and credit insurance companies. Currently, all Coface branches and partners are hosted together on an electronic intranet in the framework of a network called CreditAlliance. The latter can provide services to customers in 93 developed and developing countries (accounting for more than three quarters of world trade). By running the network Coface and its partners are updating their databases on commercial as well as country risks. Coface backstops network partners if needed by proposing reinsurance: while giving positive credit advice within the network, it automatically extends cover limits. As a global player, Coface tries to be active in the main credit management activities such as information and ratings on businesses, credit insurance, receivables management and factoring.

The Internet-based global product that Coface proposes is known as @rating solution. It is based on an e-credit information database of more than 40 million companies, and bundles both credit information and credit insurance products. The @rating solution is delivered through different products:

- rating *at-a-click* is available on partners' websites (such as banks, factors, institutions, marketplaces), where customers can get a snapshot view of the risk on any trading partner. The service covers 56 countries.
- rating Line is a subscription product which allows customers to manage all their buyers within a portfolio and get ongoing information on the evolution of the credit risk. A specific version of @rating Line has been designed per market segment, from SMEs to MNCs, in respect of which customers can decide whether to get information or insurance services on the portfolio. @rating Line is available in 17 countries.
- Integrated @rating services are embedded in a customer system, and monitor @rating credit opinion so that customers can easily manage their credit risk within their own IT infrastructure.

The above solutions are distributed in the web through Coface's entities » portals, partners » portals and its client extranet called "Cofanet". The latter can be accessed from 50 countries and is available in 16 languages. In addition, with @rating line available through Cofanet the customer companies can manage their contracts online and get the credit rating of their whole portfolio (buyers, debtors, partners). Coface also gives its customers access to the underwriters who monitor risks. That makes it possible to overcome the limitations of country risk considerations when analysing the quality of the corporate risk.¹

Euler Hermes is also one of three major players in the short-term credit insurance market. It was formed as a result of a merger between the French Euler and the German Hermes, and is one of the companies in a leading insurance conglomerate, Allianz Group. It is a market leader with 34 per cent of market share, with a presence in 40 countries and with 40 million companies monitored in its risk database. The bulk of its turnover of nearly 2 billion euros comes from credit insurance. Like its competitors, it provides trade receivables management services to companies, insures sellers against the commercial and political risk of buyers or helps them prevent non-payment risk through credit opinion or credit information services. It also helps customers to collect debts. It has a distinct e-trade finance service whereby its online tool, Eolis, permits insured companies to inform banks that they have credit insurance coverage, and on that basis get a bank credit. Other services include commercial trade debt collection services for companies without a credit insurance policy and a wide range of guarantees and bonding for national contracts or exports.

One of its programmes evaluates the risk of diversified trade receivable portfolios of companies on the basis of its risk database and its own rating programme that gives *grades* to those portfolios. The aim is to propose to banks tools to evaluate trade receivable portfolios and assess suppliers' credit risks when extending a further credit. Like Atradius, Euler Hermes had to face the challenge of reconciling two major IT systems and business cultures. It took some time for the firm to streamline its online communications and in-house IT architecture.

Recently, Euler Hermes established partnerships in Asia to meet the dynamic increase in demand for credit insurance products. Thus, it increased its sales through its local partners such as SGIC in the Republic of Korea, Sinsure in China and the Allianz Mumbai branch in India (Euler Hermes, 2005).³

¹ See www.atradius.com.

² See www.coface.com.

³ See www.euler-hermes.com

Normally, when a major European export credit insurer provides positive credit information to credit insurers from developing or transition economies it also tries to offer a reinsurance capacity to the latter. Some of them are building up their databases on debtors by accumulating in-house information and buying the missing parts in the credit information market. They also join various international networks or cooperative arrangements of credit insurers such as Credit Alliance.

The major e-credit insurance companies' best practices do not preclude the possibility of starting to develop local e-credit information and e-credit insurance capacities based on such advantages as local knowledge and proximity to clients. The example of early transition economies in Eastern Europe, which successfully managed to develop from scratch rather elaborate systems, including in some cases a twin system of local export-import bank and national credit insurer (Czech Republic, Hungary), is a striking one.¹⁵ It is symptomatic that the new Berne Union members and other credit insurers from the emerging economies have organized their own subgroup called the Prague Group. The latter is a conduit for transferring the best practices of the leading members of the Berne Union to those that are at the beginning of the learning curve.

Another striking example was the development of credit insurance in Asia. Thus, India, China, Thailand, Malaysia and other countries have developed national export credit agencies focusing on insuring national exporters against possible defaults of foreign buyers.¹⁶ All of them are building up online services locally and are trying to join various regional and global networks. While the Indian Export Credit Guarantee Corporation (ECGC) and Malaysia Export Credit Insurance Berhad (MECIB) are already established institutions and are instrumental in supporting exports of goods and services especially by SMEs, the China Export and Credit Insurance Corporation (Sinasure) was created only in December 2001 and took over the nascent export credit insurance businesses of the People's Insurance Company of China and the Export and Import Bank of China. Meanwhile the Thai model of credit insurance continues to develop under the roof of the Export Import Bank of Thailand. Interestingly, Thai banks in cooperation with the Eximbank extend credit insurance policy to their clients that cover not only buyers' risks but also buyers' banks' risks.

The process of creation and development of credit insurance and credit information in other countries of

Eastern Europe, the CIS, Asia and Latin America is also under way. However, the situation is worse in that respect in Africa, and especially its sub-Saharan region. To mitigate political risks of countries in that region the World Bank helped to create in 2001 the African Trade Insurance Agency (ATI). With the financial backstopping of the World Bank, ATI increases reinsurance capacity through Lloyds in the reinsurance market.¹⁷

Unfortunately, the majority of developing and transition countries do not yet have credit insurance facilities. PCR frameworks are also still at a nascent stage in those countries and they dispose of only limited information on bank borrowers. Many countries are just starting to take steps in building credit information, credit insurance and other trade-finance-related facilities. Others already engaged on that path might still need a real impetus to make those institutions truly operative. Well-functioning national credit information systems and efficient linkages with sources of information on foreign risks are crucial for managing financial risks and, in particular, creating credit insurance facilities.

