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The Oversight of the Payments Systems: A Framework for the Development and Governance of Payment Systems in Emerging Economies

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Biagio Bossone and Massimo Cirasino

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The Oversight of Payment Systems

**A Framework for the Development and Governance of
Payment Systems in Emerging Economies**

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CEMLA, The World Bank, July 2001

Foreword to the Research Series

At the request of the Western Hemisphere Finance Ministers, the World Bank launched in January 1999 the *Western Hemisphere Payments and Securities Clearance and Settlement Initiative*. The World Bank (WB), in partnership with the Centre for Latin American Monetary Studies (CEMLA), lead this Initiative. Its objective is to describe and assess the payments systems of the Western Hemisphere with a view to identifying possible improvement measures in their safety, efficiency and integrity. To carry out this mandate, an International Advisory Council (IAC) was established in March 1999 comprised of experts in the field from several institutions. The Initiative has undertaken a number of activities in order to respond to the Western Hemisphere Finance Ministers' request. These include: the preparation of public reports containing a systematic in-depth description of each country's payments, clearance and settlement systems; the delivery of recommendations reports to country authorities on a confidential basis; the organization of IAC meetings to review country studies and provide inputs for future work; the organization of workshops focusing on issues of interest in this field; the creation of a web-page (www.ipho-whpi.org) to present the outputs of the Initiative and other information of interest in the payments systems area; and the promotion of working groups within the Region to ensure a continuation of the project activity.

The Initiative also aims to promote and disseminate research work on payment and securities settlement systems in Latin America and the Caribbean. For this purpose, it has created the *Payment and Securities Clearance and Settlement Systems Research Series*, which will host original contributions in the form of studies, essays, and books by experts from national and international institutions around the world. While the Series is primarily intended for research on Latin-American and the Caribbean countries, it will as well be open to selected-issue papers and to studies on other regions, which can provide relevant experiences and lessons useful for the development of efficient and safe payment and securities settlement systems in Latin America and the Caribbean.

The first study to appear on this Series, *"The Oversight of Payment System: A framework for the development and governance of payment systems in emerging economies"*, co-authored by Biagio Bossone and Massimo Cirasino, offers an analysis of the institutional foundations (objectives, instruments, and organization) of an effective oversight function over national payment systems. The study reports survey information on how payment system oversight activities are setup and are evolving in a large sample of emerging economies. The Latin-American countries covered by the study are Argentina, Brazil, Colombia, Mexico, and Peru.

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Acronyms

ATM	Automatic Teller Machine
BAHTNET	Large-value electronic funds transfer system (Thailand)
BCB	Central Bank of Brazil
BCEAO	Banque Centrale des Etats de l’Afrique de l’Ouest
BCRA	Banco Central de la República Argentina
BCSA	Banking Council of South Africa
BI	Bank of Indonesia
BIS	Bank for International Settlements
BNM	Central Bank of Malaysia
BOK	Bank of Korea
BOT	Bank of Thailand
CBT	Central Bank of Turkey
CEMLA	Centro de Estudios Monetarios Latino-Americanos
CFA	Communauté Financière Africaine
CPSS	Committee on Payment and Settlement Systems
CMN	National Monetary Council (Brazil)
CVM	Stock Exchange Commission (Brazil)
EBA	Euro Banking Association
ECS	Electronic Cheque Clearing System (Thailand)
ECSS	Ecu Clearing and Settlement System
ESCB	European System of Central Banks
ESEC	Empresas de Servicios de Canje (Peru)
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
IT	Information Technology
KTFC	Korea Financial Telecommunications and Clearing Institute
LBTR	Sistema de Liquidación Bruta en Tiempo Real (Peru)
MEP	Medio Electrónico de Pagos (Argentina)
NPS	National Payment System (South Africa)
PASA	Payment Association of South Africa
POS	Point of Sale
PSA	Payment Stream Association (South Africa)
RBI	Reserve Bank of India
R&D	Research and Development
RTGS	Real Time Gross Settlement
SAMOS	South African Multilevel Option Settlement
SARB	South African Reserve Bank
SBS	Superintendency of Banking and Insurance (Peru)
SIPS	Systemically Important Payment Systems
SRO	Self Regulatory Organization
SWIFT	Society for Worldwide Interbank Funds Transfers
TA	Technical Assistance
TBA	Turkey’s Bank Association
URR	Uniform Regulations and Rules (India)
WB	World Bank
WHI	Western Hemisphere Payments and Securities Clearance and Settlement Initiative

Abstract

If, as Milton Friedman once noted, very few things in a society can happen if they are not financed by money, then the way in which money is transferred across people must be one of society's most crucial concerns. Indeed, rules have been established by markets and governments in all countries and throughout time to ensure that payments were effected as safely and expeditiously as feasible, given the state of technological and institutional development. Only recently, however, with economies becoming webs of massive and rapid payment flows with very large risk potentials, have governments started to systematically consider how to oversee payment activities. This study draws on the payment system policy debate which has developed since the late 1980s within the international central banking community. The study emphasizes that in a market economy the smooth and efficient functioning of payment systems is one of the pillars of financial stability, and presents a comprehensive treatment of the various aspects involved in designing an effective payment system oversight framework for emerging economies. The study analyzes the institutional foundations, the operational objectives and instruments, and the organizational building blocks of an effective oversight function. The study also reports on how payment system oversight activities are organized and evolving in emerging economies around the world.

1. Why Payment Systems Need Oversight: Introduction and Plan of the Study

To the extent that expanding production and exchange in a market economy requires an increasing interconnection of various, and usually anonymous, decisional units, economic development rests crucially on infrastructure that makes those interconnections efficient, stable, and reliable. This infrastructure includes the whole complex of technical systems, institutions, rules, and procedures that define the field of action where agents negotiate and perform commercial and financial transactions.

In contexts where many decisions are taken by multitudes of heterogeneous agents, an efficient, stable, and reliable infrastructure is necessary to ensure that transactions are carried out on the terms and conditions agreed by their originating counterparts. Interconnecting the elements of infrastructure becomes all the more essential as modern communications and information technologies make markets independent of specific physical locations. Especially where exchange involves agent commitments to future obligations—as is typically the case with financial contracts—elements of infrastructure such as the legal system and contract enforcement mechanisms must be in place to provide trading counterparts with sufficient reassurance that commitments are fulfilled in accordance with their agreed terms and conditions.

The payment system is the infrastructure (comprised of institutions, instruments, rules, procedures, standards, and technical means) established to effect the transfer of monetary value between parties discharging mutual obligations. Its technical efficiency determines the efficiency with which transaction money is used in the economy, and the risks associated with its use. An efficient payment system reduces the cost of exchanging goods and services, and is indispensable to the functioning of the interbank, money, and capital markets. A weak payment system may severely drag on the stability and developmental capacity of an economy; its failures can result in inefficient use of financial resources, inequitable risk-sharing among agents, actual losses for participants, and loss of confidence in the financial system and in the very use of money.¹

As many countries are embarking on projects to reform and modernize their payment systems, domestic policymakers are faced with the formidable task of how best to design payment system infrastructures in fast-changing technological and institutional environments. These tasks become increasingly complex as competition and innovation push constantly to the limit the search for better combinations of efficiency, reliability, safety, and system stability in the provision of payment services to larger numbers of individual users and institutions.

Historically, payment systems have lain at the heart of banking. As more and more countries, in the 19th and early 20th century, started to centralize money-issuing activities in single banking institutions, or central banks, the liabilities of these institutions became for commercial banks the instrument to settle their payment obligations. It became natural for central banks to provide clearing and settlement

¹ Listfield and Montes-Negret (1994) discuss how an efficient payment system contributes to the development of modern, market-based financial institutions and markets.

services for the payments delivered by commercial banks. As a consequence, the promotion of the efficiency and safety of payment arrangements became one of the *raison d'être* of central banks.² Yet, still in the middle of the 20th century, as payment technology had settled down, payment system issues were considered less important than other aspects of the financial system, and were seen mostly as technical matters to be dealt with by subunits of information technology departments in both the central banks and the commercial banks.

It was not until the mid-1980s that the debate on payment system reform policies took on greater weight in the countries with more advanced financial systems. Financial market liberalization led private sector agents and national regulators to identify technical and institutional solutions to serve the increasing demand for new payment services, while protecting the economy from the risks originating from rapidly growing volumes of financial transactions. Also, the internationalization of financial markets and episodes of severe financial crisis around the world fostered closer cooperation among industrial countries and among the latter and emerging economies, on how to set up and enforce standards to improve payment system performance in terms of risk control and shock resilience.

Due to their historical involvement in payment systems, the central banks of the leading industrial countries have been the main actors in moving the policy debate forward and in taking concrete steps to improve domestic and cross-border payment system performance. It takes only a cursory look at the list of studies and reports under the aegis of the Committee on Payment and Settlement Systems (CPSS) of the G-10 central banks to see the intensifying cooperative effort under way and its results to date.³ Among these is the consensus emerging within the international central banking community on the need to ensure the smooth functioning of domestic and cross-border payment systems through appropriate oversight.⁴

The oversight function should be developed and strengthened with a view to ensuring the financial and technical integrity of the payment system, its robustness against shocks, and its overall efficiency through rules and standards, monitoring and enforcement. In this regard, the CPSS has produced important guidelines on payment system design and, lately, it has laid out the Core Principles for Systemically Important Payment Systems (SIPS), or systems handling large transaction volumes in relation to the size of their participants, which consequently raise systemic risks (see Section 3.1).⁵ In addition to the Core Principles for SIPS, the CPSS Task Force identified four central bank responsibilities in applying the Core Principles, in effect laying out the main features of central banks' oversight of the payment system.

As a result of the growing international interest in issues related to payment systems, the World Bank (WB) and the International Monetary Fund (IMF) have increased their involvement in this area by assisting member countries in setting up

² See Padoa-Schioppa (1999).

³ See the Bank for International Settlements (BIS) website at <www.bis.org/publ/cpsspubl.htm>.

⁴ Central banks in many countries are currently engaged in an effort to clarify their role as payment system overseer. For a recent example, see Bank of England (2000).

⁵ For a discussion of the problems relating to compliance with the CPSS Core Principles, see Johnson (2000).

standards and in enforcing their implementation. In this respect, both institutions operate through a variety of instruments, including technical assistance, project assistance and, recently, the assessment of payment system vulnerabilities in individual member countries as part of the joint IMF/WB Financial Sector Assessment Program.⁶

Many central banks are redefining their role as oversight agencies for payment systems and revisiting their institutional and operational frameworks to carry out that role.⁷ Interest is rising on the part of both the regulators and the industry on how to organize the function in a way that is best conducive to a sound long-term balance between the various oversight objectives.

This study focuses on the oversight of payment systems as a tool to develop payment infrastructures in modern market economies. It identifies institutional instruments that oversight agencies may use to mobilize public and private sector resources for such a developmental task. In particular, the study explores key governance issues that need to be considered when designing the oversight framework and when defining the overseer's responsibilities and functions. The study also explores ways to build an oversight framework based on economic incentives to improve the payment system's efficiency/stability tradeoff, and singles out roles for the public and the private sector based on their respective comparative advantages.

The study is organized as follows: Section 2 discusses the foundations of the oversight function. Section 3 designs a framework for payment system oversight, defining its objectives, instruments, and targets. Section 4 identifies some major problems and issues faced by the overseer in the rapidly expanding world of e-finance. Section 5 explains why the central bank is best positioned to carry out the oversight function, and discusses issues concerning cooperation between the overseer and other financial regulatory entities. Section 6 presents the results of a survey of payment system oversight in a number of emerging-market countries selected to reflect economies at different levels of development and from a broad geographical representation.⁸ Section 7 summarizes the main recommendations of the study and identifies a set of standard features for payment system oversight to the benefit of emerging economies. The results of the comparative survey are presented in detail in Table 2 and Annex IV.⁹

⁶ Also, in September 1999, the IMF in cooperation with the BIS, and in consultation with other relevant bodies and experts, developed a code of transparency for monetary and financial policies (IMF, 1999). In July 2000, a supporting document was released which provides a fuller description of each of the transparency practices of the code, the rationale of the practices in the context of transparency, examples of how the transparency practices are applied by central banks and financial agencies, and some considerations in implementation (IMF, 2000). The code also applies to the transparency of payment system oversight policies.

⁷ In two path-breaking papers, the Banca d'Italia (1997, 1999) outlines the main features of payment system oversight, and carries out a survey on the function in several leading industrial countries.

⁸ The detailed survey responses from each country are reported in Annex IV.

⁹ The study contains other three Annexes: Annex I presents the CPSS Core Principles and Central Bank's Responsibilities; Annex II expands on the Payment System Council as an instrument to foster cooperation on payment system policy issues, and Annex III reports the questionnaire sent to the central banks participating in the survey.

2. Foundations of the Oversight Function

In modern economies, payment systems largely consist of market processes whereby various types of private sector providers use common infrastructures to offer competitive payment services. As is typically the case in the communications industry, infrastructural services can also be provided by for-profit companies, although the public sector (through the central bank) usually retains the right to provide some basic services of strategic or policy relevance (for example, settlement and large-value funds transfer services).

Overseeing a payment system thus amounts to ensuring that the infrastructural components and the markets for the provision of payment services:

1. Work smoothly, efficiently, and fairly for all participants and users;
2. Minimize and control the risk of transmitting shocks through the economy via the reverberation across the payment system of failures by individual participants to settle payment obligations;
3. Pursue the level of technological and institutional development necessary to satisfy the payment needs of a growing and open economy.

In a nutshell, given the potential tradeoffs inherent in its multiple objectives, *the oversight function seeks to make sure that the payment system optimizes its provision of services to the economy as this develops over time.*

The different objectives of payment system oversight may rank differently in the overseer's hierarchy of priorities, depending on the specific system under consideration. Whereas concerns with systemic risk control do score higher for wholesale systems, especially if they are operated by the private sector, ensuring user protection and, more generally, enhancing public confidence in transaction money may matter more for retail systems.¹⁰ We shall discuss in subsequent sections the relative merits of alternative options.

Differences in the emphasis and scope of the function do not blur the rationale for overseeing payment systems, which rests on the existence of market failures—such as externalities, information asymmetries, and market structure imperfections—which may prevent the optimal provision of payment services through the exclusive operation of competitive market dynamics. Market failures thus call for collective action in such areas as definition of system rules and standards, allocation of rights and obligations, rent distribution, and direct provision of services which can correct or mitigate distortions.¹¹ The market-failure arguments make an even stronger case for payment system oversight if the latter, as is generally recognized, aims at protecting the integrity of the whole system rather than the stability of its individual participants.¹²

Market-failure arguments, however, need to be qualified when they are discussed in the context of payment systems. The payment system serves the economy as an

¹⁰ For a discussion of the oversight of retail systems see Tresoldi (2000).

¹¹ See Banca d'Italia (1999) for a discussion of the economic rationale for payment system oversight and the role of market failures in payment services provision.

¹² As discussed below, the systemic focus of the oversight function does not prevent the overseer from inducing or imposing measures at the level of individual participants.

interconnecting network, and payment system users value the coverage (access to all endpoints) of the network (Shaffer 1997). Thus, all users share an interest in cooperating so that the technical capacity of the system can reach the point where no one is prevented from using it (for reasons other than misuse), and where its use from one agent does not rival the use from the others. The optimal supply of payment network capacity therefore requires coordinating the effort of several and different agents sharing the same interest in being able to access its services.

From this angle, *the overseer plays the role of a central agent who is best placed to solve the coordination problems* that typically plague multi-agent decisional contexts by mobilizing efforts from individual participants, prompting them to act collectively when circumstances so require, and facilitating the development of private sector institutions equipped to deal with the coordination problems at hand. Ultimately, the overseer may intervene directly to fill the gaps left by inadequate private sector response.

This role may be particularly important in reducing the risk of systemic transmission of shocks across the economy, which is facilitated by the high interconnection capacity of today's payment system networks. Collective action is required when gaps arise between individual and social risk/efficiency tradeoffs: the cost of setting up new risk-control devices may be perceived by individual agents as being too high when measured against a risk event that, while potentially serious, has a low probability of occurring.

Also, coordination failures may intervene and cause inadequate risk-control decisions: individual agents may indeed realize the need to take action against a possible source of systemic risk; yet they may (correctly) estimate that their efforts would be lost if the other agents did not take the same action at the same time. As a result, no one moves while waiting for others to move first, leading to collective action failure.¹³

In this case, the overseer may play a unique role by inducing or forcing (if necessary) action to adopt individual or industry-wide risk-control initiatives that would not be taken in its absence. The overseer could go beyond promoting action and directly provide risk-management services; in practice, the public sector is often involved in direct payment service provision. However, in normal circumstances, the overseer should rely on the private sector to identify feasible technical solutions that are compatible with market incentives and do not generate unnecessary welfare costs in terms of efficiency losses and foregone product/process innovations.

In principle, *the overseer should not seek to do by itself what the market can do better*. Since payment services (including the provision of network services) can be commoditized and treated as profit-making market products, their supply can be subjected to private sector production methods and thus left to profit-seeking agents. This allows payment service quality and prices for final users to benefit from competition and innovation.

¹³ Interestingly, these two factors seem to explain the poor attention given by international banks (even the most risk conscious) to the settlement risk of foreign exchange transactions (known also as Herstatt risk) until only a few years ago, when the central banks of the G10 countries finally resolved to encourage prompt action by their banking communities aimed at reducing and controlling this type of risk (see BIS 1996a, 1998).

However, because the economies of scale and network externalities inherent in payment services tend to generate market dominance effects, there is a natural risk that private sector dynamics eventually lead to monopolistic positions and rents. These would not only cause typical deadweight losses from higher prices and lower supply; they would also suppress competition as the engine for payment system development. Yet, unlike conventional product markets, the very pursuit of monopoly power from private sector agents may become the central driving force of payment system development in network economies. Also, market concentration may often be the only way for costly investments in infrastructure to be undertaken, as well as for networks to achieve critical mass (Economides and Himmelberg 1995), and for service providers to operate on an efficient scale.¹⁴

The overseer, therefore, should act in ways that make market-dominant positions possible but contestable, and to prevent dominant players from undertaking anticompetitive behavior against market access and innovations from other players.¹⁵ Insofar as market-dominant positions are not only desirable but necessary, the overseer must be responsible (and/or cooperate with the relevant institutions) for protecting users from market power abuse by large service providers, and for enabling users to protect themselves against abuses through transparent information and redress procedures.

Finally, the overseer should play two additional important roles. For systemically important systems, it should act as the system's "watchdog." In coordination with the various parties involved in the systems, the overseer should be concerned that all system components work smoothly throughout the operational period and that procedures are in place to deal with emergency situations, such as major technical failures or default of large participants.

Over the longer term, the overseer should make sure that the payment system keeps apace with the technological and institutional development necessary to support a growing and open economy. Thus, the overseer should preserve the incentives for the payment system to develop and to incorporate innovations for more efficient and safer payment services.

The payment system overseer in an emerging economy must strike a fair balance between individual and collective action. Modern financial policy theory emphasizes the desirability of regulatory approaches that exploit the complementarity between the public and the private sector, and that use incentives to induce agents to internalize prudence and honesty in their long-term business strategy.¹⁶ We shall follow this principle as we undertake to design a framework for payment system oversight.

¹⁴ Bossone, Honohan, and Long (2000) discuss the importance of scale economies and network externalities for viable financial infrastructure in small financial systems.

¹⁵ In such capacity, the overseer will obviously have to cooperate with other public authorities and agencies. This issue will be discussed later.

¹⁶ See Bossone and Promisel (1998) for a discussion of the role of incentives in financial sector reform policies in developing countries.

3. Framework for Payment System Oversight

3.1 General and Operational Objectives of Oversight

As part of the overall financial regulatory infrastructure of the economy, the oversight of the payment system contributes to the economy’s development and financial stability. These are the final objectives that the payment system oversight function shares with all other financial regulatory/supervisory functions. It must be stressed that, whereas financial supervisors are concerned with the soundness of individual institutions, the overseer of systemically important payment systems must make sure, first and foremost, that its systems can survive possible failures at individual institutions. The overseer’s concern with the latter is that they have enough safeguards against problems that might upset the stability of the systems in which they participate. The overseer’s priority focus is on the smooth functioning of the payment infrastructure. Table 1 visualizes the framework for payment system oversight. The text below discusses each table item in detail.

