Payment and Securities Settlement Systems

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There is a growing interest in Central America and elsewhere in the possible efficiency gains to be achieved from the adoption of integrated frameworks for regional payment and securities settlement. Individual Central American countries are already undertaking payment system reform with assistance from the international financial institutions (IFIs). In addition, projects on regional clearance and settlement of large-value financial transactions and on integrated regional large-value real-time gross settlement (RTGS) payment system have been launched by Central American governments, the Central American Monetary Council, and the Inter-American Development Bank.

This chapter draws from country assessments undertaken as part of ongoing efforts to upgrade the payment and securities settlement systems in several countries in Central America.[85] Assessment dates for each of the countries are reported in Table 4.1.

This chapter is organized by topic, covering (1) issues related to the legal framework; (2) interbank exchange settlement circuits, including proposals for the reform of these systems; (3) retail payment systems; (4) government payments; (5) foreign exchange and cross-border settlement mechanisms; (6) interbank money market; (7) securities markets and settlement, including clearing and settlement processes, settlement risks, custody risk, regulatory and oversight issues, central securities depositories' (CSDs) organizational arrangements, and cross-border settlement; and (8) payment system oversight and cooperation. Each of these sections include a brief context that generally identifies international standards and best practices, a status table in the Appendix describing the current status of the specific issue covered, and observations summarizing the overall findings. A section on proposals for reform concludes the chapter.

Legal Framework

Context

An appropriate legal framework is needed to underpin a sound and efficient payment system. The legal environment should include the following: (1) laws and regulations of broad applicability that address issues such as insolvency and contractual relations between parties; (2) laws and regulations that have specific applicability to payment systems (such as legislation on electronic signature, validation of netting, and settlement finality); and (3) the rules, standards, and procedures agreed to by the participants of a payment system. The legal infrastructure should also cover other activities carried out by both public and private sector entities. For example, the legislative framework may establish

[84]The authors work at the World Bank. They would like to thank Joaquín Bernal (Banco de la República, Colombia) for contributing to the analysis of the Panamanian payment systems.

[85]The IFIs have helped to conduct these assessments as part of the joint IMF–World Bank Financial Sector Assessment Program (FSAP) or as part of the Western Hemisphere Payments and Securities Settlement Forum (WHF), a joint effort by the Center for Latin American Monetary Studies (CEMLA) and the World Bank. For more information on the WHF, see http://www.forodepagos.org.

TABLE 4.1
Assessments of Payment and Securities Settlement Systems

Country	Date of WHF Assessment	Date of FSAP Assessment
Costa Rica	June 2001	October 2001
El Salvador	February 2000	February 2000
Guatemala	February 2004	September 2000
Honduras	October 2002	October 2002
Nicaragua	December 2003	December 2003
Panama	—	January 2005[1]

Sources: Western Hemisphere Payments and Securities Settlement Forum (WHF); and IMF–World Bank Financial Sector Assessment Program (FSAP).

[1]A payments expert visited Panama for the purpose of the Financial Sector Research Project (FSRP) in January 2005.

clear responsibilities for the central bank or other regulatory bodies, such as oversight of the payment systems or the provision of liquidity to participants in these systems. Finally, relevant pieces of legislation that have an impact on the soundness of the legal framework on the payment system include a law on transparency and security of payment instruments, terms, and conditions; antitrust legislation for the supply of payment services; and legislation on privacy. Although laws are normally the appropriate means to enforce a general objective in the payments field, in some cases, regulations by the overseers may be an efficient way to react to a rapidly changing environment. In other cases, specific agreements among participants may be adequate. In such cases, a professional assessment of the enforceability of these arrangements is usually required. Finally, because the payment system typically includes participants incorporated in foreign jurisdictions or it might operate with multiple currencies or across borders, it may be necessary to address issues associated with foreign jurisdictions.

The operation of a securities settlement system (SSS) must be reliable and predictable. This depends on the laws, rules, and procedures that support the holding, transfer, pledging, and lending of securities and related payments, and how these work in practice—that is, whether system operators, participants, and their customers can enforce their rights. If the legal framework is inadequate or its application is uncertain, it can give rise to credit or liquidity risks for system participants and their customers or to systemic risks for financial markets as a whole.