Given the lack of legacy electronic systems for both credit information and credit insurance in many developing countries, it is quite feasible for them to start from the outset using Internet-based electronic platforms to accumulate information on credit risks or to extend e-credit insurance. Such platforms are easier to link to major ones, as small credit insurers need the reinsurance capacity of major credit insurance or reinsurance companies. By joining such major e-credit information databases they may start getting online reinsurance cover for their insurance policies. Initially, that would be policies issued for local traders selling to OECD or other low-risk markets. With more positive experience the appetite for higher risks will increase.

D. Trade-related e-banking and other e-finance

1. E-payments and trade

E-credit information and e-credit insurance are the means to improve asymmetrical information on enterprises as credit risks, and hence their access to suppliers' credit or trade-related finance and e-finance provided by financial intermediaries. Banks are continuing to play a decisive role in trade-related

payments and finance and will probably try to maintain a similar role in the emerging world of e-payments and e-finance. They are the main users of credit information and credit insurance products when deciding whether to extend a trade credit to an enterprise. They also have their internal credit reporting systems, accumulating information on the credit-worthiness of borrowers. In the event of a lack of trust in respect of buyers, banks replace the buyer's risk by switching it to a bank's risk, for example by introducing documentary credit (letter of credits or L/Cs) as a method of financing international trade (this mode competes with credit insurers who support open-account payments in international trade). Trade finance providers and facilitators are moving online not only to overcome information asymmetry at lower costs, but also to actually provide finance at less cost through the more extensive use of e-payments, e-banking and e-trade finance techniques. According to Visa, a 10 per cent increase in e-payments in the United States might be translated into economic growth of a half per cent.

According to the Boston Consulting Group (2004), competition among banks and between banking and non-banking institutions in capturing increasing domestic and international payment traffic will further squeeze transaction margins and force further innovation and active use of online payments. The payments will become more customer-driven, with customers demanding a more holistic approach to their payment needs. To stay competitive, the banks will be forced to further participate in multibank e-payments models or engage in those run by third parties. In that respect, it is interesting to note that in spite of initial difficulties at the beginning of this century with the migration of SWIFT (Society for Worldwide Interbank Financial Telecommunication), the biggest interbank payment system, to the Internet-based SWIFTNet e-payments network, the process is well under way now. Ninety-five per cent of banks belonging to SWIFT have migrated to SWIFTNet and applied to SWIFTNet Link, a mandatory software product providing minimal functionality and interoperability to the members of the network. The Link offers to SWIFT users single-window access to SWIFTNet.

This section will consider progress in e-trade finance by reviewing leading bank-based and specialized e-trade finance platforms, factoring and e-factoring services and card-based solutions, with a focus on SMEs. It will also review several examples of best practices in developing countries.

2. Bank-based e-trade finance platforms

The bank-based e-trade finance platforms (see below) and so-called integrated trade finance platforms (see next subsection) are basically competing models. While the latter stress that they can provide services to major companies that prefer to work with several banks, the major banks also try to provide technology support to other banks or to banks of their major clients, so as to overcome the limitations of the monobank model.

Leading banks in trade finance such as ABN AMRO, BNP Paribas, Citibank, HSBC, JP Morgan, Standard Chartered and others have created their own electronic platforms for documentary credit and open-account e-payments to meet the emerging requirements of their corporate clients, including both large companies and SMEs. While major banks tried to persuade their clients to concentrate all their trade finance operations on their bank's platform (the so-called monobank solution), they realized that they had to adapt to their major clients' desire to work with several banks, that is through multibank channels. While developing their own e-trade finance platforms, banks tried also to develop interfaces to fit in the automated corporate supply channels of transnational corporations and primarily those of their payables, receivables and cash flows. To follow those major companies, banks try to make sure that their platforms are interoperable with those of their clients and hence are able to enter into collaboration with them. Alternatively, the banks have entered into collaboration among themselves to create such platforms as Identrus and Bolero (see next subsection), trying to present ready-made multibank platforms to the corporates.

It is still early to predict which model will prevail. It is probable that they will coexist, as all major banks specializing in trade finance have very strong and long-standing brand names and will try as much as possible to retain customers, especially local and regional companies, within their systems, while trying to collaborate with major ones on the margins of their systems. Moreover, some banks try to leverage on their leading position and render online services to other banks and financial institutions. Thus, JP Morgan, the leader in clearing arrangements, launched in 2004 a Global Payments Infrastructure (GPI) hosting a clearing processing solution for other banks and claiming to help reduce unit costs per transaction and increase

capabilities, while maintaining regulatory compliance and mitigating risk.¹⁸

A typical major bank-based e-trade finance platform would include functions such as documentary and open-account e-trade finance and payments, e-credit protection, e-discounting and others, regardless of their proprietary structure (monobank or multibank or other). Web-based solutions of banks include transaction initiation, shipping document preparation and outsourcing, supply chain e-financing (i.e. discounting of payables and receivables), information on progress of transaction and payments, and linkages with logistics providers (Tagart, 2004). Some of them try also to provide e-credit protection. Storing the most important data in electronic templates helps to generate various trade-transaction-related e-documents and e-mail it to counterparties. As a result,

common electronic data reduce discrepancies. For example, banks help exporters sell on open account to prepare online collections orders, invoices, packing lists and bills of exchange. Viewing online the delivery status of trade-related documents includes examination of the state of documentary credit (DC) and that of outstanding trade bills. Saving the templates of commonly issued DC types make it possible to reuse them, thus saving time for future applications. According to the banks, the automated document preparation and compliance, straight-through processing (STP) and integration with the back office improve the level of data integrity and lead to significant cost savings and efficiency gains for both parts of the trade transaction.