Table 1. Framework for Payment System Oversight

Role of the Overseer	<ul style="list-style-type: none"> ◆ Develop principles and rules ◆ Assess/enforce rule compliance ◆ Promote/coordinate individual and collective action ◆ Ensure system functioning ◆ Promote system development 		
Operational Objectives	<ul style="list-style-type: none"> ◆ Development of efficient, reliable, safe, and stable payment systems ◆ Prevention of market abuse ◆ Extension of payment services ◆ Prevention of criminal abuse 		
Intermediate Objectives	<ul style="list-style-type: none"> ◆ Competitive market conditions ◆ Cooperation ◆ Sound legal foundations 		
Instruments	Targets	Scope of Action	Types of Action
<ul style="list-style-type: none"> ◆ Rules and incentives ◆ Policy dialogue ◆ Monitoring ◆ Analysis ◆ System governance ◆ Direct service provision 	<ul style="list-style-type: none"> ◆ Access ◆ Risk control ◆ Information transparency ◆ Pricing ◆ System viability ◆ System development 	<ul style="list-style-type: none"> ◆ Service providers, participants, and users ◆ Instruments and services ◆ Technical infrastructures 	<ul style="list-style-type: none"> ◆ Structural ◆ Routine ◆ Crisis management ◆ Antitrust ◆ R&D ◆ TA resource mobilization

Payment system oversight contributes to achieving the economy’s final objectives by aiming at a set of more specific, operational objectives. These include, first, payment system *safety and efficiency*. This study does not elaborate on the policy principles underpinning this first objective since it is extensively covered elsewhere, most notably

in CPSS (2001) (see Box 1).¹⁷ It is worth noting, however, that the attention devoted to this objective from payment system authorities worldwide owes much to the understanding that sound network infrastructures in crucial domains such as communications, information, and financial transactions are essential to sustain the international competitiveness of the domestic economy. In a world where competition between systems is becoming increasingly important, governments are growing concerned that the economy's infrastructures are designed in ways that best combine efficiency and safety.

Earlier we noted that achieving this twofold objective may require markets for payment services to become largely concentrated and eventually dominated by a few or even by a single provider. As a consequence, the set of operational objectives of the overseer must be broadened to include *protection of participants and users* from risks of monopolistic practices by dominant service providers.^{18 19}

When benefiting from the presence of multiple service providers, users must be protected from contractual constrictions that limit their freedom to choose or change provider. Users should also be informed of customer rights and obligations, and of service features and options, and should be given the opportunity to lodge complaints about unsatisfactory service or unfair treatment.

The overseer should ultimately ensure users of the reliability of the payment instruments and systems used. More generally, the oversight will have to be directed at verifying that the payment services offered are in compliance with the law and support public confidence in the payment instruments' ability to fully discharge obligations and to circulate smoothly in the system (Banca d'Italia 1997).

The overseer will have to be confident that payment systems are *fair*, that is, that rights and obligations to parties to the funds transfers are allocated in an equitable manner.²⁰ An overallocation of duties to system providers or users can be unfair and can also lead to an unlevel playing field. Where liabilities are skewed toward, say, users, providers may enjoy extra-rents and weaken the incentives for the provision of reliable services. In the end, when potential users or providers perceive a system as unfair, they might be reluctant to use or provide payment services (Bhala 1994a, 1995).

¹⁷ See also Banca d'Italia (1999). For a discussion of the elements necessary for the efficient operation of payment systems, see Listfield and Montes-Negret (1994). An extensive treatment of the various structural and policy issues relating to payment system efficiency, reliability, safety, and stability is offered in the well-known work edited by B. J. Summers (1994).

¹⁸ As will become clearer later on, we are not implying here that the overseer must be directly or exclusively responsible for antitrust policy in the payment system, but only that protecting the payment system from monopolistic practices should fall within its purview, consistently with the legal and institutional setup of the country.

¹⁹ For the sake of clarity, we heretofore refer to *participants* as intermediaries who participate in the payment system on behalf of their customers (and on their own behalf). Participants supply and/or demand payment services to/from other participants and supply services to their customers. We define *users* as the final customers who purchase payment services from participants. Finally, we call *service providers* all agents who supply payment or payment-related services generally defined (including payment transmission network facilities and technical support services) to participants and users.

²⁰ In the U.S., a number of consumer protection statutes have been adopted that affect payment systems. These include regulations to limit floating and for resolving errors in certain types of credit accounts, including credit card accounts.

Box 1. The Core Principles for Systemically Important Payment Systems

In May 1998 the Committee on Payment and Settlement Systems of the Bank for International Settlements established a Task Force to develop core principles for systemically important payment systems. The Task Force comprises payment system experts from the G-10 central banks, the European Central Bank, 11 central banks of countries at different stages of development, the International Monetary Fund, and the World Bank. In preparing the report, the Task Force consulted a number of central bank experts, including many from emerging economies. The Task Force circulated, for public comment, a draft of Part I of the Report in December 1999 (The Core Principles) and a draft of a more descriptive Part II (Implementing the Core Principles) in July 2000. The final report including both parts was published in January 2001. The report recognizes that safe and efficient payment systems are important to the stability of the financial system and that safety and efficiency in systemically important payment systems should be public policy objectives. The report sets out core principles for the design and operation of systemically important payment systems worldwide and the responsibilities of central banks in applying these principles (see Annex I in this study). The report reflects a broad international consensus, and the core principles are intended for countries at various levels of economic development. The principles are expressed in a way sufficiently general to be universally applicable.

Extension of payment services is another operational objective, especially in emerging economies. Often markets alone do not find it economically convenient to provide services to remote, isolated, or sparsely populated geographical areas, or to poor communities. The overseer should thus assume the responsibility of assuring availability of minimum or essential services to underserved users. This could occur either through provision of public service (if necessary, under subsidy schemes), or by contracting out the provision of basic services to private sector institutions, or by encouraging participants to exploit complementarities between the formal and the informal financial sectors, with a view to extending service delivery to areas where formal institutions do not operate. Such complementarities could help to unbundle payment services in separate components that could best be supplied by different providers on the basis of economic incentives and comparative advantage. The overseer must here strike a fair balance between the need to guarantee universal access to basic services, on one side, and the tendency, on the other, to achieve this objective through public sector systems which in the long term may retard innovation and development, inhibit competition, and distort resource allocation.²¹

Another oversight operational objective of increasing importance—especially as the use of electronic money instruments and the Internet increases—is *protection from criminal abuse* of the payment system. Abuse involves the illegal use of payment services and the use of payment services for illegal purposes, including money laundering. Internet transactions involving “open” payment systems are especially

²¹ In the United States, the Monetary Control Act of 1980 mandates the Federal Reserve to “...give due regard to competitive factors and the provision of an adequate level of such services nationwide.” In drawing lessons from the U.S. experience with public monopolies in the communications and postal services, Lacker and Weinberg (1998) conclude that “a pursuit of access that makes use of cross-subsidization interferes with the efficient implementation of payment system innovations. Subsidies erode market discipline and distort choices among competing technologies” (p. 22).

vulnerable to risks of fraud. In this area, the overseer can provide essential cooperation to domestic and foreign public security authorities and control agencies, in the attempt to prevent and combat such forms of crime domestically and abroad. Information technology, which is part of the problem, may also be a relevant part of the solution (Solomon 1997). A sensitive aspect for democratic societies to deal with in this respect is how to use technology and oversight powers to extract and manage payment system information for crime detection purposes in ways that do not compromise fundamental privacy principles. Although this issue lies outside the scope of this study, it is an important topic in the area of payment system oversight that should be the focus of legal and policy research.

Finally, it should be the objective of the overseer *to avoid excessive regulatory burden* on market participants, because this might create a competitive disadvantage at both the domestic and international level, and prevent innovation in a field characterized by the heavy use of technology.

3.2 Intermediate Objectives

The overseer may find itself quite removed from the operational objectives defined above. Borrowing from monetary policy terminology, it may thus seek to rely on a set of more proximate, intermediate objectives which lie within its reach while standing in a somewhat predictable relation with the operational objectives. The first intermediate objective is *competition*. Competitive market conditions for most payment services, including interbank payment services, offer the most promising results in terms of efficiency and innovation. The overseer should make all efforts to ensure that market forces are free to operate in the payment system. Participants should be protected from restrictions on freedom to offer new services or competitive prices on existing services. In addition, participants should not be inhibited from launching new technical platforms or networks, or from joining in ventures that could improve overall system performance and quality of services, provided that the new infrastructure and services are in line with the accepted standards (or that they can improve on them), do not violate contractual freedom between participants and users, and do not discriminate access to services from users and other participants.²² Finally, the market for payment services must be open to the entry of new operators.

Where natural monopoly tendencies arise, as is commonly the case in the market for payment services, the overseer—in cooperation with all relevant regulatory institutions—should guarantee the contestability of the monopoly by other participants or new entrants. Competing participants with competitive business strategies and sound reputation should be allowed to bid out the dominant players and take their place in the market.

Competitive conditions incorporate discipline mechanisms that help elicit sound behavior from individual participants. Discipline derives from (informed) users freely

²² On price discrimination by quasi-monopolistic providers there are grounds to debate whether discriminatory practices are necessarily welfare-detracting. Weinberg (1997) shows that, due to network externalities, efficient payment systems with heterogeneous participants may in fact require the use of price discrimination as a way to adequately compensate participants who bring large external benefits to other participants.

choosing among different providers; under appropriate incentives (see Section 3.3), discipline may also spring from the monitoring and pressure exerted on providers by their peers. Market discipline, however, is effective only if participants have a long-term business horizon that reduces their incentive to earn quick gains through excessive risk-taking or by cheating.

As discussed, the public-utility nature of the payment infrastructure does not allow the overseer to rely exclusively on competition to ensure maximum social welfare. **Cooperation** is as essential, and the overseer may be especially well placed to solicit sufficient cooperative efforts from payment system participants. Cooperation between participants is the most effective means of identifying efficient system technical features. Also, cooperation between the overseer and the participants (see Section 3.3) may ensure that rules, standards, and collective action are designed in ways that optimize system efficiency. Such cooperation may also induce participants to internalize the overseer's public objectives within their own decisional functions. There are many instruments to ensure cooperation within the payment systems. In some countries, the creation of a cooperative body (often referred to as a Payment System Council) has been crucial in moving forward the payment system reform by involving stakeholders from both the public and the private sector (see Annex II).

Finally, cooperation between the overseer and other regulatory and control agencies (especially bank and financial regulators and supervisors) must guarantee the mutual exchange of information and the action coordination necessary for each agency to intervene promptly and appropriately, when necessary (see Section 5).

Equally important, cooperation must also aim at minimizing the regulatory costs to participants of complying with various forms of control and of duplication of control, and ensuring consistency of all public interventions and rules impacting the payment system.

The third intermediate objective is the **legal foundation** of the payment system. The legal framework underlying payment activities bears relevant implications for the oversight objectives discussed above. It affects the efficiency, reliability, safety, and stability of the payment system, and the protection of participants and users from unfair rights allocation and criminal abuse. It also underpins any public policy attempt to expand services to underserved users. Especially in developing economies, payment system oversight objectives may be hindered by an inadequately articulated general commercial law; the lack of bankruptcy rules may hold up the handling of provider and user insolvencies, and poor sanctioning systems may make fraud a recurrent feature of payment transactions.

Payment system legal rules must be established to govern the transfers of means of payment in ways that serve the interest of commercial parties who use the payment system to settle their financial obligations in a predictable, timely, safe, and efficient manner. Box 2 presents one possible approach to the payment system legal dimension.²³

²³ A comprehensive list of references to payment system legal issues is reported in Heinrich (2001).

Box 2. Legal Foundations of Payment Systems

A firm legal foundation of payment systems should be built around five fundamental principles:

- ◆ *Firm establishment of the rule of law.* The payment system law should be manifest at the highest hierarchy level of the rules of a particular country. If in a country's legal system a statute has greater force and effect than a regulation or an administrative order, the law governing funds transfers should take the form of a statute. This should protect the system against political and bureaucratic meddling.
- ◆ *Accountability of the institutions involved in funds transfers.* The institutions involved in funds transfers should be held accountable for their own behavior. The utmost importance must be accorded to the rule of law, not to relationships among parties and between parties and the government. In this regard, the direct participation of the central bank in the payment system should not be overemphasized. Private sector action and responsibility ought to be encouraged.
- ◆ *Integration with other bodies of law.* The payment system law must be part of the broad commercial and bankruptcy framework. Accordingly, the rules, concepts, and incentives created by the different components of the overall legal framework must be mutually consistent.
- ◆ *Fraud prevention.* Appropriate safeguards must be implemented that create incentives for all payment system participants to exert reasonable care in managing and executing funds transfers. Security procedures (in terms of electronic message authentication or other computer algorithm, code words, telephone callback, or the like) should be designed to verify that a payment order is that of the customer. Such procedures should be negotiated by the parties concerned, should be finalized in the form of a written account agreement, and should be commercially reasonable.
- ◆ *Supporting the financial market.* The payment system legal framework should accommodate the anticipated growth of the economy and its constituent sectors. In developing the legal framework, the future needs of the financial community must be anticipated and addressed.

Source: Bhala (1995).

The overseer should take the necessary action with the relevant authorities to promote the establishment of clear and certain legal codes for payment systems, and should cooperate with them to ensure law enforcement. The central banks of the industrial countries emphasize the importance of achieving legal certainty as a core guiding principle for payment system oversight.²⁴ In their capacity as payment system overseers, central banks play a key role in supporting and advising domestic lawmaking authorities in developing and strengthening payment system legal provisions. International central bank cooperation has proven essential to induce legal debates and reforms in individual countries on payment system laws, especially with a view to attaining greater soundness of cross-border payment and settlement activities.

The evolution of modern payment system law in industrial countries and international cooperation in this field have led to the identification of a number of fundamental rules that a payment system legal framework should incorporate. These rules are set forth in the United Nations Model Law on International Credit Transfers, which constitutes the main international legal agreement on funds transfer rules.²⁵

²⁴ See CPSS (2001). In particular, Core Principle I refers to the importance of a sound legal framework for a systemically important payment system. Even though the principle is applicable to the individual system, it is evident that it cannot be met if the overall legal framework is inadequate.

²⁵ For a discussion of the Model Law see references in Bhala (1995).

Box 3. Five “Golden” Rules for Funds Transfers

There are at least five rules that modern payment system law must incorporate. They are important in promoting certainty in payment activity.

- ◆ *Scope rule.* This differentiates the parties and payment instructions that are included in the law from those that are not included. Parties sending (receiving) funds electronically must know whether the transmission is governed by applicable funds transfer law. The scope rule unambiguously defines the parties involved, the acceptable instruments, and the conditions for the execution of the transactions.
- ◆ *Trigger event.* This indicates the moment when the rights and obligations of a party to a funds transfer are manifest; that is, when the party gains certain legal entitlements, and when it is legally liable to perform certain duties.
- ◆ *Receiver finality.* This establishes when credit to an account is irrevocable; in other words, when the beneficiary knows it has received “good funds.”
- ◆ *Money-back guarantee.* This determines the rights of the payment originator in the event that a funds transfer is not completed, coupled with a rule that discharges the originator’s underlying obligations to the beneficiary.
- ◆ *Antifraud rule.* This allocates liability for fraudulent instructions. Allocation criteria may be addressed through the concept of a security procedure (see Box 2) and rules based on the existence or nonexistence of such a procedure.

Source: Bhala (1994b, 1995).

Law may significantly enhance the effectiveness of payment system oversight by entrusting the overseer with the legislative authority to perform its tasks. In most industrial countries, until recently, no legislation expressly recognized such a function, which was thus based only on customary tradition and practices. As the perception of the need for collective action on payment systems has become stronger, most notably in response to intensified international cooperation on this area, many countries have strengthened their payment system oversight by formally inscribing the overseer’s purpose, prerogatives, and powers in legal statutes, laws, or parliamentary acts (Banca d’Italia 1999). This trend is common to both industrialized and emerging economies.²⁶

3.3 Instruments of Oversight

Pursuing intermediate objectives requires the use of specific operational instruments. The overseer has a large set of formal and informal instruments at its disposal to promote competition and cooperation in the market for payment services, and to ensure that payment system legal foundations are in place and laws and rules are properly enforced.

Regulations and incentives are typical overseer’s tools. The exercise of regulatory powers may involve administrative acts of general application and specifically addressed provisions. Regulations may be aimed at defining organizational, functional, and technical features of payment systems. For large-value systems, regulations could establish infrastructural security standards (such as for information transfer, use of intraday liquidity and queues, cancellation of payments, and account reconciliation). On the other hand, regulations for retail systems (which are usually characterized by lower

²⁶ See Annex IV and Banca d’Italia (1999).

levels of systemic risk) may determine minimum reliability and efficiency requirements for service providers. Regulations may also be used to set criteria for technical security and interoperability of payment instruments and services. Competition could be supported by regulation to ensure transparent and full cost-recovery pricing policies by service providers.

Regulations may cover access criteria, business conduct, sanctions for rule noncompliance, and commitments from participants. Rules on access should define objective and transparent criteria for participant selection. Sanctions should be gradual and proportional to misconduct, and should provide misbehaving parties with enough incentives for self-correction, including threats to suspend and revoke business licenses in case of serious wrongdoings.

Incentives may also involve commitments from participants to take pre-specified (costly) action in the event of specific contingencies. Net settlement systems, for instance, may require participants to pre-agree on liquidity-sharing and loss-sharing arrangements whereby they commit to mobilize their own resources (say, in the form of deposited collateral) in the event of illiquidity or insolvency by any of them. Resource pre-commitments obviously give participants an incentive to monitor each other's performance, to anticipate each other's risk attitude, and to adopt risk-control measures. They thus help boost market discipline.

The overseer should always retain the freedom to intervene through available regulatory tools whenever competition, market discipline, and cooperation fail to produce the improvements felt necessary to serve the general interest. In some cases, the overseer may even engage in direct service provision. However, both forms of intervention should be steps of last resort. In addition, the overseer should evaluate whether explicitly to declare its intention to step in with regulatory or direct provision measures, or whether it should hold some "constructive ambiguity" in respect of such decisions.²⁷

Regulations and incentives must be complemented by the overseer's capacity to maintain a continuous *policy dialogue* with all the actors of the payment system, including users. This is necessary to secure a fair representation of the public and private interests involved in payment activities, and to create consensus for policy choices. The dialogue, which can take place at both formal and informal levels, offers a multiway channel for the overseer to provide participants and the public with indications on its policy orientation and to exert moral suasion; to shape its policy agenda by using feedback from the market; and to check through the users on the efficiency, reliability, and fairness of the payment services delivered by the system. The Payment System Council referred to earlier, and to be discussed in detail in Annex II, would offer an appropriate forum for such dialogue.

²⁷ In countries with a tradition of large state intervention in the economy, private sector agents might be reluctant to undertake individual or cooperative action if they know that the overseer would at some point step in and impose rules. On the other hand, in more mature market economies, the promise of regulatory action or the public sector's direct engagement may act more as a threat to the markets; in this case, the agents have an incentive to cooperate to find better solutions than those that would be chosen by the regulator.

The overseer may use the policy dialogue channel to exert moral suasion on participants and providers. This complements, and may very often supplement, the resort to rigid regulatory action. In fact, in their role as payment system overseer, central banks make extensive use of this channel to pass through recommendations of best practices and promotion of self-regulation in critical areas (Tresoldi 2000).

The overseer periodically checks system integrity by *monitoring* the functioning of the technical and risk-management infrastructure (including backup facilities). The overseer may request service providers and participants to submit selected information on the various stages and phases of the payment process. Information may cover payment volumes and values by types of instrument; data on costs, pricing and credit; capacity use; breaches of credit/debit caps; settlement and payment delays; length of queues; gridlocks; liquidity shortfalls; back-office problems; and technical or operational failures. The overseer could receive information through regular (off-site) data reporting by participants, complemented if necessary by on-site inspections.