A variety of laws and legal concepts can affect the performance of clearing and settlement systems. Weaknesses in contract laws, company laws, bankruptcy and insolvency laws, custody laws, and property laws may impede the performance of a clearing system. There is a need for an adequate legal basis that is able to accommodate technological advances. Key aspects of the settlement process that the legal framework should support include enforceability of transactions, protection of customer assets (particularly against insolvency of custodians), immobilization or dematerialization of securities, netting arrangements, securities lending (including repos and other economically equivalent transactions), finality of settlement, arrangements for achieving delivery versus payment, default rules, liquidation of assets pledged or transferred as collateral, and protection of the interests of beneficial owners. The rules and contracts related to the operation of the SSS should be enforceable in the event of insolvency of a system participant, irrespective of whether the participant is located in the jurisdiction whose laws govern the SSS or is in another jurisdiction.

An important emerging issue is the legal status of digital signatures. If digital signatures are to substitute for handwritten signatures, they must be legally binding. A critical need is to ensure that laws are both enforced and are enforceable in all relevant jurisdictions. In addition, disputes should become the subject of court proceedings only as a last resort. This can be achieved through the specification and acceptance of clear, comprehensive, and fair arbitration processes.

For further details on the legal framework's status in the region, see Appendix Table A4.1.

Observations

There is no regulation in the six countries specifying how oversight is to be conducted, although central bank laws usually recognize that payment systems' oversight is among the central bank's functions (the exceptions being El Salvador and Panama).

There is a lack of provisions regarding acceptance, irrevocability, or settlement finality of an order to be processed by the system. These concepts are especially important in the event of an insolvency. In netting systems, the legal definition of these concepts would reduce uncertainties and limit systemic liquidity risk from unwinding procedures. Similarly, although in general there are no explicit

zero hour rules, it is not clear if the countries' courts could revoke pending or already executed operations made by the defaulting institution. Many legal frameworks fail to define specific triggers for the intervention of a financial institution, creating uncertainty about the system's or central bank's credit risk exposure (the latter in the case the central bank extends credit to the system's participants).

In some of the Central American countries, the central bank law provisions have not translated into a specific regulation dealing with the operation of settlement systems. Not all the systems have detailed rules. Thus, participants may not be aware of the risks they incur. There is also a lack of clarity regarding penalties and the conditions and procedures for removing a participant from the system.

There is no explicit legal recognition in the six countries of multilateral netting arrangements, creating legal uncertainty in the event of an insolvency. Since netting is used on a broad scale for the settlement of stock exchange transactions and check and retail payments, this constitutes a serious legal risk. It might also hamper further development of financial instruments such as derivatives. It is important to protect netting schemes from potentially disruptive insolvency laws so that, even if a system participant fails during the day, a liquidator cannot unwind settlement occurring on a net basis at a later time in the day (see, for instance, the Finality Directive of the European Commission).

Most Central American countries have recently approved laws for electronic documents and signatures. These need to be complemented by changes in relevant rules and regulations to ensure that the legal basis is effective and clarify that the laws also apply to the electronic exchange of messages within the payment systems operated by the central bank.

In general, there is no public or private body responsible for the resolution of potential conflicts arising from the operation of the systems. There is no provision regarding the responsibility of the operator in case of malfunctioning of the system and, therefore, there is no rule dealing with a possible compensation in those cases.

The judiciary in the six countries lacks familiarity with the specific legal needs of the financial sector and the systemic implications of the application of certain laws. Focused training programs should be put in place as soon as an overall assessment of the legal framework for the payment system is completed.

Although securities markets legislation usually includes the legal basis for immobilization and dematerialization, in some cases (e.g., Guatemala) this law only applies to private securities. The legal framework for public debt securities is separate and does not include a definition of dematerialization and immobilization.

A sound legal basis requires the legal definition of the depository function that the central bank often undertakes for public debt securities. However, the depository function is normally defined in securities markets legislation for joint stock companies, while central bank laws only cover the custody function: that is, central banks maintain the registry of the primary market but have not developed the ownership transfer functionality for the secondary market, even when another depository does not exist. This is a clear impediment to the development of the secondary market because its settlement rests on the exchange of physical certificates.

Transactions linked to securities settlement systems are not legally final, creating a potential for counterparty risk. Finality must be integrated into the legal framework. This is an important issue in all existing net settlement systems, especially those that have longer settlement cycles. Without this legal basis, it is uncertain whether in case of bankruptcy the transfer of securities to the counterparty or his custodian could take place, even if the counterparty has already paid for the securities (in some systems there is a time lag between the settlement of the cash leg and the settlement of the securities leg). Due to this uncertainty, an unwinding of the net settlement might be the only solution if the cash settlement process did not take place. If the cash settlement already took place, it might bring forward principal risk if the court did not grant the request to transfer the securities.