Box 3.4 presents two quite typical examples of major bank-based online trade finance platforms.

Box 3.4

Bank-based e-trade finance platforms: The cases of JPMorgan and Standard Chartered

JPMorgan Chase is one of the leaders in the banking industry and especially in trade finance. It has developed a major e-trade finance platform providing e-payments and e-finance services not only to traders but also to other banks, thus trying to overcome the limitations of the monobank solution.

When the client is another bank, hosting of e-payment technology can be provided on a private label basis. The client bank then offers the service onwards to its corporate clients. The JPMorgan service is thus "seamless" and the client bank does not consider it a competitive threat. Alternatively, solutions can be provided directly to corporate clients.

An example of a JPMorgan product is the so-called TradeDoc, which prepares online commercial trade documents, including presentation and negotiation of L/Cs on behalf of the client. Thus, in the case of L/Cs, while the customer provides information related to documentary credit and shipment, the bank prepares those and other documents, including the third party documents. Documents are available for viewing in a so-called Trade Information Exchange. According to JPMorgan, that makes it possible to undertake end-to-end solutions, identify through a built-in comparison engine potential discrepancies, improve cash flow, negotiate L/Cs through JPMorgan global interfaces, and allow for remote printing and for transmitting to Bolero-compatible documents.¹

Standard Chartered set up an elaborate e-trade finance platform called B2BeX solution. The platform is an integrated system permitting customers to transact with all their buyers, suppliers and service providers.

Customers can create and submit electronic applications, communicate deal messages and keep accurate records. The Hong Kong Monetary Authority, the regulator overseeing the implementation of the platform, stipulates that all transactions be kept secure and confidential using the latest Internet technologies.

In addition to trade finance documents such as L/Cs, export documentary collection, orders and guarantees, the platform prepares the other documents related to the trade chain, thus also playing the role of a trade facilitator.

The client can retrieve L/C data from its back office and e-mail it to the B2BeX Trade Banking system. The latter will have entered the data into L/Cs, prepared for the client's review. The "Transaction in Process" and "Signature Required" pages allow clients to download and print selected documents in the PDF format. The bank encourages trading companies to assign a system administrator, overseeing the whole process of trade and e-trade finance transactions related to their companies. The bank also provides them with real-time reporting on the status of the e-trade finance process and that of other trade-related documents. The e-banking capabilities permit to follow that process from any point in the world.

According to the bank, the B2BeX is aiming to halve for its users the cost of managing international trade associated with the paperwork. It is believed to have actual savings of 25 to 50 per cent in trade processing and documentation costs. B2BeX is currently available in Singapore, Hong Kong (China), the United Kingdom and the United States, with plans to make it a global network.²

¹ See www.jpmorgan.com.

² See: www.scb2bex.com.

The above-mentioned solutions are typical ones for major banks active in e-trade finance. After the first wave of major investments before the dot com crisis and difficulties with moving clients online, the major banks are starting to reconsider e-trade finance platforms as a means of retaining corporate and especially SME clients, and creating an interface of collaboration with major companies. Another service that banks also propose, and in respect of which they compete with credit bureaus and credit insurers, is the credit management services to companies and especially SMEs. They host on their websites various predictive credit scoring techniques and permit SMEs managers to assess their buyers' creditworthiness and to take credit decisions.

Also, banks try to upgrade and improve their e-trade finance platforms by responding to the challenges of specialized e-trade finance platforms that stress the usefulness for major enterprises to work with several banks while undertaking trade operations on credit. As the following subsection will show, the banks' platforms have several features in common with those platforms and are competing with them to attract the attention of companies seeking e-trade finance.

3. Specialized e-trade finance platforms

Attempts to get rid of paperwork in international trade have been ongoing for some time, but success rates still fall short of initial expectations. Hundreds of billions of dollars are still spent on paper related to trade contracts, invoices, payments, transportation, customs, and so forth. For some years now, integrated e-trade finance electronic platforms such as Bolero, Tradecard and Global Trade Corporation (GTC, formerly CCEweb) have been trying with mixed results to contribute to that end (see *E-Commerce and Development Report, 2002*, chapter 6). The main reasons for their difficulties are overoptimistic expectations that companies would move swiftly from trusted and legally tested paper-based trade finance documents to electronic ones. The latter initially look complex and raise questions for companies as far as their security and legality are concerned. Lack of industry standards, complex workflows of online e-trade finance transactions, the need for major investments in new models, uncertain volumes of future operations and the hesitant behaviour of banks are also among the reasons explaining the difficulties in this process.

Meantime, the above integrators realized that they have to work for quite some time in markets characterized by multiple standards of market players and various client preferences. The initial investments, say by Bolero and its shareholders, in overambitious models such as electronic bills of lading did not translate into the emergence of standards for the international trade community. This became partly a sunk cost and partly helped architects to update designs, permitting more adequate assessment this time of the perceived behaviour and needs of potential customers.

The common feature of such integrated e-trade finance platforms was that e-documentary credit or open-account e-payments are reconciled on an electronic platform with other key standardized documents of international trade, including contracts, invoices, packing lists, bills of lading, cargo insurance, customs clearance, and so forth. Automated compliance checking and e-credit management are supposed to be a part of the process. The standards of messaging and their security should have also played a primordial role here. These platforms tried to create a workflow of the above documents in a smooth and quick manner and achieve savings resulting from a lack of delays in goods and services delivery and prompt payments through electronic means. Some of them even try to integrate with the traders' enterprise resource planning (ERP) systems. Given the fact that the majority of documents in the L/C payments have to be prepared by the exporter and that it is in the interest of the latter to speed up the e-payments, some of those platforms try to focus on the needs of the exporter. In particular, they provide tools for collaboration with all parties in transactions and inform them regularly of the status of the flow of goods and payments. Preparing a master document reflecting a maximum amount information on the transaction in the case of open-account payments also helps them facilitate the creation of documents for third-party trade service providers. As box 3.5 shows, all of them are multibank platforms, that is they permit companies and their banks to work together on the same platform.