For systemically important systems, the overseer may also adopt online monitoring of real-time payment and settlement flows and of risk levels across the payment circuit, and use automatic warning signals to detect abnormalities. Where such systems are privately run, the overseer should be provided by the owners with access to timely and relevant information on daily key operations. During operational periods, contact points should be established in all relevant entities that could be readily activated in the event of emergencies.

Through *analysis* of data and information, the overseer should develop full awareness of the weaknesses and developmental needs of the system across its various dimensions (legal, operational, financial, and technological). This, in turn, implies that the overseeing institution be staffed with an adequate number of skilled personnel to enable it to perform its multilevel tasks effectively.

Fine-tuning the instruments just discussed with a view to achieving the right mix of competition and cooperation in complex, modern financial network infrastructures requires the overseer to identify a desirable payment system *governance structure*. This involves issues such as the ownership structure of payment systems; their rules, control mechanisms, and incentives; and their obligations and accountability to the public. We have repeatedly emphasized the need to involve the private sector in technical decisions where issues relating to payment system efficiency/safety tradeoff arise. Identifying the appropriate governance structure of the payment system is thus a most crucial operational instrument available to the overseer to steer the system toward the oversight operational objectives.

Based on the knowledge of its own country, the overseer should define a payment system governance structure that supports the greatest involvement of the private sector in decisions of common interest and systemic relevance (for example, infrastructural standards and risk-management features), while protecting the competition or contestability of the domestic market for payment services. Where the private sector is not ready to take on a large role, the overseer should pursue its full engagement gradually, within a clear medium-term strategy. To speed up the process and to attain

rapid efficiency gains, it could open the domestic market to foreign institutions willing to undertake business partnerships with local institutions.

The governance framework should contemplate a clear division of duties and responsibilities among payment institutions, and the adoption of protocols for system monitoring functions and for dealing with system malfunctions, irregularities, and emergencies.²⁸

Governance structures may differ from one country to another, and a variety of solutions can be adopted depending on the systems under oversight, their size, and participation. In some cases, especially in geographically sparse countries, large commercial banks acting as correspondents for smaller banks or as local clearinghouses may complement or supplement the overseer action. Desirably, service providers might participate in cooperative ventures with the overseer to establish payment system rules and performance standards.²⁹ Cooperative arrangements better accommodate the need to achieve wide interest representation of, and an open dialogue among, all payment system parties. Cooperative arrangements seem to be the solution preferred by the industrial countries as they set out to reorganize their payment system governance structure.

Consistent with this approach, and effective in terms of incentive compatibility, is the use of self-regulatory organizations (SROs), or industry-based cooperatives providing regulatory services to their members, in combination with external (public sector) regulation (see Box 4).

SROs allow participants to organize commercial policies and market rules through their own decisional and enforcement procedures.³⁰ SROs may have strong incentives to elicit good conduct from participants through self-policing and peer-monitoring levers (Bossone and Promisel 1999). In the payment business, SROs can apply specialized market knowledge to design system rules and standards in ways that incorporate user preferences and transaction cost-cutting features to a greater extent than if designed by nonpractitioners.

Especially where the behavior of individual participants may have systemic implications (such as in wholesale netting systems), SROs may take special responsibility for ensuring that transactions are executed according to pre-agreed rules and that risks are appropriately monitored. SROs may also play a primary role in determining access rules and in sanctioning misconduct; they may have better and more timely information than the overseer on individual participants, and may be able to use the information more effectively for risk-management purposes. Moreover, as part of competitive industries, SROs have an incentive to keep up with institutional and organizational developments in other competing systems, and to modernize payment infrastructures in line with market demand and technological development. Of course, SROs present risks as well, such as

²⁸ For an analysis of the governance issue in the context of financial institutions see the Basel Committee on Banking Supervision (1999).

²⁹ Such ventures should be extended to include infrastructural service providers—such as for transmission links—that play a major role in the payment system.

³⁰ Kane (1987) argues that regulation lags are shorter for SROs than for government regulatory agencies and that SROs are apt to follow strategies that are more proactive than those typically pursued by government agencies. Moreover, SROs have stronger incentives than government agencies to monitor and minimize the costs of producing regulatory services.

possible tendencies to create cartels, discriminatory practices on membership, and unbalanced internal governance, against which the external regulator must watch carefully.

Box 4. Self-Regulation in Payment Systems

Various examples can be found in history of privately run, self-regulated payment systems, from the U.S. local clearinghouses (Gorton and Mullieaux 1987; Calomiris and Khan 1996) to the Japanese Financial Clearinghouse (Ryser 1997). A recent example of a good combination of external oversight and self-regulatory principles is the Ecu Clearing and Settlement System (ECSS, now Euro 1), which is owned and operated by an association of commercial banks, the—Ecu Banking Association (EBA, now Euro Banking Association). This entity was established in 1985 and headquartered in Paris for the clearing and settlement of payments denominated in a currency (then the ecu) for which no central bank of issue and lender of last resort existed. Settlement took place at the Bank for International Settlements (at the European System of Central Banks since 1 January 1999).

Banks are admitted as clearers by an EBA committee, subject to compliance with requirements based on credit standing, technical and operational capacity, and willingness to participate in risk-sharing schemes that ensure daily completion of settlement. Similarly, banks can be excluded in cases of serious deterioration in credit standing, or persistent noncompliance with system rules. The institutional and organizational structure of the EBA ensures participation of all members in decisionmaking. Before the advent of the European Central Bank, the risks connected with the large interbank activity and the lack of a lender of last resort provided ECSS members with incentives to prudent behavior, counterparty-risk monitoring, and improvement of system robustness.

In the absence of a central bank of issue, the system operated as a closed circuit, where each participant with a provisional end-of-day net debit position could finance it only by borrowing funds from participants with provisional net credit balances. Successful daily clearing relied on the willingness of surplus banks to reflow their net balances into the system to finance the deficit banks. The system, which developed as a sort of club, committed banks with surpluses to channel liquidity (up to a limit) to deficit (solvent) banks.

ECSS clearing banks have access to real-time information, enabling them to continuously monitor the clearing process. The system establishes multilateral and bilateral mandatory limits on each bank's net debit and credit position, and compliance is enforced through automated procedures.

In the past, the system has been under the oversight of the European Union's central banks. The overseer is now the European System of Central Banks (ESCB). The ESCB interacts with the EBA with a view to preserving and improving the strength, stability, and operational security of the system in line with international standards. As a condition to clear the new European currency, the euro, and to settle in central bank money at the ESCB, the EBA has been required to develop a collateral-based, liquidity-sharing arrangement and a loss-sharing arrangement to strengthen the system against the insolvency of any major participant.

Experience shows that, with the responsibility for system operation, maintenance, and improvement delegated to the EBA, and the continuous dialogue between the overseer and the EBA, the ECSS can be improved in ways that take into account both the need for economic and operational efficiency and the interest of systemic stability.

The overseer must ensure that SRO rules are fair and implemented fairly, that their governance and decisional mechanisms are adequate and equitable, and that the system they run possesses enough technical, operational, and risk-management capacity. In particular, the overseer should be confident that SRO incentives enable managers to pursue their statutory objectives, and that they and the system owners are fully accountable for their actions. In this respect, the overseer must be in a position to sanction their deviant behavior.

Direct provision of services is another instrument of oversight. The overseer may serve as clearing and settlement agent and operate large-value systems, it can build and run infrastructural networks for payment system participants, may offer refinancing facilities to participants, and support settlement by facilitating the reflowing of liquidity among participants.

This direct role stems from the fact that payment system oversight responsibilities are usually vested in the central bank and that central banks have historically provided facilities and services for payment system participants (see Section 5). Central banks' direct provision of payment services has usually been related to the private sector's inability to supply these services for itself safely or efficiently (Humphrey and others 1996). Typical is the case of the provision of large-value wire transfer and settlement services. Indeed, since the central bank is the provider of a safe and reliable settlement asset, it has a natural involvement in the provision of payment services, at least for large-value transactions.³¹

The direct role may be valuable especially in economies where the involvement of the private sector in the payment system is still limited, or where public confidence in the safety of privately run payment systems is not strong enough. In addition, there may be synergies to exploit from combining oversight and direct service provision functions.³²

Two critical problems, however, are associated with the overseer's role as a direct service provider. First, in the event that the overseer actually owns and operates payment facilities, a conflict of interest may arise between its different responsibilities as owner/manager and overseer, leading in turn to weak incentives for oversight. Second, a large involvement of the overseer may retard private sector development and infringe on efficiency growth in payment systems (England 1991): an easy resort to direct service provision may increase the overseer's temptation to surrender the complex task of steering the system through a wise dosage of incentives, in favor of supplementing or second-guessing the market.

It is thus recommended that the overseer carefully confine its service provision role to those activities that may not otherwise be performed as safely by other entities. Over the longer term, however, the overseer should plan its own disengagement from areas that can be filled by the private sector. In this respect, the overseer should engage the private sector as much as possible and establish incentives to mobilize enough market response. Increasingly, countries are converging toward a paradigm where central banks intervene as direct suppliers of payment services (for example, large-value transfers and lending-of-last-resort facilities) in ways that minimize distortion or limitation of private

³¹ Since settlement in central bank money provides finality to payments, it is convenient for payment systems to settle their obligations directly on accounts held with the central bank. In addition, because banks hold reserves accounts with the central bank, it is efficient for banks to settle their payment obligations by transferring reserves within the books of the central bank.

³² Direct service provision may give to the overseer additional information on system performance. At the same time, the direct provision of liquidity facilities can be run with greater risk caution if the provider also possesses oversight knowledge.

sector competition, and support competition between public and private sector facilities, provided that the latter are adequately risk safe.³³

3.4 Targets of Oversight

The overseer's instruments insist on specific operational targets. These targets are access, risk control, information transparency, pricing, and system viability.

We touched several times on the issue of *access*. Controlling access to payment systems is crucial in determining the quality standards of participants and service providers. It helps protect the system and their stakeholders from participation by institutions that might expose them to excessive legal, financial, and operational risks. However, managing access raises delicate risks inasmuch as any limitation to free access creates rents and, hence, protected positions. Access must therefore be based on minimum eligibility criteria necessary to ensure that participants and providers possess the (reputational, financial, governance, technical, and operational) requisites—as well as the business commitment—to supply services in line with the accepted standards. Once the criteria are established, all subjects that are in compliance with them, and wish to enter the market or use its services, should be allowed to do so without regard to their status.³⁴

Permanent compliance with established criteria should be a condition for participants and providers to retain access privilege. This implies that, in order to safeguard the viability of the system, access might be suspended and eventually revoked in cases of noncompliance or regulatory violations, depending on the gravity of the wrongdoing and its potential impact on the system. Suspension and exclusion, of course, must be considered also in the light of the effects that they have on the subject to which they apply, on the system where the subject operates, and on market perception.³⁵

In addition, the overseer must make sure that incumbents do not protect their own rent position by erecting economic, technical, or legal barriers to potential entrants, and that providers do not discriminate against participants or users in a way that would limit their access to networks and payment services for reasons other than risk, security control, and system reliability. This is especially critical when the supply of services is concentrated, or when the services in question are essential for users to be able to operate.

³³ The European System of Central Banks (ESCB) operates a large-value gross settlement system (called TARGET) for cross-border, euro-denominated payments. Use of TARGET is compulsory for payment transactions related to monetary policy. For commercial transactions, however, the use of TARGET is not compulsory and agents may use any system they choose. Competition from other payment systems is encouraged, provided that they settle in central bank money with the ESCB and are in compliance with at least the minimum standards for the design and operation of cross-border and multicurrency netting and settlement schemes (see BIS 1990, known also as the “Lamfalussy Report”) and, now, with the CPSS Core Principles for Systemically Important Payment Systems.

³⁴ CPSS Core Principle IX expands on the importance of fair and open access to a systemically important payment system.

³⁵ See Banca d'Italia (1999) for a discussion of the consequences of exclusion from the payment system, also in relation to the timing of the decision and the type of system (that is, gross or net settlement). The potential gravity of the effects of suspension and exclusion emphasizes the importance of payment system monitoring and of prompt and decisive corrective actions when the overseer detects signs of unforward behavior by some participants.

Risk control at the individual and systemic level is another key target of payment system oversight.³⁶ Payment system risks are financial, operational, and legal.³⁷ They grow with the volume, value, and composition (domestic compared to cross-border) of financial transactions made possible by technology. The speed with which funds can be used and reused in the system before final settlement takes place also increases these risks manifold.

Controlling risks may involve individual and collective action. Individual participants should be required to identify ways to measure risks appropriately and to allocate an adequate level of economic capital to them. The overseer should not interfere directly with the determination of individual risk position. Rather, it should make sure that participants adopt consistent methods to manage their risks, and that systems have enough incentives and safeguards against excessive risk-taking by individual participants. Yet, participants should be encouraged to define their own preferred risk-efficiency frontier and act accordingly.

The overseer should induce collective action from individual participants and may, if necessary, intervene through direct service provision if cooperation proves to reduce risks via industry initiatives (such as new types of contracts, new settlement rules and infrastructure, reallocation of obligations among participants, and creation of clearinghouses or contingency facilities) beyond what would be achievable through the uncoordinated action of individual participants.³⁸ In fact, collective action in the area of risk control (such as collateral arrangements and liquidity- and loss-sharing agreements between participants in netting systems) may achieve various important objectives simultaneously. Tying the risk position of each participant to the behavior of the others prompts better individual risk management. Moreover, it gives the system new lines of defense beyond the central bank's lender-of-last-resort function, thus weakening the presumption of public sector interventions in support of "too big to fail" participants.

³⁶ For taxonomic rigor, risk control should be included among the intermediate objectives of oversight, rather than within the operational targets. Eventually, we resolved for the latter option in that the way risks are controlled in a system, and the instruments used for this purpose, do affect incentives to competition. As an extreme example, a system that imposes zero-risk tolerance on participants and employs administrative measures to that effect attains full stability and reliability, but at the price of suppressing competition, efficiency, and innovation. We thus believe that risk control belongs to the set of operational targets that the overseer must achieve in a wise combination both to allow for healthy competition in the system and to elicit enough cooperation from participants.

³⁷ For an analytical discussion of payment system risks, see for example Van den Bergh and Veale (1994). For a detailed list of references on this, see Heinrich (2001). Legal risks have attracted much attention recently, especially as a result of the dramatic increase of cross-border transactions under different and not harmonized legal regimes. Legal risks may originate from the difficulty of ascertaining the net (credit/debit) position of participants during and at the end of the operating day, due to the non recognition of netting contracts under certain jurisdictions, or the presence of "zero hour" rules in the bankruptcy law of some countries. Legal risks may also follow from inadequate provisions concerning the mobilization and seizure of collateral, from undefined rights of payment originators in the event that funds transfers are not completed, or from unclear rules as to the discharge of the originator's obligations to the beneficiary. Another type of risk which has received considerable attention in the international central and commercial banking community is the settlement risk on foreign exchange transaction (see BIS 1996a, 1998; and Bossone 1998).

³⁸ See BIS (1996a) as an example of the various types of actions that overseers may induce in the system.

The third target is *information transparency*. This is vital to both competition and stakeholder protection. It enables agents to make rational choices and to express their preferences as to competing services. It forces participants and service providers to try to win market favor by producing better and more convenient and reliable services than their competitors. Information transparency also provides correct incentives to potential entrants to evaluate the convenience of entering the market.

The overseer should induce providers to inform users of all relevant aspects concerning the legal, operational, financial, and cost profiles of their services. Providers should regularly disclose updated information on their financial and technical status and performance, and on their risk position and capital. It would help if, like for other financial services, payment service providers and systems were scrutinized by independent rating agencies.

With respect to transparency, the overseer should clearly state its policy objectives and explain to the public its policy orientation and actions.

The overseer should establish information channels to collect service evaluations and complaints from users, which it would use to convey inputs to providers or to require corrective action from participants. The overseer could ask for independent evaluations of the domestic payment systems from international expert bodies and use the evaluations to feed its policy agenda.

Competition and participant/user protection must also be pursued by ensuring the application of fair *pricing* policies and practices by providers. In the longer run, full cost-recovery pricing of payment services and instruments facilitates a reduction of the overall costs of supplying payment services to the economy, through a correct allocation of resources and stimulus to innovation.³⁹ This principle applies both to private sector providers and to central banks supplying payment services. Pricing rules can be adopted that enable providers to recover all costs and charge users according to their payment volume, while ensuring that competitors do not earn rents on the same services unless their cost structure were truly superior. Other rules allow providers to discriminate among users with different demand elasticities so as to maximize rent extraction.

By having regular access to information from service providers on payment costs and volumes, as well as by maintaining close and continuous contact with the market, the overseer should monitor the evolution of pricing policies across the system and make sure that no unfair practices are implemented against users.⁴⁰ Information transparency (see above) offers crucial support in this respect, because informed users naturally choose payment services and instruments which minimize costs relative to the benefits received.

In particular circumstances and for limited periods, payment costs may not be fully charged to users. This is reasonable when a country introduces noncash instruments or wire transfer networks, and wishes to realize scale economies and network externalities to encourage their use and to generate sufficient transaction volumes to make them financially self-sustainable. Underpricing should be eliminated when the objective is attained.

³⁹ On cost- and pricing-related issues see Humphrey, Keppler, and Montes -Negret (1997).

⁴⁰ Appropriate pricing has become a matter of public policy in Scandinavian countries, especially Norway.

The instruments available enable the overseer to oversee the technical and financial *viability of the system*. The system should ensure that system managers monitor payment and settlement flows, have enough warning devices guarding against abnormalities across the payment circuits, and have tested emergency procedures. This would allow the system operate smoothly at all points of the process and be resilient to disturbances.

Finally, in cooperation with service providers and system stakeholders, the overseer must make sure that the payment system develops rapidly enough to supply the economy with the needed payment services. Promoting competition in the market for payments and, in general, letting the private sector take the lead on issues of infrastructure and product development, relieves the overseer of carrying out tasks in which it is less specialized.

3.5 Scope of Payment System Oversight

As has been mentioned, the focus on oversight operational objectives, instruments, and types of action vary depending on the different payment system to be overseen.

There is consensus on the fact that systems that pose systemic risks should fall under the direct control of the overseer. Typical examples are those systems that handle transactions of a high value at both the individual and aggregate level.⁴¹

Increasing attention is being given to securities clearance and settlement systems as relevant components of the overall payment system. As a result, a joint CPSS/IOSCO Task Force has released in January 2001 for public comments a report identifying 18 recommendations for the safety and efficiency of securities settlement systems (see CPSS/IOSCO 2001). The oversight of these systems might well be a cooperative undertaking of two or more regulatory agencies (see Section 4).

In some countries, retail (low-value) systems also fall under the purview of the oversight agency because of their importance for the overall efficiency of the payment system, their impact on the public's confidence in money, and their relevance for economic growth.⁴²

An important issue regarding the reach of the overseer is how to oversee nonfinancial entities (a telecommunications company, for example) which provide key services to payment systems. This issue is becoming increasingly prominent with the new technological developments and the larger role of the private sector in the provision of infrastructural services. In such cases, the overseer should make sure that the operational and contractual arrangements between the provider and the payment system participants, especially as regards technical and operational capacity and emergency procedures, are in line with the oversight principles. The overseer might also engage the provider in a dialogue on relevant technical issues and, where the provider is a publicly regulated

⁴¹ An extensive analysis of how to identify a systemically important payment system can be found in CPSS (2001).

⁴² Many examples can be offered of how inefficient retail systems affect economic activity by failing to accommodate the needs of customers and merchants to finalize transactions which, as a result, do not take place.

company or utility, the overseer should interact with the provider's regulator to define policy issues of common interest.⁴³

In summary, different overseers in different countries may pursue different strategies, with some focusing on the systemic-risk aspects of large-value systems and others adopting a broader agenda covering competition and user-protection issues, and including securities settlement and retail systems. Some overseers may want to guarantee systemic stability through lender-of-last-resort facilities, while others may want to make sure that the systems possess sufficient contingency mechanisms to avoid presumptions of public safety-net provision.