Even systems with more advanced legal frameworks are vulnerable to settlement finality risk because of bankruptcy procedures that cancel fraudulent transactions effective several days before the participant is declared failed. However, the impact in case of RTGS systems is likely to be negligible because of the gross nature of the system. Problems of interpretation might also arise since settlement finality is subject to regulations that have a lower hierarchy than the bankruptcy law. Initiatives to engage the judicial system in this debate are worth pursuing.

In general, protection of customer assets under custodian arrangements is not clearly established. Therefore, assets pledged as collateral by clearing members are not adequately covered by the law, thereby compromising the capacity to execute col-

lateral. Sometimes, the protection of custody arrangements is provided for the depository and broker-dealers but not for other custodians, or vice versa. This limitation could bar potential settlement arrangements from taking place.[86] In the case of public securities, this could limit retail market development because beneficial owners are usually not identified in the accounts of the depository.

Custodian arrangements for government securities (which are often issued in physical form) do not have secure legal support because primary dealers keep the ownership in the registry of the ministry of finance or central bank. Thus, it is uncertain whether the certificate endorsements in subsequent repo operations can be legally considered a proof of ownership. In some cases, participants agree that the transferred certificate will be kept but not used to transfer ownership in the ministry of finance or central bank registry.

Although repo operations are legally defined, there is uncertainty about their use as guarantees for transactions to be processed in a system. The legal basis for the pledge is typically included in the civil code but the pledge, as a tool for collateralized operations, is not regulated. Furthermore, there are no rules on the execution of those guarantees in case of a default. This creates an important impediment in the granting of collateralized intraday credit by the central bank for the purpose of payment settlement.

The definition of repos covers only sell and buy-back transactions, although the scope of a repo is much wider internationally. Repos are much used to collateralize cash or securities loans. If, during the collateralization period, due to market developments, the collateral offered no longer covers in full the obligation to pay back the loan or the value of the securities borrowed, additional collateral can normally be requested through a margin call. The definition used in the six countries leaves no room for this market practice and makes it difficult to use international standard contracts. Margin calls during the contract period might also give rise to legal risk if the court recharacterizes a repo agreement with interim margin calls as an improper pledge. It might be worth studying if there should be an explicit distinction between a repo in the form of a collateralized cash or securities loan and an explicit sell and buy-back transaction.

Laws are clear in terms of the segregation of accounts by the depository but not by the custodians (e.g., banks, broker-dealers), although this is often done in practice. This makes it unclear whether the customer assets will be protected against the insolvency of custodians. This issue is relevant in circumstances when the bulk of the market is represented by government securities (a common situation in Central America) that are issued in physical form and largely held by custodians.

The legal basis for securities lending does not exist in many cases or detailed regulations have not been developed. The current low volume of market trading is an opportunity to develop the legal and regulatory framework in preparation for an eventual recovery of past market volumes.

The fragmentation of laws and regulations related to securities and capital markets is common in the region. This creates uncertainty and confusion in the legal framework and may ultimately influence both the functioning of the markets and the activities of market participants. A unified payment systems law might help in resolving the potential conflicts of interpretation on issues such as finality and oversight.

Legal frameworks often do not contain explicit conflict of law rules. This could hamper the development of intraregional financial markets and international cooperation in the area of trading, custody, and clearing and settlement.

The lack of enforceability of the legal framework is hampering the development of securities settlement systems. Many countries have introduced an adequate legal and regulatory framework for the processing of electronic operations but poor enforcement is preventing the further development of financial markets.

To sum up, country authorities need to review the legal framework with particular attention to irrevocability of final settlement, adequate protection against bankruptcy effects, the legal basis for custody arrangements, legal definition of a repo operation, legal recognition of multilateral netting arrangements, legal definition of immobilization and dematerialization of securities (especially public securities), and legal definition and regulation of oversight powers of the central bank. Other legal issues considered from a developmental point of view include the legal basis for collateral pledge and securities lending. Due to the variety and importance of

[86]For example, markets with a high volume of transactions sometimes do not maintain subaccounts with beneficial owner information but only accounts at the participant level. Such settlement systems should be accompanied by a strong legal protection of custody arrangements and supervisory framework.

these legal aspects, some of the countries should determine whether the level of legal changes required justify a payment systems law.