As the e-trade finance technology platforms have not yet matured, there are concerns about interoperability between platforms. Hence, a wait-and-see attitude prevails among banks and corporations. Nevertheless the platforms described above are trying to adapt their business models to the challenges of online markets. At the same time it is difficult to make any judgement about the rate of their success, as they

Box 3.5

Integrated e-trade finance platforms: Bolero, GTC, Tradecard and Visa Commerce

Bolero (Bill of Lading Electronic Registry Organisation) of the United Kingdom was created in 1998 by SWIFT (the leading interbank payment cooperative) and TT Club (the leading transport and logistics industry association). Bolero's value added was supposed to be improvements in operational efficiencies, better cash flow management and optimization of the working capital needs of clients. However, its initial investments aiming to make its electronic bill of lading an industry standard have not yet achieved the initial aim. Its so called Trusted Trade Platform is hosted and operated by SWIFT, which processes e-trade and e-trade finance electronic documents issued by banks for companies that have agreed to work through Bolero. The Platform functionalities include security of messaging, standards of messaging, rule book (legal standards), title registry, reconciliation and compliance engine, and workflow management. While its back-office layer ensures connectivity, gateways and integration tools, the web access layer hosts Bolero applications, configures user experience and defines workflow parameters. According to Bolero, its financial supply chains provide cover from procurement to payment for the buyer and from order to cash for the seller.

The Bolero e-trade finance applications are mainly presented as neutral, that is multibank automated solutions, and have suites for open-account and documentary credit operations. In the case of documentary credit it provides a bank-neutral documentary credit applications and standards, permitting traders to use those L/C applications with many of their banks that can issue and advise e-L/Cs on the Bolero platform. The Bolero suite also permits automated compliance checking and credit management in a mode of seamless multibank use. Apparently, it is also able to provide its web application for individual bank-offered solutions.

As there are no data on the volume of Bolero operations and number of its clients, it is hard to assess the real growth and volume of its operations. It is worth mentioning the intention of Cargill, a major trader, to process through Bolero eL/Cs and other e-documentary collection.

GTC (Global Trade Corporation) of Canada, formerly known as CCEWeb (see UNCTAD, 2002), has changed its business model during the last two years and now competes more with Bolero than with TradeCard. Here also one might observe a trial-and-error process.

While Bolero still tries to promote its own model and at the same time accepts documents in eUCP of ICC, GTC adopted the strategy of accompanying eUCP documents by providing multibank solutions of e-trade finance document workflow centred on the interest of the exporter.

According to GTC, eUCP is not yet a common instrument, since owing to customs and legal requirements (for example, to legalize the document), importers continue to ask banks to issue mainly traditional UCP-based L/Cs. Thus, it is the exporter who should be more driven to make eUCP-based eL/C and other e-payments an industry standard, as the cost effects due to diminished lags in payments and risks of discrepancies might be promising ones. Exporters have to produce six out of eight types of papers in the L/C-based trade chain as soon as they get acceptance from their advising bank of the letter of credit issued by the bank of the importer.

GTC launched last year its GlobalTrade eL/C Delivery and Document Preparation and Collaboration systems, which according to it represent a multibank and multicompany electronic platform permitting collaboration between different parties in both open-account and L/C workflows. The eL/C here could be issued in structured MT700 format, whereby data could be instantaneously captured and monitored and where third-party paper documents are usually not required. In an open-account workflow parties use a master template from which the information migrates to other documents, including those related to trade service providers (freight forwarder, insurance, inspection) and to the buyer's bank. In eL/C workflow the information from the L/C is automatically mapped into the master template and from there to all other document templates (certificate of origin, bill of lading, etc.). The eL/Cs are available online for review by seller's departments worldwide. The GTC platform also provides tools for collaboration between the relevant department of the seller and third-party documents issuers such as freight forwarders and chambers of commerce. GTC is monitoring the state of eL/Cs and alerting parties by e-mails about their status. The possibility of converting documents from Word to PDF and XML and printing documents in PDF format is important for countries that have the habit of legalizing paper documents. As a result, according to GTC its platform makes it possible to reduce operational risk owing to compliant electronic documents, on-time presentation and improved monitoring and control. Reducing the number of days sales outstanding (DSO) makes it possible to achieve costs savings for a client. The GTC systems have been live since October 2004 with four banks and large corporate clients such as Daimler, Siemens and Chevron Texaco.

Tradecard Inc. of the United States also started in the late 1990s by providing online e-trade finance to buyers, sellers, and financial and logistics service providers in an environment of a centrally managed system. TradeCard created and copyrighted analogues of L/C and other trade finance instruments, trying to provide them in a bundled manner and to host on its platform all parties involved in trade transactions. Tradecard claims that it creates trading communities and thus achieves an economy of scale effect.

According to TradeCard, it integrates automated financial services for buyers, sellers and partners, making processes visible, mitigating risk and improving cash flow. Having a platform that is integrated with financial service and third-party trade service providers, it connects traders from procurement to completion of payment online.

Connecting trading partners through a web browser, TradeCard can also integrate with ERP back-end systems, which implies that there is no need to change technology or business processes.

Box 3.5 (continued)

All parties apparently have access to view and amend documents as the transaction progresses and thus customize their workflow. As each step of a transaction progresses, TradeCard automatically alerts the next party via e-mail. Its three online modular services, which build upon each other, include trading partner management purchase order management, electronic invoicing, ERP connectivity), accounts payable/accounts receivable management (electronic checking of patented document compliance, online discrepancy resolution, payment decisions and schedules, warehouse reconciliation and chargeback management) and financial management (money movement, online credit protection, online export financing, early payment programme).¹

Visa Commerce is an open, Internet-based B2B non-card e-payment solution developed by Visa International, a major card and e-payments solutions provider. It permits buyers and sellers via their banks to initiate and request e-payments, access all related transaction details and store and forward payments. Development of the Visa Commerce platform was completed in late 2003. Several domestic and cross-border programs are currently in pilot.