A broader and more activist agenda may be preferred, if not outright necessary, in developing economies where the role of the private sector in the payment system is limited, public confidence in money is not consolidated, and institutions for competition and user protection are weak or hardly exist.

3.6 Types of Oversight Action

The following taxonomy of the types of action that characterize the overseer's function is based on the discussion in the previous sections. The overseer is involved in *structural* action aimed at building the foundations of the payment system, and shaping the quality and quantity of payment services to the economy. Its role in designing the system's rules and incentives clearly belongs to the structural dimension of public policy.

The overseer carries out also *routine* activities through which it monitors the everyday life of the system and runs all checks for abnormalities and sources of risk. Adequate technical and human resources must be devoted to this function, which requires timing, contacts with the market, and an understanding of the mechanics of the system. Risk control and crisis prevention are the core of the overseer's routine. In the event of crises, such as large-scale technical or financial failures that halt or break the payment circuits, the overseer must be involved with no delay in and be part (if not the lead actor) of the *crisis management* process, whereby emergency procedures are activated and decisions taken to reestablish orderly conditions in the system. Strict coordination and fluid information exchange with system participants and providers are of the essence.

A type of action that should involve the overseer, although in a subordinated position with respect to the delegated authorities (where present), is the control of market power or *antitrust* regulation. In cooperation with the delegated authorities, the overseer should be concerned that nobody would be in a position to become the gatekeeper for essential checkpoints in network systems that other participants need to access and use. In full respect of its institutional boundaries, the overseer should engage in or promote action that would check against anticompetitive behavior or anticompetitive effects from changes in market ownership structure.

⁴³ Relevant in this respect is the ongoing dialogue that central banks hold, at the domestic and international level, with the Society for Worldwide Interbank Funds Transfers (SWIFT), the global provider of communications services for payment systems. Through such a dialogue, and the lead oversight role of the Bank of Belgium (where SWIFT is legally based), the central bank community makes sure that issues of public concern are duly considered in SWIFT strategy and operational decisions (see Pissens 2000).

Finally, the overseer could be very well positioned to carry out directly, or to sponsor, *research and development* activities on payment system related issues ranging from operational to institutional, technological, and long-term development areas of interest. Yet, an important role in this area rests with the private sector: promoting and protecting competition for payment service provision stimulates market forces to experiment with new services, products, and systems that public sector agents do not have incentives to test.

Finally, the overseer may catalyze resources for external *technical assistance* from experts, institutions, and specialized agencies to address problems including the use of new infrastructure, legal and regulatory innovations, personnel training, and technical and institutional capacity building.

4. Oversight in the World of E-Finance: Emerging Issues

The oversight functions discussed above are more and more essential under the rapid diffusion of electronic payment services. These are increasingly offered by private sector providers and networks that are alien to the banking community and financial regulators, and in a technological environment whose actors change rapidly and span a much broader class than the typical banking fraternity, involving entities such as encryption, telecommunications, and computer companies. Not only does the more multifaceted environment make the oversight tasks more complex and in need of constant adaptation, but it also brings to the fore a much larger and composite range of (possibly conflicting) interests, based on differing business perspectives and strategies of the parties involved, which call for coordination and strong governance.⁴⁴ In such a context, the overseer will more and more have to learn how to share oversight responsibilities with the private sector, and how to set the right incentives for private sector participants to develop effective self-regulatory capacity.

The world of electronic payments challenges the economy with new problems and risks. Following is a discussion of some of the most relevant problems associated with the diffusion of e-payments and some of the oversight issues they raise.⁴⁵

⁴⁴ As one of many possible examples of conflict of interest within e-payment systems, let us take a firm that is an ATM deployer but has little or no card base business. This firm will be mainly interested in making money out of high interchange fees that will be paid by the card-issuing banks. The latter, however, will suffer from higher interchange fees. If some banks decide to leave the system, rather than acquiescing to higher fees, the number of participants in the system dwindle; there would then be fewer card issuers and fewer cards issued and, hence, fewer incentives for terminal deployment in handy places. This will reduce the value of the card to banks and customers. Higher interchange costs will force banks to raise fees on “not on us” ATMs, but cardholders, where possible, will revert to ATMs owned by their own banks, thereby eroding the overall value of the system. This simple example suggests that when composite participation and business interests dominate the system, the success of each participant depends on the actions of all others. Coordination failures and conflicts among participants may engender considerable social welfare losses that the overseer should prevent from happening.

⁴⁵ The authors realize this list is not exhaustive, and our aim is not to define specific features for the oversight function in this area. For comprehensive discussions of major policy issues in electronic money

First, fraud and operational disruptions are likely to become major sources of risk in electronic networks that are open to large multitudes of participants and users and integrate various technological components. Operational risks will be compounded by the growing propensity of payment service providers to outsource processing operations to other vendors and providers. Issues of system design and standardization, definition of technical standards, and security will all necessarily involve the overseer in some major way and, at least, in its capacity as a coordinating and monitoring agent.

Second, given the importance of network externalities, competition can be quite tough between e-payment network service providers set to achieve a critical mass, especially since those who do not succeed in the game are likely to disappear from the market altogether. Incentives to unfair competition could be strong. Strategic choices that network service providers can use to win competition are *exclusivity*, to compel member agents to adopt only one network, and *incompatibility*, whereby communication with different networks is deliberately inhibited by the network owner through some technical device.

Box 5. Antitrust in the Payment Business: The Case of Visa and Mastercard

In the 1980s, in the U.S., Visa, which owned PLUS—the biggest national ATM network—and MasterCard, which was partially consolidated with the second-largest national ATM network—CIRRUS—sought to establish a joint venture—ENTRÉE—to offer online banking services through points-of-sale (POS). The industry became concerned that new market entries would be discouraged if faced with the new powerful giant. The U.S. Department of Justice decided not to intervene in the case, but state attorneys general stepped into action. They concurred that the extreme concentration of the new venture would stifle entry in the POS business, which at that time represented the future of electronic money transfers. A May 1990 settlement between the VISA/PLUS and the MasterCard/CIRRUS coalitions and the attorneys general of 14 states produced a kind of “split-the-baby” decision. The two sponsors agreed to abandon their proposed debit-card joint venture, and the threat of one monopoly electronic banking system was removed. However, neither MasterCard nor Visa was requested to divest their individual ownership in PLUS or CIRRUS. Hence, the partial de facto consolidation between debit card and national ATM systems was allowed to stand.

The two national systems remained, although their close relationship would have limited the competition between them. It was the subsequent wave of technological innovation, and the new alliances that it set off, that finally unwound the consolidation and revived competition: VISA/PLUS and MasterCard/CIRRUS entered the computer-based operations business sided by Microsoft and Netscape, respectively. The lure for market shares spurred a fiery contest between the two fronts, to the point that in their charges for critical technology, the MasterCard camp accused the VISA camp (and especially Microsoft) of practicing baseless fees. The new standards agreed by the two fronts and jointly announced in 1996 yielded to the MasterCard/Netscape concerns, leaving hope that competition between the two would continue.

Source: Solomon (1997).

The overseer will thus have a role to play in ensuring that fair competition is maintained. More generally, with network externalities and scale economies featuring

and payments, see Good (1997) and McAndrews (1997). For issues specifically relating to the security of electronic money and payment systems, see BIS (1996b, 2000b).

prominently in e-payment systems (Hancock, Humphrey, and Wilcox 1999), markets for e-payment services are greatly exposed to risks of concentration, as the U.S. experience suggests. In this respect, as was noted earlier, the overseer has a key task in working with the legal and regulatory institutions responsible for protecting markets against anticompetitive behavior or strategies (see Box 5). At a minimum, the overseer has the advantage of monitoring compliance of individual participants with competitive rules, and is well positioned to assess the consequences of events such as mergers, acquisitions, and pricing policies on the market for payment services and their effects on social welfare.

Third, as payment markets are left open to competition, however, the rapid pace of innovation typical of the e-payment business can generate large numbers of market experimental failures (of products, services, and providers), especially in the retail sector, resulting in many entries, but also in many exits. The overseer will have to be concerned with the impact of rapid industry transformation on public confidence. This emphasizes the importance of strong payment-system entry criteria and information transparency rules that increase user awareness of rights, obligations, and risks.

Fourth, technology enhances the potential for payment services to reach beyond physical, market, and jurisdictional barriers to domestic business. Issues of cross-border spillover effects, regulatory arbitrage, are crucial and demand intensified cooperation between overseers of different countries.

Fifth, technology enables payment system participants to manage massive flows of private information associated with commercial payment activity. Such information can be repackaged to determine the financial and commercial profiles of individual payment service users, and participants might seek to profit either by using the information in their other business lines, or by selling it to other participants. Problems of privacy can become sensitive and require an active role of the overseer in working with the relevant authorities to protect the individuals' rights to privacy and to control the use of confidential information for purposes other than the payment services they purchase from participants.

Sixth, as e-payment services are provided by networks owned and operated by branded joint-ventures of financial and nonfinancial technology firms, there is the issue of who ultimately bears the risk of loss under various circumstances. There is also the issue of how failures of individual members of the joint ventures impact on their networks. In particular, in the case of joint ventures involving banks, a serious concern is how the failure of a nonfinancial member affects their bank partner(s). These are systemic and institutional problems which call for close regulatory and oversight attention.

5. Who Should the Overseer Be?

We have submitted our arguments so far with the understanding that the central bank is the overseer of the payment system. We will now assess the rationale for such an understanding and evaluate its merits.

To be sure, and as noted at the outset of this study, payment system oversight has been performed by the central banks worldwide as a matter of historical fact, even though the function has not until recently been recognized as an autonomous and systematically structured policy responsibility. There are strong reasons for central bank involvement: where the central bank has been granted full responsibility for the conduct of monetary policy, there has been a tendency for it to exercise control on the design and operation of the payment system with a view to establishing public confidence in money. The linkages between monetary policy, the operation of the payment system, and the economy's liquidity needs have all quite naturally cast upon the central bank the role of payment system overseer as an extension of its reserve money-issuing function. In fact, the joint production of clearing, settlement, and liquidity services for the banking community gives the central bank a unique informational advantage on payment system operations and participants.

In addition, as the central bank in many countries has taken over the role of supplier of safety-net facilities, the case for placing payment system oversight responsibilities with it has only been reinforced (Humphrey and others 1996). This is especially evident in emergency lending situations when, as payment system overseer, the central bank would have readily available information to determine whether and when to support individual participants, and to assess the systemic implications of not granting emergency lending.

To this one should add the central bank's most often recognized role of "honest broker", capable of soliciting dialogue across the financial system, and its ability to enter any regulatory submarket during emergencies and prompt top-level government support for its action (Kane 1987). Operational and informational proximity to payment activities, thus, offer much ground for an unambiguous reply to the question of this section: the central bank is best placed to be the payment system overseer.⁴⁶ It should then be given a clear and firm mandate to serve as such.⁴⁷

If the central bank is the payment system overseer, two problems need to be addressed: first, who oversees the systems owned and run by the central bank and, second, how is oversight affected in those cases where bank supervisory responsibilities are carried out by institutions other than the central bank.

⁴⁶ The CPSS Core Principles assume that payment system oversight responsibilities fall on the central bank.

⁴⁷ At a very minimum, the central bank should have full oversight power over systems which carry payment transactions associated with monetary policy operations, in order to ensure that monetary policy signals are conveyed efficiently and safely throughout the economy at all times.

As regards the first problem, three principles could be followed: the central bank should (a) publicly commit to apply best practice criteria and standards to its systems;⁴⁸ (b) ask for periodic evaluations of its systems by teams of independent auditing experts; and (c) report the evaluation results to the public, including indications as to any necessary remedial action. In general, full operational and informational transparency and competition with the private sector would help considerably in imposing discipline on the central bank.

In relation to the second problem, central banks that do not have bank supervisory powers may face considerable information limitations, especially in crisis management situations. The overseer would have to rely on information from the supervisory authorities, or should develop their own independent access to information on payment system participants. While the first option transfers *de facto* the responsibility for triggering oversight action to the supervisory authority, the second option raises risks of duplication of information collection, inconsistent public action, and additional costs to participants.

An effective way to overcome most of these problems is to stipulate rules for granting the overseer adequate access to supervisory information. The institutionalization of information-sharing arrangements may reduce the risk that the exchange of information is hampered by frictions in cooperation between different institutions. Various solutions can be adopted for this purpose, such as signing a memorandum of understanding that specifies the framework for cooperation (see Box 6), assuring contacts between institutions through joint board membership, and establishing a comprehensive market regulatory/supervisory body where all the institutions with oversight responsibilities are represented and mandated to cooperate.⁴⁹

In practice, any of these arrangements must be selected on the basis of its ability to ensure the overseer timely and adequate access to information. Nevertheless, as emerging-market economies address this important issue, it must be emphasized that formal cooperative agreements are just part of the solution. Although they are useful in laying out the rules and framework for cooperation, they do not substitute for an attitude of cooperation between the institutions involved, aimed at facilitating their dialogue and common understanding of the problems of mutual interest.

The exchange of information is especially important in crisis or pre-crisis situations, when rapid communication of facts and evaluations of possible consequences can help each agency plan a better course of action.

⁴⁸ The systems owned and operated by the central bank should be compliant with the CPSS Core Principles (Core Principle B). In cases where central bank owned and operated systems coexist with private or joint-owned systems, the former should apply at least the same standards required of the latter.

⁴⁹ See Banca d'Italia (1999) for a description of the institutional arrangements adopted in some leading industrial countries. In the U.K., the Bank of England and the Financial Services Authority (FSA), responsible for regulating individual banks, recognize the need to share information about the main payment system members. The two institutions have signed a memorandum of understanding requiring that "the FSA and the Bank [of England] will establish information sharing arrangements, to ensure that all information which is or may be relevant to the discharge of their respective responsibilities will be shared fully and freely. Each will seek to provide the other with relevant information as requested" (see Bank of England 2000). In the European Union, the European Central Bank (ECB) has issued a protocol for payment system oversight to be adopted by the euro-area national central banks and the ECB.

Box 6. Cooperation Between the Payment System Overseer and Financial Supervisors

Financial system stability may be affected by risks borne by financial institutions participating in the payment system, and by risks generated in the payment system by individual participants. In those cases where the responsibilities for payment system oversight and financial supervision are allocated to different units within the same institution or to different institutions altogether, cooperation between the two parties is crucial to ensure financial stability.

A framework for cooperation should therefore be agreed by the two parties and should possibly be formalized and subject to periodic revision. This can be done by having the two parties sign a memorandum of understanding whereby both undertake to cooperate in carrying out their tasks with due respect to their mutual responsibilities, and agree to provide each other with routine or ad hoc information as may be necessary to help each party in the implementation of its tasks.

The overseer should make sure that supervisors are informed of the risks run by financial institutions in connection with their payment activity, and supervisors should inform the overseer of the risks for the payment system arising from individual participants.

Typical information from the overseer would include payment system technical and operational problems or events that might adversely affect one or more institutions, and events that could signal negative changes in the risk profile of one or more individual participants (for example, persistent failure to settle, noncompliance with system rules, revision of credit limit by other institutions).

Typical information from supervisors would include signals of events or problems at individual institutions that might disturb the smooth operation of the payment system. Such information could cover the assessment of the risk position and risk-management capacity of the institutions in question.

Cooperation must also be pursued between the overseer and the securities markets regulators, because securities settlement is an integral part of the payment system and problems in securities market clearing and settlement may easily spill over to the payment system, and vice versa. The need to integrate the oversight of payment and securities clearance and settlement systems is being met by increasing consensus in the international policy debate.

Recently, a new joint CPSS/IOSCO task force was established to develop institutional arrangements for confirmation, clearing, and settlement of securities trades and safekeeping of securities. The task force's mandate is to promote the implementation by securities settlement systems of measures that can enhance international financial stability, reduce risks, increase efficiency, and provide safeguards to investors by developing (minimum) recommendations for the design, operation, and oversight of such systems.⁵⁰ Box 7 presents an example of regional cooperation between central banks and securities commissions in developing economies.

⁵⁰ As indicated above, the Joint CPSS/IOSCO Task Force released its recommendations for public comments in January 2001 (CPSS/IOSCO 2001).

Box 7. An Example of Cooperation Between Regulators: The Western Hemisphere Payments and Securities Clearance and Settlement Initiative (WHI)

Following the meeting of the Western Hemisphere Finance Ministers of December 1997 in Santiago, Chile, the Ministers asked the World Bank to take the lead in assessing and recommending improvements for payment and securities clearance and settlement systems in the Western Hemisphere. The Ministers recognized the importance of these issues for promoting risk control and efficiency in financial markets, and economic growth.

In January 1999 the World Bank launched the WHI. The World Bank leads this initiative in partnership with CEMLA. The objective of the WHI is to assess payment and securities settlement systems in the Western Hemisphere, with a view to identifying measures to improve their safety, efficiency, and integrity. The initiative is taking a new approach to the assessment of payment systems. First, it emphasizes the importance of having a coordinated assessment of both payments and securities clearance and settlement systems. To this purpose, the central banks and the securities commissions have been invited to be active players in the process, and to work together within each country. In addition, the initiative provides an opportunity for active regional regulatory cooperation. Representatives from central banks and securities commissions in the region are invited to join the international teams working on specific countries. This creates opportunities for intraregional dissemination of information and exchange of views on issues of regional interest.

Finally, a longer-term aim of the project is to set in motion an ongoing cooperative process in the Region for discussing payment- and securities-system-related topics. To this end, the WHI establishes working groups and committees to work under the umbrella of a Hemispheric Council on Payments and Securities Settlement Systems. To avoid proliferation of international bodies, a council would be based at CEMLA, which has offered to act as its secretariat. As an interim step, several members of the Council of Securities Regulators of the Americas have created a working party to address common issues relating to securities clearance and settlement, while CEMLA is setting up a working group to deal with payment clearance and settlement issues. Strong cooperation is expected between these two groups.

Source: Cirasino and Guadamillas (2000).

6. Development of the Oversight Function in Emerging Economies

The oversight framework designed in Section 3 is comprehensive and provides a consistent set of standards which governments in emerging economies may consider in developing their own payment system oversight function.

Short of shooting for the full-blown framework option described above, which in most emerging economies would demand a major overhaul of the country's regulatory setup, governments can pursue more gradual approaches, based on realistic assessments of their country's needs and constraints. Section 7 below recommends a set of standards for central banks to use in establishing an effective oversight function. These standards should be seen as general guidelines and not as a blueprint for payment system reform, since conditions for reform vary from country to country.

In fact, many developed and emerging economies are engaging in efforts to reform their payment system. In many cases, the central bank plays a leading role by coordinating the various actors and/or by providing new services. In many cases the central bank is involved in strengthening its oversight authority by seeking explicit oversight powers and in setting up specific internal organizational arrangements. This is

particularly important when the system design envisions a large role for the private sector.

To investigate the relevant trends in payment system oversight in emerging economies, we conducted a survey of a selected group of emerging economies from a large geographical representation and at different levels of development. Detailed responses from each country are reported in Annex IV. Table 2 offers a synopsis of the survey's main results.

Some general features can be observed.

1. The attention to oversight issues is not only a characteristic of more advanced economies, but is now shared by many central banks of emerging economies. Countries such as Argentina, Malaysia, Mexico, Peru, the Republic of Korea, and South Africa are well advanced in their payment system reforms and have developed a strong oversight function.
2. In almost all cases, the central bank finds legal foundations for its role as payment system overseer in either a specific provision in the law or in its own statute. A general tendency toward the formalization of the function in the law can be detected.
3. In almost all countries, the overseer's objectives are the safety and efficiency of the payment system. In many countries, promoting competition in payment activities is explicitly cited as one of the objectives. Many countries explicitly mention consumer protection as an objective of oversight.
4. Almost all central banks use direct provision of payment services as an instrument to enhance the efficiency and safety of the payment system. In the majority of cases, the central bank has at its disposal a variety of instruments (for example, regulation, inspection powers, and moral suasion) to carry out its oversight functions.
5. Some countries' oversight extends beyond systemically important payment systems, and covers retail systems.
6. In almost all cases the overseer seeks a constructive dialogue with the private sector in carrying out the function.
7. In all countries limited attention is being paid to e-money and Internet payments.
8. In some countries the central bank has set up dedicated units or a department to carry out the oversight functions (Malaysia, Peru, the Republic of Korea, and South Africa).
9. Although informal cooperation with other regulators is in place in most cases, the relationship between the overseer and the other relevant authorities is not formalized. As part of their payment system reform process, some countries are taking steps to place cooperation on firmer and more formal grounds.