Interbank Exchange and Settlement Circuits

Context

Large-value systems are the most significant component of the national payment system. This is because they can generate and transmit systemic disturbances to the financial sector. Several measures can be adopted to minimize these systemic risks. If the system is characterized by a deferred net settlement of payment transactions, risk control measures include the introduction of bilateral and multilateral caps, the implementation of loss-sharing agreements, and the pledging of collateral. The development of RTGS systems is one response to the growing awareness of the need for sound risk management in large-value funds transfer systems. RTGS systems can offer a powerful mechanism for limiting settlement and systemic risks in the interbank settlement process, because they can effect final settlement of individual fund transfers on a continuous basis during the processing day. In addition, RTGS systems can contribute to the reduction of settlement risk in securities and foreign exchange transactions by facilitating delivery versus payment and payment versus payment mechanisms. Variants of the basic RTGS system—the so-called hybrid systems—that take into account liquidity saving features in net settlement systems are being introduced in some countries.

Appendix Table A4.2 presents some data about the amount of cash and transferable (sight) deposits as a proxy for the use of cash and cashless payment instruments. Appendix Table A4.3 presents the main characteristics of the interbank settlement systems identified as systematically important payment systems (SIPS). Clearinghouses are included as they are systemically important, although there are also relevant retail payments (see next section).

Observations

Large-value and systemically important payment systems in Central America do not fully observe several of the Committee on Payment and Settlement System's Core Principles for Systematically Important Payment Systems (CPSS-CPSIPS).[87] A number of central banks in Central American countries (El Salvador, Guatemala, Honduras) have initiated payment system reforms to improve the safety and efficiency of large-value systems, launch RTGS systems, and reduce the use of checks for large-value settlement. These efforts should be carried out as part of the overall strategy to reform the national payment system, of which large systems represent the backbone.

The high value of checks settled in the check clearinghouses throughout the region and their use in interbank payments confirm that these systems should be viewed as SIPS. Strengthening payment system stability requires that the discharge of obligations among financial intermediaries be executed through electronic payments settled in the RTGS system (when this is operational). The movement from checks to electronic payments is crucial to increase the efficiency of the payment system as a whole. Consequently, central banks should evaluate ways to provide intermediaries with incentives to use the RTGS system instead of checks for interbank transfers. Pricing policy should be used as an incentive for this transition.

There has been progress in launching RTGS systems in the region. Costa Rica already has a safe and efficient RTGS system, and new systems in line with the CPSIPS are being launched in El Salvador, Honduras, and Guatemala. In Nicaragua, an overhaul of the gross settlement system (Transferencia Telefónica Segura de Fondos, TTS) is under way. All countries in the region should count with an appropriately designed RTGS system. To this end, central banks should evaluate and discuss with market participants all aspects of the new system. In particular, central banks should prepare rules and procedures related to the use of the system, including tools for managing legal, financial, and operational risks. Tools to handle liquidity risks should include queuing and optimization mechanisms; efficient throughput mechanisms and adequate interconnections among the systems; routines for channeling government payments early in the operating day; the flexible use of reserve requirements; and intraday liquidity provision through repos with application of haircuts. Moreover, the design of the system should include (1) a robust and efficient communications network between the bank and system participants, which should reduce and even-

[87]Bank for International Settlements (2001a).

tually eliminate the use of manual and paper-based procedures; (2) strict security measures for physical and electronic access to the system; (3) contingency plans and disaster recovery mechanisms, including the setting-up of a secondary site; and (4) measures for business continuity and resilience. The design should include elements that could affect the system's efficiency and practicality such as full integration of available systems, strictly enforced operating hours, and reduction and elimination of manual procedures. Pricing policies should be consistent with the overall objectives. Some form of cost recovery should be evaluated vis-à-vis other externalities stemming from a robust and efficient payment system. Access criteria (including exit and exclusion) should be defined more clearly and tiered arrangements should be reviewed and eventually favored to allow the reduction of manual procedures. In some cases, certain institutions (such as the stock exchange and retail system operators) might be allowed to hold settlement-only accounts within the system. The governance of the system inside the central bank should be streamlined and rationalized. User groups (i.e., groups of system participants to discuss system development issues) should be introduced.

The smooth functioning of the RTGS system requires sufficient reserves and the efficient distribution of liquidity among intermediaries during the operational hours of the day. To facilitate the optimum use of available liquidity, intermediaries should have complete and timely information on incoming and outgoing payments. It is the central bank's responsibility to remove obstacles to the efficient use of liquidity and to facilitate cash management by intermediaries. To this end, the central bank should collect reliable statistics to be used to analyze the functioning of the RTGS system. This supports the decision to improve the functionality of the system. In determining how to improve the efficiency of the system, it is important that open discussion takes place among all parties involved. In particular, some central banks have found it useful to review the time schedule of settlement of payments in the RTGS system during the day and the critical times at which relevant sources of liquidity are injected into the system. In this regard, the evaluation of the treasury time schedule for settling its payments—one of the most important sources of liquidity for the financial system—is critical in order to avoid unforeseen injections or withdrawals of reserves that increase volatility in the availability of intraday liquidity.