In essence, Visa Commerce addresses the companies and public entities need for a large-value, global business-to-business payment solution. Buyers and sellers utilize the Internet either to access the graphical user interface (GUI) in order to initiate payments, or perform file transfers directly from an organization's enterprise system for multiple payments. The system supports straight-through processing and provides visibility into payables and receivables for improved working capital management. This straight-through processing, combined with enhanced data and controls, provides a new solution not currently available with traditional methods of payment such as cheques, ACH/EFT and wires.²

¹ For further details see www.bolero.net, www.globaltradecorp.com and www.tradecard.com.

² See www.corporate.visa.com.

have not yet released data that make it possible to assess their operative and financial results.

Mention should be made of the differences in financial management between GTC and Tradecard. While GTC is concentrating on automating the flow of accepted e-LC models, Tradecard is replacing them by creating the analogues of credit insurance, export financing and factoring services on its platform. In the case of seller's paper discounting it also transfers the discount to the buyer if it was actually the latter (and not the factor) that made the early payment. Also while GTC is targeting exporters as a driving force in its model, Tradecard actually tries to persuade major companies to have at their disposal an automated financial supply chain to source products and services from a variety of mainly SME suppliers by taking all of them on its platform. At the same time trying to lock in all parties on one platform inhibits the flexibility of traders and banks and could serve as a barrier to participants when deciding between flexibility and lock-in scenarios.

As was mentioned above, in international trade documentary credit-based payments still capture around 30 per cent of all payments, with the rest going to mainly open-account operations. The platforms described above are trying to make e-documentary credit a prevailing mode in L/C business. There are

also some other smaller entities trying to make inroads into this relatively new area. At the same time major changes and more realistic approaches to the standardization of the market suggest that the process is not an easy one and that further time is needed to assess the longer-term implications of the above models and others.

4. Factoring and e-factoring

One of the rapidly developing industries in trade finance is factoring. It is based on the principle of discounting sellers' accounts receivables without recourse. In other words, the factors are buying at discount the sellers' claims on buyers and then through their own network make sure that they will collect the totality of debt from the buyers. If a buyer defaults, the risk is assumed by the factors. The viability of this business model is based on minimizing the problem of information asymmetry for buyers. For that to happen, factors build up credit information on buyers to make sure that their credit risks are well managed and that they can propose to sellers the service of discounting their commercial paper. The status of factors is interpreted differently in various countries. In some they are considered part of banking that is subject to Basel II capital requirements and supervision, while in others they are considered

receivables financiers and hence are not subject to the restrictions of Basel II (World Factoring Yearbook, 2004, p. 5)

When “factoring” accounts receivables for a seller of goods, a factor (export factor in international trade), through a network of its peers, normally has a counterpart factor (import factor), normally in the buyer’s location (or country), responsible for the collection of debt from the buyer. Factors try to render the service of secure payment in the shortest possible time. Their closest competitors are credit insurance and L/C business. The fees paid to a factor represent a service charge for the risk protection service and for the collection service and an interest rate covering the post-shipment period from financing date until the time of actual collection. The biggest international association of factors is Factors Chain International (FCI), capturing globally more than half of the market that in 2004 stood at \$438 billion (of which only 44 billion was export factoring with the FCI share reaching 64 per cent). Nearly 200 factors (and banks offering a factoring service) have joined the organization, which covers 59 countries.¹⁹

FCI has developed for its members a centralized Internet-based system of electronic communications, obligatory for the members of FCI and reminiscent of SWIFT in banking. The system is called “edifactoring.com” and is run through FCI servers with central processing, reporting, message validation and delivery. It can afford an unlimited number of simultaneous users and is available to members at no charge. Members need only a browser to use it. While in the past information has been exchanged by mail or fax, it is now exchanged exclusively through EDI format. Information about all the factored invoices and cooperation with a multitude of correspondent factors are all reflected in edifactoring.

It is interesting to note that factors are combining the functions of risk protection, financing and collection and as such they have first-hand information about the buyer’s payment behaviour. According to FCI, since they are exposed to the trade transaction, factors know about a buyer’s payment problems before that information reaches credit bureaux. At the same time it is quite difficult to persuade factors to share their credit information databases on buyers as they consider this knowledge to be their know-how and competitive advantage.

The number of factors, be they a branch of a bank or an independent factor, is proliferating in developing

and transition countries, with some of them ready to join the ranks of FCI.

5. Using payment cards as e-trade finance solutions

Company managers as well as government employees are using payment cards more frequently to meet their office and other working capital requirements. The credit limit of the cards could be interpreted for the purposes of our analysis as a short-term trade-financing device for relatively small purchases. The purchase credit cards provided to company managers reflect the trust of banks issuing cards in the credit-worthiness of their clients. In the case of government employees it is more an issue of government’s controlling office expenses. Card purchases simplify the procurement process by combining in one card operation such functions as purchase order, receipt, accounting and payment.²⁰ For example, on average US officials have a limit of \$25,000 per card. However, in exceptional cases some government offices and high-level officials are authorized to make much larger purchases by payment cards. All main card companies, such as Visa, Mastercard, American Express and others, have various levels of involvement in this type of card-based small ticket financing.

For example, Visa, one of the major card and other e-payment solutions provider, has recently developed several projects for businesses and Governments to facilitate the above-mentioned card-based small ticket e-payments such as purchase cards for Governments and businesses. The Visa government cards are issued in the United States, the United Kingdom and some other countries. While US-based purchase cards have rather high credit limits those accepted in other countries could have considerably lower ones.