Table 2. Payment System Oversight in Emerging Markets

Countries	Source of the Function			Objectives pursued		Instruments Used					Organizational structure of the function	Relations with other regulatory agencies			Recent trends
	regulatory	costumary	other		among which competition	Production of services	Powers			other		Banking and financial supervision	Market surveillance	other	
							authorization	regulation	inspection						
ARGENTINA	YES (1977, 1992)	-	-	Safety, efficiency	yes	limited to the RTGS	YES	YES	YES	-	Managed by a small separate unit	yes	no	-	Started in late 1990s with the privatization of clearinghouses and launch of RTGS. Currently organization of the function under revision, new comprehensive law possible
BCEAO	YES	YES	-	-	-	YES	-	-	-	-	-	-	-	-	Under consideration in the context of the on-going overall reform
BRAZIL	YES (1964)	YES	-	Safety, efficiency, consumer protection, prevention of fraud, money laundering	YES	YES	YES	YES	YES (new law)	YES, moral suasion	The Department of Banking Operations will oversee at the end of reform (Oct. 2001)	YES	YES (National Monetary Council, informal in practice)	YES	Function being restructured under overall reform (end: Oct.2001). New law will clarify status of the central bank by specifying cb's objectives and tools
COLOMBIA	YES (1992)	YES	-	Safety and, to a lesser extent, efficiency	-	YES	NO	NO	NO	YES, moral suasion	No ad hoc structure, only in the context of central bank operations	YES, but no legal framework	YES, but no legal framework	-	In recent months a discussion started within the central bank as a result of the growing debate in the region
INDIA	NO	-	YES	Consumer protection	YES	limited to check clearinghouses	NO	NO	NO	NO	No ad hoc structure	NO	NO	-	Under the National Payments Council a Task Force on Payment System Oversight is studying the issue
INDONESIA	YES (1999)	-	-	Efficiency and reliability	YES	YES	-	YES	YES	-	No structure yet. Yet some functions are performed by the National Payment System Development Bureau and Clearing department of BI	YES	-	YES	Likely to emerge in real future with BI enhancing its regulation and creating ad hoc structure
MALAYSIA	YES (1958, 1983, 1989)	-	-	Safety, efficiency, consumer protection, mechanisms for implementation of mon. policy	-	YES	-	YES	YES	YES, moral suasion	Policies formulated by Bank Regulation Dept. and Payment Systems Dept. On site inspections by Bank Supervision Dept. and Information System Supervision Unit	YES, informal	-	YES, informal	Not applicable
MEXICO	YES	-	-	Appropriate balance between safety and efficiency	YES	YES	-	YES	-	YES, moral suasion, sanctions	Group of senior officers who meet regularly. Staff group monitors the evolution of payment operations and reports to these officers	YES, informal	YES, informal	-	Payments oversight started evolving in 1993. Recently agreement for information sharing signed by regulators.
PERU	YES, (1999) also on securities (Law Oct. 2000)	-	-	Safety, efficiency, consumer protection, promote banking services to the economy	YES	YES	YES	YES	YES	YES, sanctions	Payment System Department in charge, in coordination with Monetary and Exchange Operations and Financial System Analysis	YES, formal	YES, formal	-	Not applicable
REPUBLIC OF KOREA	YES	-	-	Safety and, to a lesser extent, efficiency	YES	YES	NO	YES	YES	YES, sanctions	3 teams and 1 division in the Payment Systems and Treasury Service Department	YES	-	-	BoK has carried out the function since it was founded. Improvements will be considered in the future
SOUTH AFRICA	YES (1998)	-	-	Effectivity and integrity	NO	YES	YES	YES	-	YES, moral suasion, sanctions	National Payment System Dept. in cooperation with Bank Supervision Dept.of SARB. PASA acts as SRO	YES, formal	-	YES, formal	Not applicable (evolved as a result of the overall reform and the international debate)
THAILAND	YES	-	-	Safety, efficiency and fairness	YES	YES	YES	YES	YES	YES, moral suasion	Financial Institutions Policy Group and Payment System Group of BOT. The latter acts as secretariat of Payment System Committee	YES	-	-	Not applicable (reform initiated in 1991 with Payment System Committee and evolved along the international debate)
TURKEY	YES	-	YES, contractual	Smooth functioning	YES	YES	YES	YES	-	YES, sanctions	Executive Committee at CBT chaired by Deputy Governor. Ad hoc working groups	YES	-	YES (Takasbank)	CBT is following the international debate. Actions might follow as result

Finally, all countries indicated that establishing the oversight function was a direct consequence of the ongoing international debate on payment system issues, and was part of the overall reform process of the payment system. Some countries are currently engaged in a major reform which will reshape their payment system and redefine the role of the central bank as its overseer.⁵¹

7. Conclusion

The way in which money is transferred across economic units is one of the most important concerns of societies. Rules have been established by markets and governments in all countries and throughout time to ensure that payments were effected as safely and expeditiously as feasible, given the state of technological and institutional development. Recently, however, governments have started to systematically consider how to oversee payment activities.

This study has drawn on the payment system policy debate which has developed since the late 1980s within the central banking community of the leading industrial countries, and is now involving more and more emerging economies. The study has emphasized that the smooth and efficient functioning of payment systems is one of the pillars of financial stability in a market economy, and has presented a comprehensive treatment of the various aspects involved in designing an effective payment system oversight framework for emerging economies. The study has analyzed the institutional foundations, the operational objectives and instruments, and the organizational building blocks of an effective oversight function. The study has also reported on how payment system oversight activities are organized in emerging economies around the world. It has found that significant efforts are being made by most of the countries surveyed to build up strong institutional oversight powers and capacity.

The study leads to the following recommendations, consistent with the CPSS Core Principles:

- ◆ Government should invest the central bank with the responsibility for overseeing domestic payment systems and for cooperating with domestic and international regulatory/supervisory institutions involved in payment system matters. Ideally, the central bank should have clear legislative authority to carry out the oversight function.
- ◆ The payment system overseer should commit enough resources for the conduct of oversight and should set up a unit for the task. The unit should be staffed with skilled professionals to deal with the composite dimensions of oversight and to carry out an effective dialogue with the various parties involved in payment system operations. The overseer should also develop adequate intelligence resources for effective payment system research and analysis.

⁵¹ The explicit reference to central bank's oversight responsibilities in CPSS (2001) has played an important role in raising the awareness on these issues in both industrial and developing countries.

- ◆ The overseer should ensure the safe and efficient functioning of the clearing and settlement systems it operates. It should periodically review the design and functioning of such systems.
- ◆ The overseer should make its payment system oversight strategy well known to all participants, and ensure that participants and service providers act transparently. It should publicly disclose its objectives and policies. To this end, it should develop a comprehensive policy statement on payment systems that would explain the risk policy for its own operated systems and provide guidance for the privately run systems.
- ◆ The overseer should refrain from undertaking payment activities that the private sector can perform more efficiently. If it does undertake payment activities, it should avoid undermining or distorting market competition. The overseer should promote competition in the market for payment services. In countries where the role of the private sector in the payment system is still limited, the overseer should engage the private sector to take initiatives. In identifying solutions to payment system problems, the overseer should consult with participants and prompt them to propose and elaborate on solutions.
- ◆ As technological development enables new entities to offer new payment services or infrastructural services for payment activities, the overseer should evaluate the potential systemic impact of such new services. The overseer should make sure that the rights and obligations of the new service providers are fully consistent with those of all other payment system participants and service providers.
- ◆ The overseer should make sure that the systemically important payment systems are adequate to serve the economy's payment needs and have enough capacity to operate safely even in conditions of exceptional contingencies and market distress.
- ◆ The overseer should make sure that the domestic payment systems meet users' needs adequately, both in terms of range of payment instruments and services delivered and of territorial service extension.

Annex I. The CPSS Core Principles and the Responsibilities of the Central Bank

Public Policy Objectives: Safety and Efficiency in Systemically Important Payment Systems⁵¹

Core Principles for Systemically Important Payment Systems

- I. The system should have a well-founded legal basis under all relevant jurisdictions.
- II. The system's rules and procedures should enable participants to have a clear understanding of the system's impact on each of the financial risks they incur through participation in it.
- III. The system should have clearly defined procedures for the management of credit risks and liquidity risks, which specify the respective responsibilities of the system operator and the participants and which provide appropriate incentives to manage and contain those risks.
- IV.* The system should provide prompt final settlement on the day of value, preferably during the day and at a minimum at the end of the day.
- V.* A system in which multilateral netting takes place should, at a minimum, be capable of ensuring the timely completion of daily settlements in the event of an inability to settle by the participant with the largest single settlement obligation.
- VI. Assets used for settlement should preferably be a claim on the central bank; where other assets are used, they should carry little or no credit risk and little or no liquidity risk.
- VII. The system should ensure a high degree of security and operational reliability and should have contingency arrangements for timely completion of daily processing.
- VIII. The system should provide a means of making payments which is practical for its users and efficient for the economy.
- IX. The system should have objective and publicly disclosed criteria for participation, which permit fair and open access.
- X. The system's governance arrangements should be effective, accountable and transparent.

* Systems should seek to exceed the minima included in these two Core Principles.

Responsibilities of the Central Bank in Applying the Core Principles

- A. The central bank should define clearly its payment system objectives and should disclose publicly its role and major policies with respect to systemically important payment systems.
- B. The central bank should ensure that the systems it operates comply with the Core Principles.
- C. The central bank should oversee compliance with the Core Principles by systems it does not operate and it should have the ability to carry out this oversight.
- D. The central bank, in promoting payment system safety and efficiency through the Core Principles, should cooperate with other central banks and with any other relevant domestic or foreign authorities.

⁵² CPSS (2001).

Annex II. The Payment System Council as an Instruments to Foster Cooperation in the Payment System

The payment system overseer is entrusted with, among other things, making up for a specific type of failure in the market for payment services; that is, the coordination failure. Coordination problems may be especially relevant in interbank clearing and settlement systems, where the number of participants and their interactions can be considerable, and where the soundness of the systems depends on the efficient interaction of various service providers and complex components. This and the rapid emergence of new types of nonbank intermediaries and payment instruments has strengthened the need for close cooperation within the payment system.

Other factors call for increasing cooperation. The safety and efficiency of payment and securities settlement systems involve a variety of public authorities, including the central bank, the banking supervisory authority, and the securities commission, the legislative authorities, the ministry of finance, and the competition authorities. Also, there are functional and operational complementarities between payment system oversight, bank supervision, and financial market surveillance that need to be exploited.

Cooperation among financial policy authorities can be achieved in a variety of ways, from exchanges of views and information to ad hoc or regular meetings and joint action. In a number of countries, cooperative bodies or Payment System Councils have been established to address payment system policy issues. In many cases, these bodies have also been instrumental in supporting regional and/or international cooperation in the area on payment systems.

The following are tentative terms of reference for a Payment system Council (Cirasino 2001).

Objectives

The Payment System Council aims to support the achievement of sound and efficient payment and securities clearance and settlement systems. It can also serve as a forum for cooperation to maintain orderly conditions in regional and international payment systems.

Main Tasks

- ◆ The Council works to facilitate the necessary cooperation between all market participants and regulators in the payment area.
- ◆ The Council promotes common initiatives toward the implementation of the payment system infrastructure. These initiatives should not impede, and should in fact foster, healthy competition among market participants.
- ◆ The Council plays a key role in preparing a Strategic Document for the overall payment system architecture in the country.
- ◆ The Council plays a key role in monitoring the implementation of payment systems reforms.
- ◆ The Council plays a key role in facilitating the sharing of information on economic and business requirements of all parties impacted by the payment system.
- ◆ The Council helps to identify the impact of different options on participants' business and daily operations and on end-user interests.
- ◆ The Council plays a key role in selecting the main principles and options for system designs.
- ◆ The Council plays a key role in approving/endorsing the priority and the schedule of individual projects to be launched, financed, and implemented.
- ◆ The Council promotes standardization of procedures and systems.
- ◆ The Council is responsible for promoting knowledge of payment system issues in the country. To this end, the Council uses any means it might find appropriate (workshops, seminars, web pages, newsletter, etc.).

- ◆ The Council seeks to promote cooperation among all institutions active in payment and securities systems within the region and at the international level.

Methodology

- ◆ The Council prepares ad hoc reports on payment system issues. The reports would not have a prescriptive nature. However, they would serve as a reference for payment system policies and reforms in the country.
- ◆ The Council establishes ad hoc working groups on payment matters. Working groups may or may not be composed of the totality of the institutions represented in the Council.
- ◆ The Council reports on its activities to the Top Management of the constituting institutions on a periodic basis.

Composition and Organizational Structure

- ◆ The Council gives representation to all the stakeholders of payment and securities clearance and settlement systems. These include: the Central Bank, the Securities and Exchange Commission, the Ministry of Finance/Treasury, the Bankers' Association and the commercial banks, the nonbank financial institutions, the clearinghouses and payment service providers, the Stock Exchange, the Central Securities Depository(s), the broker/dealers, the end-users, and other regulators (for example, banking supervisors, antitrust authorities, etc.).
- ◆ The central bank serves as the secretariat of the Payment System Council.
- ◆ Appointed representatives of the stakeholders are senior managers with an involvement in payment matters. They report directly to the top management of their respective institutions.
- ◆ The Council is composed of an appropriate number of experts. The composition of the Council should be consistent with the objective of having effective discussion in the meetings.
- ◆ The Council has an internal governance structure with a chairperson and deputy(s), an executive body, formal rules to determine the terms and conditions for the appointment of the executive positions, and formal rules to govern the activity of the executive body.
- ◆ In the early stage of its life, the Council might seek, if necessary, assistance from other national and international entities highly experienced in managing payment system groupings.
- ◆ The Council may invite, if needed, other institutions and/or individual experts to participate in its meetings.

Annex III. Questionnaire on Payment System Oversight

1. What is the role played by the central bank as payment system overseer and/or direct manager of clearing and settlement systems?
2. What is the legal basis for payment system oversight (for example, regulatory, statutory, contractual, customary)?
3. What are the objectives pursued by payment system oversight? Do they include the pursuit of a higher level of competitiveness among system participants and/or consumer protection?
4. What are the instruments used by the central bank in the performance of the oversight function (for example, issue of regulations, moral suasion, direct provision of payment instruments and services, application of sanctions, on-site inspections, etc.)?
5. What are the relationships between the payment system overseer and the other control authorities (that is, banking and financial supervisors and market surveillance authorities)? How does the overseer cooperate with other financial supervisory agencies? Is cooperation framed into law or in some formal mechanisms of mutual understanding among the various agencies involved? For example, are these relationships based on close cooperation (for example, exchange of statistical and other relevant information, prior notice of regulatory action, etc.)?
6. What are the requirements considered with a view to authorizing access (direct, indirect, remote) to domestic settlement systems? Are there rules (for example, minimum ratings, capital requirements, technical capacity) to grant financial intermediaries permission to provide payment services? Are there rules to sanction intermediaries abnormal behavior in the system?
7. Are there rules to discipline the pricing policy of payment service providers, such as to avoid collusive practices or discrimination among participants? Are the costs of payment services provided by the central bank fully recovered?
8. Are there specific rules/regulations governing the use of electronic money instruments?
9. How is the oversight function structured? How is it organized within the agency responsible for it? Which are the overseen institutions? Does the function involve day-to-day tasks (such as daily monitoring of payment flows and operations)? Does it involve emergency procedures? How does the agency interact with the service providers (for example, periodic contacts, exchange of information)? Does the agency incorporate inputs from the private sector when defining/modifying its strategy and policies?
10. Has payment system oversight developed over the years in your country as an autonomous regulatory/supervisory function? Has this function evolved recently as a result of the increasing international debate on payment systems related issues?
11. If the oversight function is not specifically regulated and organized in your country, is it possible to foresee at present when the function is likely to emerge and toward which model it will evolve?

Annex IV. Survey Results

*This Annex reports detailed responses to the survey of a selected group of emerging economies. The countries responded to the Questionnaire on Payment System Oversight reported in Annex III. The original text of the responses was maintained unchanged to the extent possible. Only marginal amendments were made in the final editing.*⁵³

ARGENTINA

In recent years, enhancing the stability and efficiency of the payment system has become a policy priority for Argentina, on the premise that this would serve to promote the stability of financial markets and the broader economy. The structure and operation of the current system take into account, among other things: (a) the bi-monetary nature of the economy; (b) the monetary regime stemming from the Convertibility Plan, which severely restricts money creation by the central bank; and (c) the supervisory regime, which requires banks to comply with high liquidity requirements. Until the mid-1990s, the payment system was relatively underdeveloped. There were two main interbank procedures: a check-clearing arrangement, and a procedure for an interbank funds transfers system, both managed by the central bank (the latter through the Buenos Aires Clearinghouse).⁵⁴

In 1996, after conducting a study cooperatively with the banking sector, the Argentine central bank, the Banco Central de la República Argentina (BCRA), redefined the regulatory and operational framework for payment systems and took the lead in implementing payment system reform. The primary structural changes include:

1. A real-time gross settlement (RTGS) system owned and operated by the central bank, the Electronic Payment Means (Medio Electrónico de Pagos, MEP)
2. A consolidation and privatization of low-value automated clearinghouses across the country
3. The development of large-value automated clearinghouses managed and owned by the private sector.

Both U.S.-dollar and peso-denominated payments can be processed through the interbank clearing and settlement systems. Even though the RTGS system does not provide queuing mechanisms or intraday liquidity facilities, the large amount of liquidity banks hold in compliance with liquidity requirements facilitates the fluidity of payments executed through the system. Cross-border payments may also be executed through the MEP system. Both large-value and low-value clearinghouses settle their net balances in the RTGS system toward the end of the operating day, and are subject to stringent risk measures.

These reforms meant a growing involvement by the private sector in the management of payment systems and, conversely, a new role for the BCRA. The central bank is now active in the payment system through the management of the MEP system, the definition of the regulatory framework, and the oversight of the private clearinghouses. In addition, a cooperative body, the Comisión Interbancaria de Medios de Pago de la República Argentina, in which the central bank and the commercial banks are represented, was

⁵³ The following are the central bank colleagues who have contributed survey material: Mr. Ruben Berti (Banco Central de la República Argentina), Mr. Luis Gustavo de Matta Machado (Banco Central do Brasil), Mr. Joaquin Bernal (Banco Central de la República de Colombia), Mr. K.L. Khetarpaul (Reserve Bank of India), Mr. Harmain Salim (Bank Indonesia), Mr. Christopher Fernandez (Central Bank of Malaysia), Ms. Marylin Choy (Banco Central de la Reserva de Peru), Mr. Dave Mitchell, Messrs. Hendrik Nel and Mike Stocks (South African Reserve Bank), Mr. Kahn Park (Bank of Korea), Ms. Saowanee Suwannacheep (Bank of Thailand), Mr. Can Okay (Central Bank of Turkey), and Ms. Fatimatou Diop (Banque Centrale des Etats de l'Afrique de l'Ouest). To all of them we wish to express our most sincere gratitude.

⁵⁴ For a detailed illustration of payment system structure and operations in Argentina, see CEMLA (2000).

formed in 1996 to support payment system reform. No formal cooperation is in place between the central bank and other regulatory authorities in the payment system.

The Law of Financial Institutions is the legal framework that governs the financial and banking system as a whole. In particular, it gives the BCRA broad enforcement authority over entities participating in financial intermediation. BCRA authority over clearinghouses and similar entities that perform payment settlement functions stems indirectly from this law and is formalized in the Charter of the BCRA, the Carta Orgánica. The Carta Orgánica grants the BCRA's Board of Directors the power to regulate the creation and functioning of clearing organizations for checks and other operations managed by financial entities.⁵⁵

Beyond its oversight/regulatory role, the BCRA is also involved in the payment system through the direct provision of services.⁵⁶ In particular, the BCRA manages (a) cash distribution throughout the country, (b) banks' current accounts through which interbank payment and clearing systems' balances are settled, and (c) the real-time gross settlement system (MEP).

The BCRA plays an important role in the area of cross-border payments by (a) providing cross-border payment services enabling banks to transfer liquidity between the U.S. dollar accounts they hold in New York and their accounts at the central bank, (b) managing cross-border payments as financial agent of the State, (c) handling payments originating from import/export transactions in the context of the Asociación Latinoamericana de Integración.

The BCRA is involved through its banking supervision function in the oversight of the private sector clearinghouses. The control of technical and operational aspects of each clearinghouse, both before it is authorized to operate and subsequently, is managed by the banking supervisor (SEFyC). The SEFyC is also involved in the management of abnormal situations in the clearinghouse through the Comité de Camaras. The Carta Orgánica gives the SEFyC the responsibility to enforce the legal provisions on the functioning of plastic cards and e-money issued by the Congress or by the BCRA.⁵⁷

The BCRA is currently redefining its internal organizational arrangements to effectively carry out payment system oversight.

BRAZIL

The Central Bank of Brazil (BCB) plays several roles related to payment systems, including those of overseer, owner, operator, settlement institution, and liquidity provider. Its payment services include the distribution of coins and banknotes, the electronic transfer of some securities and related funds, and the settlement of the domestic currency leg of foreign exchange transactions on behalf of banks. With few exceptions, only reserve account holders have direct access to payment services provided by the BCB. Institutions that do not hold a reserve account use those services indirectly through reserve account holders.

Law n° 4595/64 establishes the broad BCB role and responsibilities regarding the payment system and the clearing and settlement arrangements for trades of government securities. Currently, there are rules for check clearing, issuance and replacement of banknotes and coins, clearing and settlement of foreign exchange transactions, and trading of public and private securities. By law, the BCB regulates all forms of credit, check-clearing services, and foreign exchange operations. There is as yet no single piece of legislation embracing all aspects of payment systems. Instead, there are several regulations issued by the BCB. Moreover, the BCB has worked to make specific roles and responsibilities and operational

⁵⁵ Ex. art. 14, point J of the Carta Organica. It states that the BCRA's Board of Directors is responsible for "reglamentar la creación y funcionamiento de cámaras compensadoras de cheques y de otros valores que organicen las entidades financieras."

⁵⁶ The BCRA reports on a regular basis on payment systems matters to the Congress and the public through a payment system chapter in the Informe al Congreso de la Nación.

⁵⁷ Ex. Art. 47, point H, Carta Orgánica.

arrangements clearer. Efforts have been undertaken to improve the legal framework with a view to clarifying the BCB functions and responsibilities for overseeing payment and settlement systems.⁵⁸

The BCB is working on a draft of the regulatory framework for governing the operations of payment and settlement system participants. The new framework will define, among other things, the rights and responsibilities of financial institutions using the systems, operating hours, security procedures, and fees. The BCB oversight objectives are established not only by legislation, but also by BCB senior management. Existing legislation is overly general in this regard, and the role, functions, and responsibilities of the BCB are not yet completely specified in the law.

The main motivation for reforming the payment system is to reduce systemic risks and, hence, lower BCB credit risk. The prime objective is to enhance the safety and efficiency of payment and settlement systems. Other objectives are the protection of consumer rights and the prevention of fraud and money laundering. The new regulatory framework will identify systems that are systemically important; it will also specify the central bank's high-level objectives in payment systems. The BCB also recognizes the need to foster competition among payment system participants.

The new regulatory framework will give the BCB powers to request from any participant the information relevant to its oversight activities. It also will enable the BCB to collect information through on-site inspections. Application of sanctions has been discussed and there will likely be an enforcement regime of fines and other penalties. There are also discussions on the possibility of punishing noncompliant participants by excluding them from BCB payment services.

In Brazil, the responsibilities and institutional arrangements for regulation, supervision, and oversight of financial and payment systems, including institutions and markets, are shared by several agencies under the scope of the National Monetary Council (CMN). All these agencies aim at promoting financial stability, market efficiency, and consumer protection. Besides the CMN and the BCB, official regulatory institutions are the Brazilian Private Securities and Stock Exchange Commission (CVM), the Bureau of Private Insurance, and the Complementary Pension Secretariat. These agencies regulate the financial system, including brokers' associations, stock exchanges, and private insurance companies.

The BCB is responsible for the supervision of financial institutions, the oversight of payment and settlement systems, and the surveillance of some financial markets. Its regulatory responsibilities also include bank mergers and acquisitions, and changes of bank corporate control. The BCB is also responsible for implementing a number of statutes designed to assure that bank customers have sufficient information and are treated fairly in credit and other financial transactions. Surveillance of financial markets is also exercised by the CVM.

Information exchange and cooperation between payment system overseers is considered to be an important means to ensure effective oversight. Provisional Measure n° 2008 frames cooperation between the BCB and the CMN in payment system matters, and the CMN issues regulations providing for exchange of statistics and other relevant information among the various regulatory bodies. In some aspects, however, the basis for cooperation still remains informal; no memorandums of understanding or protocols for the exchange of relevant information are in place among the authorities. Coordination and information sharing

⁵⁸ The Board of Directors of the BCB approved on 30 June 1999 a project for the restructuring of the Brazilian payment and settlement system aimed at addressing the detected problems. Important steps in the project have already been undertaken. The new legal framework established by Provisional Measure n° 2008 in December 1999 granted DNS clearinghouses legal rights to seize the collateral of bankrupt participants held to secure financial transactions and gave legal recognition to multilateral netting schemes. Recently, Provisional Measure n° 2115-14 was revised to incorporate some issues such as the legal separation of the net wealth of each clearing end settlement environment of a clearinghouse in order to allow that collateral posted in an environment be enforced only in case of a failure in the same environment. In addition, clearinghouses are now subject to some sanctions similar to financial institutions, and their net wealth cannot be pledged.

will be enhanced when the supervision and prudential regulation of the entire financial system is undertaken in a more integrated fashion.

Remote access issues have not been considered yet. Requirements to authorize access to domestic settlement systems relate to direct access. Clearinghouses will have to comply with capital requirements to be granted permission to provide payment services. Well-defined sanctions are viewed as important to ensure that adequate action is taken to remedy noncompliance with BCB rules. All systems must ensure the BCB that they have appropriate mechanisms in place to control systemic risks. The systemically important payment systems must provide greater certainty to the operations of netting arrangements and settlement rules.

The BCB also intends to deal with issues such as technical requirements, procedures, performance benchmarks, and pricing. Rules to discipline the pricing policy of payment service providers have also been discussed and are an important concern of the BCB. Based on efficiency considerations, whenever possible the pricing of BCB payment services to system participants aims at full cost recovery.

The BCB has discussed alternative policy approaches to electronic money, although none has been chosen. There is no specific regulation governing the use of electronic money instruments. The rights and obligations of consumers and financial institutions involved in consumer electronic payment transactions are not well defined. There are neither standards for financial disclosure, access, card issuance, and error resolution procedures applicable, nor clear regulations affecting consumer use of electronic funds transfers. Recently, the BCB has initiated studies in the area of Internet banking in order to recommend specific rules. Efforts have been made to regulate banking services according to consumer protection principles.

A single department of the BCB—the Department of Banking Operations—will oversee payment and settlement systems at the completion of the restructuring process, by August 2001. The oversight approach will pursue implementation of the CPSS Core Principles and will provide for the identification of systems that are systemically important and their continuous evaluation, periodic reassessments to verify whether intervening changes have made a system systemically important, the evaluation and review of the design and operation of each payment system, and the evaluation of proposed new systems at the design stage. The BCB also intends to collect information from system operators on a regular basis. Moreover, the BCB will require advance notification for approval of any significant design and operational change to the system. All direct system participants (financial institutions and clearinghouses) of systemic and not systemic payment and settlement systems will be subject to full oversight. Indirect participants will be subject to lighter oversight. The oversight approach will provide for monitoring of real-time reserve balances and will involve emergency procedures. Under the new approach, contacts and exchange of information between the BCB and the service providers will be frequent.

The BCB recognizes that active consultations can also be a useful tool for policy action. It is usual for the BCB to consult the interested parties before policies are implemented, so as to avoid unintended effects on system participants.

The restructuring process has benefited from the international experience and debate. Participation in international meetings sponsored by international institutions such as the World Bank, the BIS, and the CEMLA has been helpful in redesigning and improving the Brazilian payment system. Visits to other countries have also been useful. The BCB is able to establish a rather effective role as payment system overseer on the basis of the existing roles and power. There is a preference, however, to establish it on a formal basis and to extend it to payment instruments and services, technological infrastructure, interbank exchange procedures, and funds transfer systems.

COLOMBIA

The central bank, Banco de la República de Colombia, follows the functioning of the large-value payment system on a constant basis, consistent with its responsibilities as monetary authority, and with a view to

contributing to financial stability. In addition, the central bank directly manages the large-value system and some low-value payment arrangements.

The legal foundation for central bank intervention in the system is found in Article 16 of the Central Bank Law 31 of 1992 (Ley Orgánica del Banco de la República). In describing the central bank functions, the article stipulates that the Central Bank should study and adopt monetary, credit, and foreign exchange measures to regulate monetary circulation and, in general, the liquidity of the financial system, and the smooth functioning of the payment system both domestically and internationally. However, traditionally, the Banco de la República has not performed its regulatory functions formally, but has exercised them on the basis of moral suasion. When the central bank directly provides payment services, it meets its regulatory objectives by means of subscription by participants of bilateral contracts in which all obligations and responsibilities of participants are established, and by the rules for their operations, service pricing, and sanctions for noncompliance.

The main objective of oversight is to guarantee financial stability. However, through direct provisions of services, especially those that were introduced in the 1990s, the central bank has also pursued the objective of guaranteeing efficient services to the private sector.

To date, the Banco de la República has not exercised its faculty to regulate the functioning of payment systems by statute. In addition, the central bank does not carry out on-site inspections, nor does it apply sanctions besides those agreed in the bilateral contracts. The central bank collects statistics on the systems it manages, and has mechanisms in place to consult with system participants in case of changes of system operations.

Mechanisms exist for cooperation among the different authorities involved in the financial sector, namely the central bank, the banking supervision authority, the securities regulator, and the deposit guarantee fund, to monitor the payment system. However, there is no formal legal framework for such cooperation.

The Management of Banco de la República determines the access requirements to the systems operated by the central bank. Access to deposit accounts at the central bank is restricted to credit institutions, institutional investors, and financial intermediaries, with certain requisites established by prudential supervision. As yet, there is no general provision to regulate access to payment systems managed by the private sector.

The central bank does not issue authorization to provide payment services. Providers of ATM network services, and of debit and credit cards are under the jurisdiction of the Superintendencia de Sociedades, which supervises all companies. There are no specific rules to sanction abnormal behaviors of system participants. Consumer protection is under the control of the Superintendencia de Industria y Comercio.

No explicit provisions exist for regulating payment services pricing. For payment services offered by the central bank, the Banco de la República has issued a directive that mandates the full recovery of the production costs, including the opportunity cost of the invested capital.

Regarding regulation of e-money instruments, these are currently only in their test phase in Colombia, and service providers are developing operational standards for their supply. To date, no regulation exists in this area.

In conclusion, payment system oversight has not yet evolved as an autonomous function. However, there is discussion within the central bank on the opportunity to define intervention in this field and the benefits of a statutory approach to oversight. It is not possible to anticipate the results of the ongoing discussion.

INDIA

In India, payment system activities are confined basically to management of clearing and settlement systems, which are based on multilateral netting arrangements. The clearinghouses located in cities where the central bank (Reserve Bank of India, RBI) has offices are managed by the central bank. In other places these are managed by public sector banks. The clearinghouses are voluntary bodies governed by their own rules and regulations. In 1986, the central bank prepared model clearinghouse rules known as Uniform Regulations and Rules (URR 1986), which were adopted by the members of the clearinghouse which are banks, and by the General Post Offices with banking units providing postal office savings bank facilities to the public. The clearinghouse has a standing committee with responsibility for its day-to-day governance, and a General Body in which all major decisions are discussed and approved by the members. The president of the clearinghouse, in coordination with the Standing Committee and General Body, has the power to suspend members from participation in clearinghouse operations, keeping in mind the interest of the system as a whole. The central bank's role as payment system overseer and/or direct manager of the clearing and settlement system is not very well defined because a formal oversight regime has yet to be established.

In the absence of any specific legal provision, the RBI has taken upon itself the role of regulator and supervisor of the country's payment system. The URR 1986 governs the management of clearinghouses. These rules are based on mutual agreement of the members and are contractual in nature, with the backing of the law of contract as it exists in the country. This is, therefore, more in the nature of a convention than a statute. Since the process of creating the oversight regime has already started, necessary steps are being initiated to suitably amend the RBI Act to provide it with the desired legal powers for payment system oversight. Since the objectives of the clearinghouse are to make arrangements for speedy and economic collection of checks, bills, and other documents payable or deliverable at or through offices of the members, consumer protection is ensured under the present system. The competitiveness among the participants is on the increase in order to promote business and attract customers.

In India, there is no other controlling authority but the central bank with supervisory power over the payment system. Under the National Payment Council, a Task Force on Payment System Oversight has been constituted, which has been entrusted with the work of formulating oversight functions. The Task Force has already initiated steps in the desired direction, and the oversight functions are likely to be organized and put in place shortly. The model of the function, including objectives, instruments, and organizational arrangements, will be finalized in due course.

As for the current system, payment services are provided by banks, only and no nonbank, with the exception of the Post Office, is permitted to provide them. The operating costs of the payment system provided by the central bank are fully recovered. The Indian Banks' Association regulates the pricing policy of payment services offered by the banks to avoid unhealthy competition among banks. No payment system provider other than the central bank operates in India.

India is in a developing stage as far as electronic money is concerned. Recently a few banks introduced smart cards and the central bank has issued comprehensive guidelines for issuing these cards. Specific rules and regulations governing the use of electronic money will be framed in due course, depending on the development of such products and their use.

INDONESIA

As payment system overseer, Bank Indonesia (BI) plays a major role in regulating and safeguarding the smoothness of the payment system, and in supervising banks. BI believes that the task of prescribing and implementing monetary policy shall be conducted by the central bank through, among other things, controlling money in circulation and interest rates. To do so, an efficient, expeditious, safe, and reliable payment system is needed, which constitutes the objective of the payment system oversight role.

As a direct manager of clearing and settlement systems, BI conducts the arrangements of interbank clearing systems in local currency (rupiah) or grants approval and license to other parties to conduct the

interbank clearing system in areas where the central bank does not have a branch. BI is also developing and establishing the principles under which the interbank clearing system should operate. It may conduct an examination to determine whether these principles are adequately followed by all parties involved in the clearing system.

The legal foundation of the oversight role lies on the Act of the Republic of Indonesia Number 23 of 1999, concerning the central bank's role (Bank Indonesia Act).

The objectives of payment system oversight are to ensure the efficiency and reliability of the payment system for the benefit of the real economy and the financial markets. In this context, a higher level of competitiveness among system participants should be pursued. Moreover, a higher level of competition is compatible with consumer protection.

In performing the oversight function BI may issue regulations to ensure that the above objectives are met. Regulations already in place consist of rules and principles governing interbank clearing activity. Accordingly, the payment system oversight, which is carried out as part of the regular process of bank examination, is limited to the compliance of banks to those rules. Banks should manage their payment risks through appropriate credit, liquidity, and contingency plans. Since payment system oversight and banking supervision are assigned to BI, the surveillance of bank compliance with sound payment system principles is carried out as part of the bank examination by the banking supervision division. There are also good relationships with banking and financial institutions and other agencies such as those in charge of consumer protection.

According to the Bank Indonesia Act, BI arranges the final settlement of interbank payment transactions in both rupias and foreign currencies. Settlement may be conducted by other parties on the approval of BI. In this case, BI requires special conditions, such as technical capacity and good management.

At this time Indonesia has no rules to discipline the pricing policy of payment system providers. The costs of payment services provided by the central bank are not fully recovered. Nor does Indonesia have electronic money regulation or electronic money instruments.

From the organizational standpoint, there is as yet no oversight function structure. However, some of these functions are carried out by the National Payment System Development Bureau in conjunction with the Clearing Department of BI. These include daily monitoring of payment flows and operations, applying penalties to noncompliant participants, and maintaining the database for uncovered checks. BI interacts with banks and service providers through periodic contacts and exchange of information. Inputs from the private sector are seriously considered when BI defines strategies and policies.

After BI approval, the oversight function is likely to emerge as an autonomous supervisory function to be performed by an autonomous agency or a bureau of BI.

MALAYSIA

The central bank's role in Malaysia is to ensure the smooth functioning of the payment systems. It also monitors developments in payment systems to assess risks and compliance with agreed standards and requirements.

The legal basis for payment system oversight is contained in various laws, which include the Central Bank of Malaysia (BNM) Act 1958, the Banking and Financial Institutions Act 1989, the Islamic Banking Act 1983, and the Exchange Control Act 1953. From time to time the central bank also issues guidelines and circulars to the banking and financial institutions. The central bank, together with the industry, had also issued a code of conduct and rules to govern the participants in the system.

The objectives of payment system oversight include minimizing or alleviating risks, promoting efficiency (and thereby encourage competition), protecting consumers/users, and ensuring the ready

availability of a mechanism to implement monetary policy. Instruments include, but are not limited to, guidelines, moral suasion, direct provision of payment services, and on-site inspections.

Oversight of the payment systems in Malaysia is under the responsibility of the central bank. There is no provision in any legislation in Malaysia that specifically mentions cooperation with other agencies. However, BNM maintains a close relationship with other government ministries and agencies, and cooperation between parties has never been a problem. BNM also maintains close ties with the industry, which is consulted before any major regulations or guidelines are issued.

Only financial institutions regulated by the central bank and institutions approved by the BNM are permitted access to the domestic settlement systems for funds, government securities, central bank papers, and selected private debt securities. The Securities Commission regulates access to settlement systems for equities, derivatives, and other corporate bonds.

There are no rules at present to discipline pricing policy of payment service providers. The central bank, being a nonprofit organization, determines its pricing policy on a full cost-recovery basis over a period of three to five years.

The central bank is considering drafting laws and possible regulations to govern electronic money, such as the stored value card.

Policies and regulations concerning payment system oversight are formulated and issued by the Bank Regulation Department and the Payment Systems Department, while on-site inspection is undertaken by the Bank Supervision Department and the Information System Supervision Unit. Oversight does not include day-to-day tasks such as monitoring of flows and operations. For the more critical applications, such as funds and checks settlement systems, contingency procedures have been formulated and issued to the participants. The central bank maintains contacts with the service providers and encourages inputs from both users and service providers when defining or modifying its strategy and policies.

MEXICO

The Banco de México has designed, developed, and now operates the country's two large-value payment systems. There is a link between the large-value payment systems and the securities settlement system owned by the Central Security Depository, INDEVAL S.A. de C.V. The central bank established the regulations for the cash leg of securities settlement in this system and participated actively in many other regulatory aspects. The central bank has a seat on the INDEVAL board. Banco de México also has a seat on the CECOBAN board, a company owned and managed by the banks that operates the single check clearinghouse and an automatic clearinghouse. Banco de México has veto power on changes to system rules. Payment system oversight started evolving in 1993 as a result of the various concerns voiced by other central banks.

Article 2 of the Central Bank Law states that one of the aims of Banco de México is the smooth functioning of the payment system. Article 3 empowers Banco de México to regulate the payment system, and Article 31 allows it to regulate electronic funds transfers.

The objectives of the oversight function are to increase security and to lower costs. Often, these two main objectives cannot be pursued simultaneously. In such cases, the objective is to strike an appropriate balance, looking for reasonable levels of security at the lowest achievable cost. In Mexico, the Comisión Federal de Competencia Económica is formally in charge of discouraging monopolistic practices and promoting fair competition. However, Banco de México believes that fair access to the payment infrastructure and a level playing field are crucial to make payment systems more efficient. Also, the Instituto Nacional de Protección a los Usuarios de Servicios Financieros is formally charged with consumer protection for financial services. Policy initiatives always take into account effects on final users.