Visa also cooperates with the US Small Business Administration in extending through Wells Fargo Bank purchase cards to US SMEs. Wells Fargo has developed with the help of Fair Isaac a proprietary credit scoring system tracing the payment behaviour and reliability of SME cardholder managers. The latter can also use the payment card to meet some of their working capital needs on a recurrent basis. Similar programmes for financing SMEs supported by development or commercial banks in the United States and developing countries could be categorized as short-term e-trade financing programmes. Thus, Visa-card-related programs involve such banks as the Puerto Rico Economic Development Bank

(see below), the Brazilian BNDES, the Indian ICICI bank and some others. Other card-based projects include that of Banco do Brasil.

It is interesting to note that enterprises in developing countries that operate in the informal economy and still keep bank accounts might have access to debit cards. Some of the banks that issue debit cards for such SME businesses trace their payment behaviour through the use of those debit cards. By then applying behavioural credit scoring methods the banks might even take eventually decisions to issue credit cards to businesses with good behavioural patterns, thus permitting the latter to use those cards and meet a part of their working capital financing needs.

Card-based e-trade finance project: The case of the Puerto Rico Economic Development Bank

Established in 1985 as a government bank, the Puerto Rico Economic Development Bank (EDB) re-engineered itself in 2002 to meet the borrowing requirements of SMEs through the use of modern card-based e-trade finance tools. Using Visa payment cards, EDB established unusually high credit limits of \$25,000 for SMEs, permitting expenditures on working capital and general expenses. Thus, it created so-called enterprise and agricultural business cards, permitting SMEs to use these cards as an important instrument to borrow and to buy inputs, including small-scale machinery. The card-based payments were decreasing the bank's costs related to the renewal and disbursement process of an ordinary credit. As EDB was not a commercial bank and could not be a direct issuer, it hired Banco Popular of Puerto Rico as a servicing bank. Visa agreed to accept EDB business card as a co-branded card. In the first year of the pilot the EDB issued 529 cards to SMEs. Thus, the new system whereby EDB approves or refuses the credit within 48 hours has replaced the old cumbersome and lengthy process of credit disbursement. After approving a credit application EDB notifies the servicing bank that issues the card. In two business days the SME receives the card from the servicing bank, and it can be activated by a toll-free call with a credit line advance embedded in the card. In other words, it takes five working days from approval to disbursement of the credit limit on the card. To centralize the credit process, manage good credit and achieve low delinquency rates, EDB was using the Fair Isaac Liquid Credit Desk scoring system, maintaining ongoing communications with customers and performing

monthly reviews of portfolio to quickly detect behavioural patterns. As a result, EDB increased its clientele and efficiency, saved \$300,000 in overhead costs and greatly improved its image. To backstop the venture, EDB had obtained the support of public guarantee funds, which however have barely been used.²¹

Given the fact that Puerto Rico is in geographical proximity to the Central and Latin American region, its experience can be adapted for developing countries with a strong presence of local development banks. The following subsection considers several examples of e-trade finance platforms in developing countries.

6. Selected e-trade finance platforms of developing countries

Developing and transition economies, and especially so-called emerging economies, are quite active in e-banking services and many of them have developed online services in payments and trade finance to support national exporters or to provide high-quality services to importers. In large countries online services exist also in domestic trade finance. The examples below show some of the best practices in various regions.

ICICI Bank (India)

One of the most advanced banks in terms of online financial services in Asia is ICICI Bank of India. It has developed quite elaborate e-trade finance services for corporates with a special suite devoted to SMEs. Its e-business suite includes such services as Internet banking, forex online, debt online, bill payment, cash management and trade services. Its online trade services make it possible to submit an online application for a L/C, view details of e-L/Cs, or e-bank guarantees, bills outstanding, forward contracts and other e-payment and e-trade finance documents prepared by ICICI on behalf of its customers. ICICI Bank tries to provide a full range of financial services for Indian exporters, including pre-shipment finance such as export packing credit; negotiating L/Cs with issuing banks, despite discrepancies in the document, to accelerate approval and payment; taking part of payment risk by discounting against sanctioned credit limits of the exporter's invoice in an open-account operation; advancing rupees against export bills; collecting payments within documentary collection activities; arranging for forfeiting export bills without

recourse; and issuing bank guarantees. Having a wide network of corresponding bank relationships, ICICI Bank also supports Indian importers by issuing L/Cs, providing import collection bill services, advance payment towards imports, and so forth. It also claims that it can arrange for Indian importers a supplier or a buyer credit from an exporter or its bank at competitive interest rates.²²

Development Bank of the Philippines and Smetrix

The Development Bank of the Philippines (DBP) in a partnership with a local company called Smetrix proposed an online trading system for SMEs. The Securities and Exchange Commission has approved the system. This online e-trade finance marketplace is intended to provide the possibility of raising capital for companies by selling their receivables to banks and other major financial institutions. The time required for confirmations and authentication among trading partners is intended to be minimal and the lending to SMEs will mainly come from an electronic financing facility. DBP has already launched several projects to boost the use of information technology for local SMEs. The bank has chosen educational institutions to provide assistance to SMEs and specifically those in rural areas.²³

This interesting initiative is based on an earlier Smetrix B2B trade and e-trade finance clearing-house proposal, which was aimed at addressing the problem of more rapid and less costly access by SMEs to trade finance through the creation of a global e-supply chain in which a central clearing house handles the problems of authentication and risk assessment of SMEs. Central to this approach was the proprietary Implementation Document Hub system, which enables the creation of legally enforceable trade documents in a digital form. The clearing house permits SMEs to have their online receivables discounted, or to receive structured finance (handling the risk of a given transaction) from a participating bank, or to securitize those receivables, capitalizing on the higher corporate rating grades of their major trading partners.

A major technology provider has been selected to support digital warehousing of the trade documents as well as interfaces with payment systems, while an international bank plays the role of the central registry for the originated trade receivables/securities. A major Philippine multinational has also agreed to be the first user by bringing its trading community into

the marketplace. It was anticipated that when the transaction history of the SMEs is built up, the information could be the starting basis for the online credit evaluation system for the SME receivables.

SMEloan of Hong Kong (China)

SMEloan of Hong Kong (China) and its technology solution company called Maveo Systems Ltd created a web-based software and its operating model called Maveo Regulator, which captures in real time the cash flow and business performance of the borrower SMEs. That permitted SMEloan to lend directly to Hong Kong (China) SMEs using its cash-flow-capturing method. To start lending, SMEloan requires information from a borrower, such as its bank statement, sales and debtor details, current loan obligations, and ID card information of all owners and directors. The credit risks of borrowers are evaluated online on the basis of the ongoing submission of sales, receivable and buyer collection. Borrowers performing out of the norm will be flagged and followed up, with creditors thus being able to adopt a more proactive risk management approach.

The success of the method attracted the attention of the International Finance Corporation, which provided a loan for this business model development. The new element in SMEloan activities is that after the initial success of lending it started to insource the SME lending services of major banks. Thus, one of its first turnkey loan services is provided to SME clients of Standard Chartered Bank (Hong Kong). The OCBC bank of Singapore also selected this lending model, which complemented its approach to lending to SMEs. By offering cash flow lending called “business cash financing” in Singapore, OCBC hopes to expand its ability to service the SME market segment.

The experience of these e-trade finance platforms from developing countries shows that they are able to compete with major providers of similar services in terms of the use of sophisticated web-based technologies, which make it possible for example to undertake e-trade finance operations (the case of ICICI bank or SMEloan) or to replicate an integrated platform to reconcile various online trade operations, including e-trade finance (DBP and Smetrix). That proves the ability of many developing countries’ operators to apply state-of-the-art technologies provided that they have enough resources to access them. At the same time in some cases they might need to be supported by well-targeted technical assistance in the initial stages.

E. Conclusions

The rapid dissemination of ICTs and the Internet are opening up new prospects for diminishing information asymmetries between creditors and borrowers. In the context of the developing and transition countries this opens a new window of opportunity for local companies to improve their access to trade finance and e-finance by developing credit and e-credit information infrastructures. To achieve this end, regulatory and business environments in developing countries should quickly adjust to the requirements of such systems. The following are the major considerations that should be the central elements of this agenda.

➤ Potential of ICT tools and the Internet

The potential impact of Internet technologies should motivate policymakers in those countries to accelerate improvements in the regulatory and institutional environment and encourage enterprises to report on financial data, as well as financial institutions to share data on customers. As a result, a culture of credit information sharing and pooling might emerge. That in its turn should improve transparency and underpin the development credit infrastructures. Coupling the benefits of ICT with the requisite institutional changes in the developing countries will not only improve access to modern finance and e-finance for many enterprises in the formal sector, but also encourage migration of enterprises from the informal to the formal economy.

➤ Establishing credit information institutions and improving the quality of credit information

Building up e-credit information as part of local financial services and greatly improving the supervision practices would be essential steps in the right direction. In that respect, a good start would be the establishment of private credit bureaux by financial service providers such as banks, but also local credit insurers or debt collectors. Establishment of public credit registries by central banks, obliging commercial banks to share at least among themselves both positive and negative information on borrowers, could

also be a part of that process. At the same time developing such institutions as company registries, independent arbitrage with publicly available court decisions, and legal, accounting and audit services of international standard, would be the elements necessary for ensuring the required level of credit reporting and improved quality of credit information. As a result of the creation of credible and verifiable electronic credit information databases on corporate financials and their current payments behaviour, local and foreign banks and other financiers will be able to express a clear interest in providing local enterprises with trade finance and e-finance as well as such specialized forms of finance as credit insurance, bonding, factoring and leasing.

➤ Leapfrogging to modern know-how and technology

Without the existence of highly developed systems of credit reporting and information, the credit industry in developed countries would probably have been of a smaller size, and given the importance of credit in creating an effective demand, one could argue that without access to credit it is doubtful whether those economies would have enjoyed such dynamic development and have been as mature as they are today. The challenge is to replicate in a historically shorter period the value generation functionalities of credit and credit information in developing and transition economies by using the qualitatively higher level of technologies of modern ICTs and the Internet as offered by e-credit and e-credit information applications and platforms.

➤ International support

To achieve that end, many countries considered as acceptable risks should link the mobilization of internal resources devoted to the development of credit infrastructure with a wide array of arrangements involving foreign specialized financial service providers and other investors. In the case of countries considered to be high investment risks by the latter, major efforts, including international public-private partnerships, technical assistance and other capacity-building, should not be spared.

Annex I

Discussing e-trade finance at UNCTAD XI

One of the parallel events of UNCTAD XI in São Paulo, Brazil, in June 2004 was devoted to the prospects of development of e-credit information systems and trade finance and e-finance for SMEs.²⁴ Participants from leading credit information and credit insurance agencies, banks and others exchanged information on their achievements and problems, and ideas about the ways forward in this new and promising domain. One of the main discussion topics was the issue of better risk-sharing arrangements between banks, credit insurers and credit bureaux in providing trade finance and e-finance to enterprises. Participants agreed that ICT and the Internet being per se concepts of networking and collaboration can become a platform for collaborative credit risk management and e-trade finance systems, in particular involving four groups of actors in international trade: (i) creditor banks; (ii) credit information, rating or credit insurance agencies; (iii) trading enterprises; (iv) and their associations.

At the same time participants stressed that risk-sharing arrangements can work only if there is accurate, timely and reliable information to assess credit risk, whether the assessment is by banks, credit insurers or others. To overcome these information asymmetry problems, targeted efforts, including steps to improve data, such as corporate registry data, data on collateral and court data, and to achieve good credit reporting were suggested.