Banco de México issues regulations to pursue its objectives. When a participant does not abide by them, Banco de México applies sanctions. As the main provider of large-value payment services, it has

direct control over many aspects of the systems it operates and requires direct users to assume contractual obligations. Sometimes, regulations are not appropriate to induce specific behavior or to discourage certain practices. In such cases, Banco de México uses moral suasion.

There are no formal relationships with other financial regulators over payment systems. Cooperation among financial regulators has been close over other matters, and recently all regulators signed an agreement to facilitate information sharing.

All banks and broker dealers have access to the payment and settlement systems. The Treasury licenses these organizations and establishes minimal requirements for them. The local ACH is the only system that has established technical requirements. There have not been requests for remote access to the payment systems. Banco de México is allowed to extend credit only to banks chartered in México. There are no rules on pricing policies. Most payment services are bought by corporate users that can get competitive prices. Banco de México recovers all direct costs and gets a return on its initial investment. As the number of payments increases, the payment systems will probably give Banco de México more than an appropriate return on capital, and prices will likely have to be adjusted as a result. The policy is to keep costs down and not to exploit the system as a monopoly, and to recover all costs so as not become an unfair competitor to the private sector service providers.

There are no specific rules or regulations governing the use of electronic money instruments.

Within the central bank, oversight is performed by a group of officers who meet regularly. Oversight is not the main activity or responsibility of most of these officers. However, there is a staff group that monitors payment flows and central bank intraday credit, and supplies information to the senior group. The staff group identifies risks to be managed and changes to make payment systems more efficient, and participates in the work done by lawyers, IT experts, and other specialists. Staff responsibilities include identifying emergency procedures.

Banco de México meets with the committee of the Mexican Bankers Association, which is in charge of payment system developments, whenever either party has business that merits discussion. Also, individual participants frequently contact Banco de México. Banco de México makes an effort to include input from participants when it makes policy changes.

PERU

The role played by the Central Bank of Peru (Banco Central de la Reserva de Peru) in the payment system is to achieve adequate performance of the system, in accordance with the central bank objective of preserving monetary stability, as stated in Article 84° of the Political Constitution and Article 2° of the Central Bank Organic Law.

The central bank manages a real-time gross settlement system, the Sistema de Liquidación Bruta en Tiempo Real (LBTR System), which enables financial institutions to order electronic transfers of funds, debiting the current accounts they maintain at the central bank. These transfers are settled only if they hold enough funds in their current accounts or have access to an intraday collateralized credit facility. LBTR System rules are specified in its Operative Regulations.

In addition, the central bank manages the check clearing house. Since 17 November 2000, private sector companies have been responsible for the service, which is offered by specialized institutions called Empresas de Servicios de Canje (ESEC), like the one being organized by the banks as an electronic clearing house, in coordination with the central bank. The central bank issues the clearing services regulations, while the Superintendency of Banking and Insurance (SBS) authorizes its organization and functioning. ESEC participants settle their net balances through the LBTR System.

The legal framework that enables the central bank to oversee and regulate the Peruvian payment system is designed to support the objective of preserving monetary stability. As manager of the LBTR System, the central bank has issued regulations that embody the rules for its functioning (Circular N° 033-

99-EF/90). On the other hand, Article 215° of Law N° 27287—Securities Law—in force since October 2000, will enable the central bank to approve regulations concerning electronic clearing of checks and securities. Furthermore, Article 68° of the Central Bank Organic Law specifies that the functioning of the clearinghouses must be regulated by the central bank. In that sense and in the context of the Peruvian payment system reform, the central bank issued in July 2000 the regulations regarding clearing and settlement services (Circular N° 022-2000-EF/90) and clearing and settlement of checks (Circular N° 023-2000-EF/90).

The most important objectives of the Peruvian payment system reform, which began in 1998, are to eliminate the central bank settlement risk, reduce both credit and systemic risks, strengthen monetary policy and improve its effectiveness, minimize moral hazard in the payment system, improve payment system efficiency, and increase and promote banking services in the economy. These objectives concur with a higher level of competitiveness among system participants. The regulations for both the LBTR System and the Electronic Clearing House were designed to ensure that banks have equal access to the system.

Regarding consumer protection, the LBTR System reduces operational risks (transactions are irrevocable and secure) and reduces the time of funds transfers, giving greater speed and security to bank clients.

The central bank develops its oversight function through regulations called *circulares*. The main *circulares* related to the payment system reform are the LBTR System Rules (Circular N° 033-99-EF/90), the General Rules for Clearing Services (Circular N° 022-2000-EF/90), the Clearing Rules for Checks (Circular N° 023-2000-EF/90), the Schedule of Attention to the Financial System (Circular N° 005-2000-EF/90), and the Circular of Information of Small Value Payment Instruments (Circular N° 005-98-EF/90).

The payment system regulations include sanctions. The participants must sign an Adherence Agreement to enroll in the system, which specifies sanctions for those that do not abide by its rules. Likewise, the General Rules of Clearing Services and the Clearing Rules of Checks specify the conditions that the participants must fulfill to avoid being excluded from the ESEC.

The relationships between the Central Bank of Peru and the Superintendency of Banking and Insurance (SBS), in the framework of payment system reform, are based on an Understanding Agreement. This guarantees cooperation and the coordination of actions to issue regulations regarding the clearing of checks and other payment instruments.

Therefore, the cooperation assures secure and quick coordination to ensure adequate transfers and financial and monetary stability. In that sense, the SBS approves the functioning of an ESEC, while the Central Bank of Peru is in charge of the regulations to ensure greater competitiveness among system participants and greater consumer protection.

As specified above, to access the LBTR System the banks must subscribe to an Adherence Agreement, which establishes the rights and duties of both participants and the central bank. In addition, the participants must:

- ◆ Hold current accounts at the central bank
- ◆ Hold funds in their current accounts or have access to intraday collateralized credit facilities
- ◆ Maintain an adequate communication system and software (that is, one that fulfills minimum requirements)
- ◆ Maintain an adequate safeguard system to restrict the access of nonauthorized persons.

There are no capital requirements to access the LBTR System, but banks are the only institutions that have access to intraday collateralized credit facilities. The General Banking Law N° 26702 requires banks to maintain a general purpose minimum capital of US\$5.2 million.

Finally, if the participants do not fulfill the conditions laid out in their Adherence Agreement, the sanctions are:

- ◆ Written admonitions
- ◆ Suspension of access to intraday collateralized credit facilities
- ◆ Suspension of access to the LBTR System

- ◆ Cancellation of the Adherence Agreement and, thus, permanent annulment of access to LBTR System services.

The commercial banks and the Banco de la Nación (financial agent of the government) may have access to an ESEC's services. They have to subscribe to the ESEC-Participants Agreement and fulfill the technical prerequisites, which are indicated in the regulations issued by the central bank and the ESEC.

The central bank as manager and regulator of the payment system has designed regulations to avoid collusive practices or discrimination among participants.

Financial institutions must fulfill specific requisites to access the LBTR System. These requirements do not contain rules that discriminate among financial institutions. The central bank regulations on clearing services also have the same principles.

With regard to the cost scheme, the LBTR System was designed under the concept of transaction volumes. A monthly charge of approximately US\$200 was established as fixed cost for the use of the system, as well as a charge for each transfer of approximately US\$2.00 between 10:00 a.m. and 3:30 p.m., and US\$3.00 between 3:30 p.m. and 4:30 p.m. These fees were established with the objective of full cost recovery of services provided by the central bank.

Electronic money instruments are not currently developed in Peru. The Payment System Department of the Central Bank of Peru is in charge of researching and collecting relevant information about this issue.

Other instruments of small-value payments used in Peru are credit cards and debit cards, for which regulations are not issued by the central bank.

The Central Bank's Credit and Financial Regulation Division is permanently supervising the performance of the financial sector. In that sense, the Payment System Department is in charge of payment system oversight, and the Monetary and Exchange Operations Department supervises the banks' liquidity level and the financial support, if necessary. Finally, the Financial System Analysis Department monitors and evaluates banking sector performance. All these functions are related and there is feedback among the departments in charge of them.

Payment system oversight is executed through electronic monitoring of operations in the LBTR System and the Clearing House transactions. In addition, statistical analysis is available of other payment instruments.

The SBS controls and supervises all financial institutions (main users of the LBTR System and the Clearing House); this kind of control is in addition to the central bank's payment system oversight.

The central bank has established contingency procedures to face the operational risks to which the system might be exposed. Furthermore, the ESEC must develop contingency procedures to avoid operational risk.

The central bank coordinates with the banking system through the Interbank Payment System Committee.

The Central Bank of Peru is an autonomous authority according to Article 84° of the Peruvian Constitution and Article 2° of Central Bank Organic Law. Therefore, its regulatory function of the payment system and management of the LBTR System are executed under that premise. The central bank decided to start the payment system reform in 1998, taking into account that monetary and financial stability can be reached only if the payment system is steady, efficient, and reliable. Those conditions minimize the effects of external and internal shocks on the financial system.

The international debate about related issues has contributed to the implementation of the payment system reform, and the expertise of other countries has been of valuable help in this respect.

REPUBLIC OF KOREA

The role of the Bank of Korea (BOK) is to operate an RTGS system, called BOK–Wire, to manage settlement risks in interbank settlement systems, and to oversee the private clearing institution, the Korea Financial Telecommunications and Clearing Institute (KTFC).

Art. 81 of the Bank of Korea Act stipulates that the BOK shall engage in the operation and management of the payment system insofar as this is related to monetary and credit policies. Other legal bases are regulations of the BOK-Wire operations issued by the Monetary Policy Committee of the BOK and guidelines on safety of financial information network systems laid down by the Sectional Committee for Financial Information established under the Act on the Distribution and Promotion of the Telecommunications Network.

The main objective of the payment system oversight function is to maintain the stability of payment systems. Promoting their efficiency and pursuing a higher level of competitiveness among system participants are also oversight objectives.

The BOK carries out its oversight function through issuance of regulations, direct provision of payment instruments and services, and application of sanctions to abnormal behaviors. The BOK participates in the decisionmaking process of the KTFC through the chairmanship of its General Meeting and as a member of its Board of Directors. Because the BOK participates on a joint basis in the Financial Supervisory Service's on-site inspections of banking institutions, it can check their compliance with payment system regulations.

The Bank of Korea Act stipulates that the BOK may require the Financial Supervisory Service not only to examine banking institutions insofar as this is necessary for monetary and credit policies, but also to allow BOK employees to participate in the examination of the banking institutions on a joint basis. The Bank of Korea Act also stipulates that the BOK may require the Financial Supervisory Service to submit the findings of examinations carried out at the request of the BOK and to take corrective measures against banking institutions. Through this participation in the supervisory activity, the central bank can examine bank compliance with payment system regulations.

Banks and nonbank financial institutions having current accounts with the Bank of Korea can participate in BOK-Wire. Bank and nonbank financial institutions that acquire consent from the General Meeting of the KFTC can participate in retail payment systems such as the Bank Giro System and the interbank CD/ATM System. Only banks authorized by the General Banking Act can provide check services and other payment services. Meanwhile, there are provisions to sanction participants' abnormal behavior in the payment system.

Fees for payment services are liberalized. In Korea there are no specific laws and regulations to discipline the pricing policy of payment services, but a general law exists—the Fair Trade Act—which prohibits collusive practices in all business transactions. Participants in BOK-Wire pay fees determined by the BOK based on their usage. Fees are levied at a level that recovers only part of the development and operation costs of the system.

In Korea there are no specific rules or regulations governing the use of electronic money instruments. However, the regulatory provisions on issuing electronic money are contained in the Act on Financial Companies Specializing in Loan Business.

The BOK is in charge of payment system oversight. The Monetary Policy Committee of the Bank determines principal policies of payment system oversight. The Payment System and Treasury Service Department carries out the enforcement of oversight policies. Three teams and one division in the Payment System and Treasury Service Department carry out oversight functions, such as the operation and management of BOK-Wire, management of settlement risk, coordination with the private clearing institution (KTFC), safety of financial information network systems, provision of settlement services, loans

to financial institutions, monitoring the fund management and the financial status of financial institutions, and compiling statistics relating to payment flows.

The principal oversight institution is the KFTC, which operates retail payment systems and participants in the systems. Because settlement obligations of each system participant are settled by debiting and crediting participants' current accounts at the BOK, the central bank can monitor payment flows and participant's settlement ability. BOK-Wire and retails systems have procedures to cope with emergencies, such as a participant's failure to settle, and system operation failures. The Governor of the Bank of Korea chairs the General Meeting of the KFTC, and the Assistant Governor of the BOK with responsibility for payment systems is a member of the KFTC's Board of Directors. The BOK also periodically receives statistics on payment and settlement from KFTC. The BOK incorporates information and feedback received from the private sector when setting up and modifying its policies.

Since the BOK was founded it has carried out its payment system oversight as an autonomous regulatory/supervisory function to ensure stability and efficiency of payment systems. The Bank of Korea is studying all aspects to improve its oversight function. However, it is not possible to foresee at present how the function will be reshaped.

SOUTH AFRICA

The Role that the Central Bank Plays as Payment System Overseer and/or Direct Manager of the Clearing and Settlement Systems

In terms of the National Payment System Act, the central bank (South African Reserve Bank, (SARB)) oversees the entire payment system within South Africa. The South African approach has been to task separate departments of the central bank each with the oversight of different aspects of the payment system.

The Bank Supervision Department focuses on the banking sector's compliance with the Banks Act as well as the regulations and prudential requirements issued by the Registrar of Banks in support of the strategy of the Basel Committee of Banking Supervision. The Money Market Department is tasked with monitoring and managing the money market, while the Currency Department ensures that there are sufficient bank notes and coin in the market.

The National Payment System Department fulfils the role of overseer, regulator, manager and operator of the settlement system called the SAMOS system (South African Multiple Option Settlement). In addition, the SARB has various other roles which include: participant, settlement provider, central securities depository, financial instruments register, and developer of the settlement system. The process of clearing the items in the various payment streams and submission of the batches for settlement is undertaken and overseen by BankServ, a service utility company owned and managed by the clearing banks.

The Legal Basis for the Payment System Oversight

A. Statutory:

The National Payment System Act, Act No 78, 1998, (NPS Act) provides for the management, administration, operation, regulation and supervision of payment, clearing and settlement systems in the Republic of South Africa.

The NPS Act requires that the SARB be enabled to adequately oversee the affairs of the payment system management body, known as the Payment Association of South Africa (PASA), and its members in the discharge of the SARB's responsibilities, specified in section 10(1)(c)(i) of the South African Reserve Bank Act, 1989, regarding the monitoring, regulation and supervision of payment, clearing or settlement systems. The NPS Act also states that a system participant must be a member of

the payment system management body and will therefore be subject to the applicable entry criteria for membership.

B. Regulatory:

The Banks Act, 1990, Act 94 of 1990, (Banks Act) provides for the regulation and supervision of the business of public companies taking deposits from the public, e.g. banks and Mutual Banks, and to provide for matters concerned therewith.

In terms of the Banks Act, the Registrar of Banks, and the Head of the Bank Supervision Department, have the responsibility for the oversight of public companies such as banks, and perform a supervisory function on all registered banks in South Africa in terms of the Banks Act requirements.

The Banks Act, and the regulations thereto, provide the regulatory framework for the banking industry that follows the internationally accepted bank supervision standards developed by the Basle Committee on Banking Supervision.

The supervisory process of a bank entails the following main processes:

1. Bank registrations based on predetermined minimum entry criteria, set by the Registrar of Banks
2. Submission of monthly and quarterly reports on various risk exposures to the Registrar of Banks
3. Analysis of the reports and continuous liaison with the banks regarding the reports, both on and off-site supervision are performed on banks
4. Annual discussions with the senior management and the boards of directors of the banks
5. Because all banks are subjected to bank supervision it stands that all participants will be regulated in terms of the relevant legislation in South Africa.

C. Contractual:

Legal agreements pertaining to both technical and business service levels, rules for participation and conduct within the system have been finalized and signed by all participants. These agreements are mostly aimed at securing the netting systems and the Real Time Gross Settlement system.

The Objectives Pursued by Payment System Oversight

The objectives pursued by payment system oversight focus on ensuring the effectiveness and integrity of the national payment system.

The Instruments Used by the Central Bank in the Performance of the Oversight Function

The central bank may issue regulations, instructions, and can make use of moral suasion. In addition, the central bank designs, develops and implements the payment system's technical solutions, infrastructure and payment instruments used to effect electronic settlement across the books of the participating banks in the central bank. This system provides real-time information on participating bank's positions, i.e. available funds and security. The central bank also monitors the payment system on a real-time basis, providing information and assistance to the participating banks.

In instances where a bank has not managed its affairs effectively, sanctions may be applied; for example, punitive measures in the form of penalty fees may be levied should a bank attempt to settle a payment and have the settlement instruction rejected due to insufficient funds in their settlement account.

Visits to banks are undertaken where information is shared, systems evaluated, disaster recovery facilities and procedures discussed, and any other matters reviewed that relate to the efficiency and reliability of the participating bank's operations.

The Relationships Between the Payment System Overseer and the Other Control Authorities

The National Payment System Department and the Bank Supervision Department have the escalation procedures in place, should any serious problems be encountered from the payment system side or from the supervisory side. A committee has been established to share and evaluate information supplied by the payment system overseer, the supervisor, and the money market. As mentioned under item 2.A, the payment system overseer has a close relationship with the payment system regulatory body, PASA, the Payment Stream Associations, and other smaller controlling authorities. In addition, contact is maintained between the payment system overseer and the market regulator (Financial Services Board) to facilitate an effective exchange of information and to promote co-operate in achieving DvP and removing market settlement risk. The relationships, based upon both the law and mutual understanding, take the form of meetings, and both formal and informal written and verbal communication and information.

Requirements for Access to the Settlement System

The NPS Act states that only members of PASA are eligible for participation in the SAMOS system. In order to comply with the PASA membership criteria, the institution must meet the following criteria:

1. Participant must be either:
 - (a) a bank registered in South Africa in terms of the Banks Act, 1990 (Act No. 94 of 1990), or;
 - (b) a mutual bank registered in terms of the Mutual Banks Act, 1993 (Act No. 124 of 1993), or;
 - (c) a branch of a foreign institution registered as such under the Banks Act; and the SARB in terms of the Reserve Bank Act, 1989 (Act No. 90 of 1989).
2. Participant must be a member of the Banking Council of South Africa (BCSA).
Membership of PASA is conditional upon membership of BCSA inter alia to ensure:
 - (a) that the participants in the clearing system adhere to a uniform code of conduct as published by the BCSA from time to time; and
 - (b) that there is a single official mouthpiece for the banking industry.
3. Participants must become a member of a Payment Stream Association (PSA):
 - (a) Membership of PASA is confined to banks, which are also a member of at least one PSA, or have been granted provisional membership of PASA, pending acceptance as a PSA member.
 - (b) Membership of PASA and a PSA are applied for simultaneously, and granting of the one is conditional upon the granting of the other. (Both may be granted subject to admission by the other).
4. Participants must have a SARB Settlement Account:
 - (a) A PASA member bank must have the ability and right to settle across an account designated for settlement purposes, at the SARB, in its own name.
 - (b) Only banks may have settlement accounts at the SARB.

There is no standard pricing policy to which the payment service providers must conform. Each payment stream clearing house must negotiate with the participants regarding pricing structures while not discriminating against the smaller players.

With regard to the recovery of the costs relating to the payment services provided by the central bank, costs are currently not being fully recovered.

The Reserve Bank Act, Banks Act and the NPS Act afford the SARB the authority to regulate electronic money and/or other forms of on-line payment systems. In addition, a position paper, drawn up in consultation with the relevant interest groups, has been published stating the SARB's position towards, and requirements sought prior to the role-out of any form of electronic money.

The Structure of the Oversight Function

External Body	South African Reserve Bank (Sarb)	
	National Payments System Department	Bank Supervision Department
Payments Association Of South Africa (PASA) (Created in terms of the NPS Act as a self-regulatory body)	Oversight of: NPS (Line function) PASA (Staff Function)	Regulator of Banks
Self regulatory body / Industry body	<ul style="list-style-type: none"> ◆ Operation of the Settlement system ◆ Monitoring of Daily Liquidity 	Supervision of Banks
<ul style="list-style-type: none"> ◆ Entry Criteria ◆ Banks as members ◆ Operational Guidelines ◆ Legal Environment ◆ Regulation ◆ Monitoring 	Risk Management: <ul style="list-style-type: none"> ◆ Netting System Risk ◆ Payment and Settlement Risk: ◆ Internal ◆ External ◆ Operations Risk ◆ Legal Risk 	Risk Management: <ul style="list-style-type: none"> ◆ Credit Risk ◆ Liquidity Risk ◆ Solvency Risk ◆ Foreign Exchange Risk ◆ Balance Sheet Risk ◆ Capital Adequacy ◆ Interest Rate Risk ◆ Operations Risk
	Bank Analysis: <ul style="list-style-type: none"> ◆ Payments ◆ Collateral ◆ Systems ◆ DRP 	Corporate Governance
	Developments Analyzed: <ul style="list-style-type: none"> ◆ Payment systems ◆ Electronic Money 	
	DIVISIONS	DIVISIONS
	<ul style="list-style-type: none"> ◆ Operations ◆ Risk Management ◆ Research ◆ Electronic Money 	<ul style="list-style-type: none"> ◆ Analysis ◆ On-Site Inspections ◆ Research ◆ Legal

Institutions Overseen: All participating banks and Customer Payment Service Providers are overseen by PASA and the SARB.

Emergency Procedures: Escalation procedures and other emergency procedures have been put in place to ensure effective sharing of information and management of situations.

Interaction with the Service Providers: Close interaction does exist with all service providers associated with the payment system such as SWIFT. and the payment clearing house operators.

Inputs from the Private Sector: A collaborative approach with the players in the private sector is followed when defining and/or modifying strategies and policies.

From its early beginnings as a project team and then as a division of the Business Systems and Technology Department, the IT systems development department of the SARB, the oversight function has grown and culminated in a department in its own right being formed. The function has evolved to a certain degree as a result of the increasing international debate on payment system related issues.

THAILAND

The Bank of Thailand (BOT) oversees the country's payment system by issuing policies and regulations that are in line with international best practices. It also operates the country's large-value electronic funds transfer system, an Electronic Cheque Clearing System, and a low-value electronic funds transfer system called Media Clearing. The BOT initiated the payment system reform in 1991 by setting up a Payment System Committee to map out and steer the course of payment system modernization.

The legal basis for payment system oversight by the BOT is under the Royal Decree regulating the Affairs of the Bank of Thailand, Section 12 (16), which allows the BOT to administer an interbank clearing system. As for payment services offered by the BOT, related activities are governed on a contractual basis. That is, the BOT issues a circular to financial institutions and invites them to apply for membership. The BOT act regulating the operation of the BOT is being amended to incorporate regulatory/supervisory functions for nonfinancial institutions operating payment systems. A policy framework for establishing a National Payment Council is being studied.

The BOT ensures that payment system risks are under control, and that consumers get sound, safe, and efficient payment services at a fair price. This is done by requiring the real time gross settlement of large-value payments, encouraging free competition among system participants, and promoting electronic means of payment over paper-based means. The BOT uses many instruments to carry out the function, which includes issuing regulations, moral suasion, direct provision of payment instruments and services, application of sanctions, and on-site inspections. The Financial Institutions Policy Group is responsible for the issuance of policies, new rules and regulations, and moral suasion. The Supervision group conducts on-site examinations and applies sanctions where appropriate. The Payment System Group handles the operation of payment services. This group works in close cooperation with the external banking community and with internal information technology and legal staff to assure technical reliability. The Supervision Group works closely with the Financial Institutions Policy Group through committee meetings.

As per the access requirements, members of the Electronic Cheque Clearing System (ECS) must legally constitute a commercial bank under the commercial banking law or a specialized bank established under a specific law. For Media Clearing, a member bank must be an ECS member and is officially authorized by the BOT to operate in the system. For the large-value electronic funds transfer system (BAHTNET), members must maintain current accounts at the BOT and abide by the 1995 BOT regulation of BAHTNET. A member of BAHTNET may be banned from the system if, on repeated occasions, it fails to repay its borrowing from the intraday liquidity facility at the end of the day. Moreover, a member faces a penalty rate of 6.5 percent for the first default, plus the current repurchase rate for funds borrowed overnight. The penalty rate will multiply for repeated defaults. Members are banned from the system after failing to meet these rules on three occasions.

There are no explicit rules to discipline the pricing policy of payment service providers. Commercial bank payment charges are generally guided by rates set by local banking associations. Price increases, however, are subject to prior notification and approval from the central bank. As of 1999, the BOT subsidized all payment services that it provides except for ECS.

At present, there are no specific rules or regulations governing the use of electronic money instruments. However, the BOT encourages banks to hold a large share of the issuing institutions and use its influence through close consultation.

The BOT is responsible for the payment system, supervising, advising, coordinating, and seeking to ensure that systems are safe, sound, and efficient. The Payment System Group is partly responsible for payment policy formulation and prepares the agenda for the Payment System Committee. Currently, the institutions overseen by the BOT are financial institutions. However, when the amended BOT Act is enacted, oversight would cover any institutions involved in the payment system.

Although the major systems are operated by the BOT, responses from the service users are considered important information for any changes in payment arrangements.

TURKEY

The Central Bank of Turkey (CBT) is the owner, operator, and overseer of the country's large-value payment system, called TIC-RTGS.

The legal basis for the CBT role as the overseer is statutory and contractual. Although, as yet, there are no specific laws concerning payment systems in Turkey, the CBT is considering including its role, among other things, as the payment system overseer (responsible for the smooth functioning of the payment systems) for the new central bank law that is being drafted.

The CBT considers TIC-RTGS as a means to provide smooth functioning of payment systems focusing on credit risk, liquidity risk, and efficiency. While doing this, the CBT pursues fairness of access and use of the system. The CBT, with the support and cooperation of the Turkey's Banks Association (TBA), pursues consumer protection through the "TIC-RTGS Rule Book" which banks are required to sign to join the system. This rule book identifies the responsibilities of payment order senders and receivers, including pricing issues, and tries to establish a level playing field for payment system participants.

The CBT issues so-called "Rule Books" concerning the regulations of the payment systems. Rule Books are designed to address general rules, principles, and regulations for payment systems and instruments. For the details of any particular system function, instrument, and regulation, the Rule Books refer to more operational and technical guidelines and CBT circulars. Rule Books are drafted by the relevant departments at the Head Office and are approved by the CBT's Management Committee. Rule Books define: (a) the roles and responsibilities of the organizations in the payment systems, (b) the functions of each component of the payment systems (that is, central systems, system participants, network, etc.), (c) criteria for joining the system and membership termination conditions, (d) systems and timetables, (e) instruments and conditions for their use, (f) pricing, (g) emergency procedures, (h) security considerations, (i) penalties, and (j) resolution of disputes.

The CBT pursues its oversight function on a daily basis through its relevant departments to ensure the smooth functioning of payment systems. Since April 1992 the CBT has prepared monthly reports on the use of payment systems. The CBT has a specific website for the payment systems, with access restricted to payment system participants and members of the TBA, where the monthly reports are available together with updated documents, minutes of participant meetings, and announcements.

Penalty clauses in the Rule Books may be applied by the CBT to prevent any moral hazard behavior in the system. Rule Books also establish arbitration clauses to solve conflicts between participants arising out of daily operations of the system.

As the overseer of the payment system, the CBT informs other relevant authorities of payment system developments, and exchanges views with them through formal correspondence and meetings. In the case of Takasbank, the custodian and settlement bank of the Istanbul Stock Exchange (ISE), in charge of overseeing the banks and the brokers operating in the ISE, cooperation is very tight. Takasbank views are reflected in the design and regulations of the payment systems.

Any bank that has a legal presence in Turkey may be a direct member of TIC-RTGS. Brokers can access the system indirectly through Takasbank, which also oversees them and can sanction their malpractice. Takasbank, in turn, complies with the rules of TIC-RTGS. So far, there have not been requests for remote access to TIC-RTGS. When and if such requests occur, they will be handled by the CBT executive committee on payment systems.

Prices of CBT payment system services are determined by the CBT to recover investment and operating costs in the long term and on a nonprofit basis. Although there are no formal rules requiring participants to reflect CBT fees to their customers, the CBT and the TBA follow market practices closely and advise participants through formal meetings to motivate customers to use TIC-RTGS services by imposing reasonable charges.

TIC-RTGS participants generally price their services to reflect the operational costs of TIC-RTGS rather than making a profit out of its use. In most cases, the banks provide facilities to their interactive telephone and/or Internet customers for making free RTGS transfers (this is actually one of the major factors attracting more retail transfers to TIC-RTGS). As yet, there are no specific rules or regulations governing the use of electronic money instruments. However, this issue is being considered as part of the new CBT law that is being drafted.

The CBT has an executive committee for payment systems (for TIC-RTGS and real-time DVP Securities Settlement System which went live on 30 October 2000) chaired by one of the vice governors. The committee is composed of the directors of the seven head office departments and two branches, and is responsible for policy decisions. The CBT also establishes working groups where the same units are represented as those sitting on the executive committee. These groups are responsible for carrying out the oversight operations as set out by the Rule Books. Another committee, coordinated by the TBA and including the banks that are represented on its board, discusses daily operations, identifies problems that are not addressed in the Rule Books, and submits them to the CBT for approval and publication in the Rule Books, if necessary. Furthermore, at least twice a year, the CBT convenes all system participants and the TBA to discuss and get feedback on system issues, possible innovations, and changes in regulation.

WEST AFRICAN UNION (BCEAO)

The basic features of the West African Monetary Union, which comprises Benin, Burkina Faso, Cote d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, and Togo, are:

- ◆ Pooling of the foreign exchange reserves of the member countries, and
- ◆ Adoption of a common currency by the eight States, issued by a common central bank, the Banque Centrale des Etats de l'Afrique de l'Ouest (BCEAO).⁵⁹

The BCEAO is an international public institution vested with the exclusive right to issue the currency unit, which is legal tender throughout the territory of the eight member States of the Union. To ensure the full and effective implementation of the guiding principles of the Union, the member states have adopted uniform legislation on checks, commercial paper, and external financial relations. They have also undertaken to apply common principles concerning the exercise of banking activities and the distribution and control of credit.

Banking supervision and oversight functions are therefore exerted on the basis of laws, which are applicable throughout the Union. As far as the banking system is concerned, a common law is inserted into the legal system of each State.

A Bank Supervision Commission of the West African Monetary Union was established in 1990 with a view to vesting in a single community entity the necessary supervision and disciplinary powers to ensure an efficient and independent supervision of banking activities. The Commission is placed under the direct authority of the Ministers of Finance of the Union and operates under the chairmanship of the Governor of the BCEAO. The Commission comprises eight members appointed on the basis of their competency by each of the states participating in the management of the central bank, and eight other members designated by the Governor of the BCEAO. The Commission is qualified to take the administrative and disciplinary sanctions it deems appropriate in cases of breaches of regulation.

With respect to the payment system, the current statutes governing BCEAO provide that “the Central Bank organizes and manages clearinghouses in areas where it deems it necessary.” The function of overseer of all payment systems is not clearly defined in the current statutes. However, the project for the reform of payment systems, which is under way, notably aims at filling this gap and conferring on the BCEAO the statutory power to ensure the oversight of all payment systems within the West African Monetary Union member countries.

⁵⁹ The currency union of the Union, known as the Franc de la Communauté Financière Africaine, or CFA Franc, is pegged to the French franc at a fixed exchange rate of 100 CFA for 1 French franc. Of course, the CFA franc is now pegged to the euro as well.

References

- Banca d'Italia. 1997. White Paper on Payment System Oversight. "Guiding Principles for the Performance of the Function." Rome: Banca d'Italia, May.
- _____. 1999. White Paper on Payment System Oversight. "Objectives, Methods, Areas of Interest." Rome: Banca d'Italia, November.
- Bank of England. 2000. "Oversight of Payment Systems." London, November.
- Basel Committee on Banking Supervision, 1999. "Enhancing Corporate Governance in Banking Organizations", Basel.
- Bhala, R. 1994a. "Paying for the Deal: An Analysis of Wire Transfer Law and International Financial Market Interest Groups." *Kansas Law Review*, 42 (667).
- _____. 1994b. "Legal Foundations of Large-Value Transfer Systems." In B. J. Summers, ed., *The Payment System. Design, Management, and Supervision*. Washington, D.C.: International Monetary Fund.
- _____. 1995. "Towards a Payment system Law for Developing Countries." World Bank Discussion Paper No. 299. Washington, D.C.: World Bank, September.
- BIS. 1990. "Report of the Committee on Interbank Netting Schemes of the Central Banks of the Group of Ten Countries" (Lamfalussy Report), No. 4. Basle: Bank for International Settlements, November.
- _____. 1996a. "Settlement Risk in Foreign Exchange Transactions." Report by the Committee on Payment and Settlement Systems, No. 17. Basle: Bank for International Settlements, March.
- _____. 1996b. "Security of Electronic Money." Report by the Committee on Payment and Settlement Systems and the Group of Computer Experts of the Central Banks of the Group of Ten Countries, No. 18. Basle: Bank for International Settlement, August.
- _____. 1998. "Reducing Foreign Exchange Settlement Risk: A Progress Report by the Committee on Payment and Settlement Systems," No. 26. Basle: Bank for International Settlements, July.
- _____. 1999. "Core Principles for Systemically Important Payment Systems," No. 34. Basle: Bank for International Settlements, December.
- _____. 2000a "Survey of Electronic Money Developments." Report by the Committee on Payment and Settlement Systems, No. 38. Basle: Bank for International Settlement, May.
- _____. 2000b "The Contribution of Payment Systems to Financial Stability." Papers presented at a workshop on payment systems at CEMLA, Mexico City, May. Basle: Bank for International Settlement.
- Bossone, B. 1998. "A Central Bank Perspective on Reducing FX Settlement Risk." *Payment Systems Worldwide*. Winter 1997–1998.

- Bossone, B., and L. Promisel. 1998. "Strengthening Financial Systems in Developing Countries. The Case for Incentives-Based Financial Sector Reforms." Washington, D.C.: World Bank.
- _____. 1999. "The Role of Financial Self-Regulation in Developing Economies." <wbwebapps2.worldbank.org/wwwfinance/html>. Washington, D.C.: World Bank.
- Bossone, B., P. Honohan, and M. Long. 2000. "Policy for Small Financial Systems." Washington, D.C.: World Bank, May.
- Calomiris, C. W., and C. M. Khan. 1996. "The Efficiency of Self-Regulated Payment systems: Learning from the Suffolk System." *Journal of Money, Credit and Banking*, 28(4), November, part 2 :766–97.
- CEMLA. 2000. "Payments and Securities Clearance and Settlement in Argentina." Mexico City: Center for Latin American Monetary Studies, August.
- Cirasino, M. 2001 "The Cooperation in Payment Systems." www.ipho-whpi.org, forthcoming.
- Cirasino, M., and M. Guadamillas. 2000. "The Western Hemisphere Payments and Securities Clearance and Settlement Initiative." *Payment system Worldwide*, Winter 2000-2001, also available on www.ipho-whpi.org.
- CPSS. 2001 "Core Principles for Systematically Important Payment Systems." CPSS Publications No. 43. Basle: Bank for International Settlement, January.
- CPSS and IOSCO, 2001, " Recommendations for Securities Settlement Systems" Consultative Report, Basle, January.
- Economides, N., and C. Himmelberg. 1995. "Critical Mass and Network Size with Application to the U.S. Fax Market," Discussion Paper EC-95-11. New York: New York University Stern School of Business.
- England, C. 1991. "Are Banks Special?" *Regulator*, vol. 14, No. 2, Spring.
- Good, B. A. 1997. "Electronic Money." Working Paper No. 9716. Cleveland: Federal Reserve Bank, August.
- Gorton, G. and D. J. Mullineaux. 1987. "The Joint Production of Confidence: Endogenous Regulation and Nineteenth Century Commercial-Bank Clearinghouses." *Journal of Money, Credit, and Banking*, Vol. 19, No. 4, November.
- Hancock, D., D. B. Humphrey, and J. A. Wilcox. 1999. "Cost Reductions in Electronic Payments: The Roles of Consolidation, Economies of Scale, and Technical Change." *Journal of Banking and Finance*, 23 :391–421.
- Henrich, G. 2001. "International Initiatives towards Harmonization in the Field of Funds Transfers, Payments, Payment Systems and Securities Settlements – Annotated Bibliography", Basle, February.
- Humphrey, D. B., R. H. Keppler, and F. Montes-Negret. 1997. "Cost Recovery and Pricing of Payment Systems." Policy Research Working Paper No. 1833. Washington, D.C.: World Bank, October.

- Humphrey, D. B., S. Sato, M. Tsurumi, and J. M. Vesala. 1996. "The Evolution of Payments in Europe, Japan, and the United States. Lessons for Emerging Economies." Policy Research Working Paper, No. 1676. Washington, D.C.: World Bank, October.
- IMF. 1999. "Code of Good Practices on Transparency in Monetary and Financial Policies." Washington D.C.: International Monetary Fund, September.
- IMF. 2000. "Supporting Document to the Code of Good Practices on Transparency in Monetary and Financial Policies." Washington D.C.: International Monetary Fund, July.
- Johnson, O. E. G. 2000. "Verifying Compliance with the Core Principles for Systemically Important Payment Systems." Mimeo. Washington, D.C.: International Monetary Fund.
- Kane, E. J. 1987. "Competitive Financial Regulation: An International Perspective." In R. Portes and A. Swoboda, eds., 1994, *Threats to International Financial Stability*. Cambridge, U.K.: Cambridge University Press, pp. 111–47.
- Lacker, J. M., and J. A. Weinberg. 1998. "Can the Fed be a Payment System Innovator?" *Economic Quarterly*, 84(2) :1–25. Richmond, VA: Federal Reserve Bank.
- Listfield, R., and F. Montes-Negret. 1994. "Modernizing Payment Systems in Emerging Economies." Policy Research Working Paper No. 1336. Washington, D.C.: World Bank, August.
- McAndrews, J. J. 1997. "Banking and Payment System Stability in an Electronic Money World." Working Paper No. 97-9. Philadelphia: Federal Reserve Bank.
- Padoa-Schioppa, T. 1999. "Payments and the Eurosystem." SIBOS. Munich, 13 September.
- Pissens, J. 2000. "The Oversight of S.W.I.F.T." In BIS (2000b) :55–57.
- Ryser, M. 1997. "Sanctions Without Law: The Japanese Financial Clearinghouse Guillotine and Its Impact on Default Rates." In D. B. Keim, ed., *Reputation. Studies in the Voluntary Elicitation of Good Conduct*. Ann Arbor: The University of Michigan Press, pp. 225–40.
- Shaffer, S. 1997, "Network Diseconomies and Optimal Structure." Working Paper No. 97-19. Philadelphia: Federal Reserve Bank, July.
- Solomon, E. H. 1997. *Virtual Money: Understanding the Power and Risks of Money's High-Speed Journey into Electronic Space*. New York: Oxford University Press.
- Summers, B. J. ed. 1994. *The Payment System. Design, Management, and Supervision*. Washington, D.C.: International Monetary Fund.
- Tresoldi, C. 2000. "European Retail Payments: A Task for Central Banks?" *Kreditwesen*, 14, July.
- Van den Bergh, P., and J. M. Veale. 1994. "Payment System Risk and Risk Management." In B. J. Summers, ed., 1994, *The Payment System. Design, Management, and Supervision*. Washington, D.C.: International Monetary Fund, pp. 89–105.
- Weinberg, J. A. 1997. "The Organization of Private Payment Networks." *Economic Quarterly*, 83(2). Richmond, VA: Federal Reserve Bank, pp. 25–43.