While a bank offers a trade credit to a rated enterprise it still assumes the borrower's risk of default. Only when a borrower is a seller and has a credit insurance policy can a bank transfer the risk to the credit insurer. At the same time credit rating agencies do not normally assume financial responsibilities for rated companies.

To overcome the reluctance of banks as sole risk takers to finance trading companies, the idea of a collaborative risk-sharing arrangement was discussed in detail. An arrangement combining the virtues of credit rating with those of risk cover was proposed. The main idea was that the bulk of risks related to a rated enterprise might be shared between creditor banks, credit insurers (or credit bureaux) and enterprise associations in proportions agreed among those parties. Creditor banks could enhance their credit portfolio by accepting partial risk coverage or a sort of "borrower's bonding" issued by a rating or scoring agency and by a special mutual insurance scheme established by enterprise association for that purpose.

The collaborative risk-sharing arrangement would relieve banks of full risk coverage of trade finance and working capital loans. At the same time banks could charge slightly higher interest to retrocede to a credit insurer or bureau an agreed premium for a part covered by the latter. Equally, enterprise associations might charge members annual premiums to fund mutual insurance schemes.

Banks and credit insurers considered enterprise associations' participation important since these associations might have first-hand updated information on their members and would inform partner financial service providers on a confidential basis concerning current or potential risks of rated enterprises of which the rating agency or bank may not be aware.

Participants also stressed the importance of avoiding adverse selection in the arrangement so that neither enterprises nor each of its supporters would abuse the arrangement to the detriment of partners.

A proposal for backstopping such an arrangement in the event of financial crises through co-guarantee funds of international financial institutions was also made.

Participants agreed that the shares of risk to be covered should reflect local circumstances and preferences of the partners and could be decided on a case-by-case basis. Banks and credit insurers or credit bureaux would be responsible for the adequate selection of clients, on the basis of credit ratings, and should share credit risk accordingly. Enterprise and especially SME associations would provide partial coverage through the mutual insurance schemes mentioned above, and SMEs enjoying a favourable credit rating could be asked to offer a partial asset-based collateral to creditor banks.

The success of such an arrangement would motivate enterprises, especially in developing and transition economies, to provide online credit information on their financials and payment record in order to get e-rating. To deal with large numbers of SMEs, major credit information and credit insurance agencies will need to extend the networks of suppliers of credit information for their databases. Those suppliers in developing and transition economies would include local credit insurers and credit bureaux. However, in the majority of countries their number and their capacity to collect information are still limited. In this context it is hard to overestimate the value of technical assistance that global development agencies might render to help to establish e-credit information and e-credit insurance services in those countries.

Finally, wide acceptance of collaborative risk-sharing arrangements by financial service providers could lead rated borrowers to become members of card-based or similar e-payment schemes. Those e-payment schemes used for trade or working capital e-finance will register incoming and outgoing payments, thus permitting banks to monitor the flow of accounts payable and receivable. The credit limits of payment cards would correspond to limits advised in e-credit rating. E-payments might also allow enterprises to participate in online supply chains and other e-business arrangements.

Given high domestic interest rates in the majority of those economies, it is important to stress the potential benefits from access via such schemes and others to international trade finance and credit insurance facilities at a relatively reasonable cost for reliable local exporters as well as importers.

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Notes

- 1 For more details see: <http://www.bis.org/publ/bcbs107.htm>.
- 2 To anticipate Basel II, those rating agencies are starting to provide predictive default ratios (PDs) for banks not only on large companies but also on medium-sized ones.
- 3 Economic capital is a discretionary decision of a bank to keep an excess over regulatory capital, reflecting the bank's own assessment of risk exposure.
- 4 In economic literature the terms “informal”, “traditional”, “grey” and “parallel” with regard to an economy are used more or less interchangeably. The similar term “unorganized” refers more to labour. Informal economic activities should not be confused with criminal activities such as drug trafficking and money laundering.
- 5 ILO has created an Informal Economy Resource Database containing many papers on the subject matter. While some of those materials analyse the way out from the informal sector, others consider possibilities for improving the situation within that sector.
- 6 See also “The State of Information in World Markets”, presentation by Joachim C. Bartels at the FCIB International Credit Executive Conference, Chicago, April 2005 (www.intrepidex.com).
- 7 See <http://www.labour.nic.in>.
- 8 See www.tcb.co.th; www.rbi.org.in.
- 9 See Press Release ECE/TRADE/05/P04, Geneva, 20 April 2005.
- 10 See, for example, Malcolm Stephens, *The Changing Role of Export Credit Agencies*. IMF, Washington, DC, 1999; Jean Bastin, *La défaillance de paiement et sa protection, l'assurance-crédit*. Paris, L.G.D.J, 1993; Geneviève Barral, *L'assurance des crédits à l'exportation*. Paris Coface-Nathan, 1987.
- 11 Berne Union. *The Berne Union Yearbooks London 1998–2005*.
- 13 Estimate of UNCTAD Time Series Database.
- 14 Recommended modes of trade-related payments with individual countries are given by specialized periodicals. Prepayments are recommended for five to six small countries. See, for example, *Trade Finance*, no. 2005
- 14 Coface and Atradius (formerly Gerling NCM) models were discussed in chapter 6 of the *Electronic Commerce and Development Report 2002*.
- 15 See www.mehib.hu; www.egap.cz.
- 16 See www.ecgcindia.com; www.sinosure.com.cn; www.exim.go.th; www.mecib.com.my.
- 17 See www.ati-aca.com.
- 18 See www.jpmorgan.com.
- 19 See www.factors-chain.com.
- 20 See www.international.visa.com/fb/vgs/purchasing_benefits.jsp.
- 21 Puerto Rico EDB presentation at UNCTAD XI, São Paulo, Brazil, 16 June 2004.
- 22 <http://ebusiness.icicibank.com>.
- 23 *The Manila Times*, 30 November 2004 (www.dbp-ats.com.ph).
- 24 See www.unctadxi.org.