The implementation of RTGS systems in Central America will not only serve the needs of domestic payment systems but also create conditions for future regional integration. The integration of payment systems should be based on the existence of common features in all relevant areas (including legal, risk control mechanisms, liquidity provision, access policies, governance, organizational arrangements, operational aspects, reliability, and business continuity).

Retail Settlement Systems

Context

A wide range of payment instruments is essential for supporting customer needs. A less than optimal supply of payment instruments may ultimately have an impact on economic development and growth. The safe and efficient use of money as a medium of exchange in retail transactions is particularly important for the stability of the currency and a foundation of the trust people have in it. As CPSS publications have shown, the use of retail payment instruments differs both within and among developed countries.[88] This is because of a variety of reasons, including cultural, historical, economic, and legal factors. Common trends can be observed, however, namely, the continued primacy of cash (in volume terms) for face-to-face payments; growth in payment cards use; increased use of direct funds transfers, especially debit transfers, for remote payments; and changes in market arrangements for providing and pricing the retail payment instruments and services delivered to end-users. This evolution is likely to continue in the future and is expected to influence traditional (especially paper-based) instruments. Over the long term, some of the observed market developments may well alter traditional payment practices and contribute to increased efficiency of and convenience in using retail payment systems. In an increasing number of countries, more and more attention is devoted by authorities and market participants to the efficiency and efficacy of production and distribution of payment instruments (including cash).

Central banks are involved in retail payments in an operational capacity, as payment system over-

[88]See Bank for International Settlements (1999, 2000).

seers and/or as facilitators of market and regulatory evolution. Even though the involvement of central banks in retail payments varies from country to country, a 2003 CPSS report argues that each central bank should examine market developments periodically with a focus on clearly identified policy issues (Box 4.1).[89] Where such issues are judged to arise, relevant public authorities (including central banks) may decide to take action aimed at establishing or re-establishing an acceptable balance of the various aspects of safety and efficiency. The public policy goals, central bank minimum actions, and the range of possible additional actions identified in the CPSS report are summarized in Box 4.1. The CPSS report has been prepared in light of the trends in retail payment markets in the G-10 countries and Australia. It is likely that, in developing countries, central banks and other private and public entities need to take a proactive role and carefully explore the possibility of taking the additional action.

Appendix Table A4.4 includes data on the use of cashless instruments for retail payments. However, many countries still use checks as means of payment for large-value transactions, though it is a diminishing trend. The main features of the clearinghouses were presented in the previous section.

Observations

In many cases, new applications to process retail electronic credit and debit instruments have been a major element of efforts to modernize national payment systems. ACHs have been launched in some countries—Costa Rica, El Salvador, Guatemala, and Honduras. In most Central American countries, however, ACH projects are either too slow to keep pace with costumer needs or too limited in scope (e.g., the project focuses only on improving check clearing procedures). Central banks should actively support the full deployment of efficient applications to process electronic retail payment instruments. Specifically, central banks should take a leadership role to ensure that banks and other participants reach the necessary agreements. They should also coordinate efforts to achieve a single system encompassing all banks and other major participants, and processing as many payment and collection services as possible (see next section on government payments), so as to avoid duplications and misuse of infrastructure.

Central banks and commercial banks should consider extending payment instruments and services offered by the ACHs. The introduction of new means of payments (such as electronic transfers and direct debits) has good potential for cost reduction. Strategies for modernizing the payment system based solely on improvements in the check clearing system are inadequate and counterproductive. Improvements in checks clearing produces efficiency gains in the short term because checks are the main cashless payments media used in all countries. However, a strategy that includes the development of other means of payments could have a major impact in the medium and long term. New instruments such as electronic transfers and direct debits will directly benefit the urban and major rural areas, and indirectly benefit remote rural areas through the reduction of operational costs in financial institutions and, therefore, less expensive financing.

The region relies heavily on use of checks, which is far from optimal from the point of view of efficiency and risk control. Central American central banks and all stakeholders in the retail arena must work together in a clear strategy to promote the intensive use of retail electronic payment instruments and reduce the importance of checks. Customers change their choice of payment service as a response to the price and convenience of the services provided. Thus, central banks might use moral suasion to persuade participants to make alternative retail payment instruments relatively more attractive at the end-user level, including a relative higher cost for checks than that for electronic payment services. It should be noted that such a pricing strategy must be agreed on and applied at the system level (e.g., binding interbank agreements), because individual competitive strategies may derail efforts in this direction. To avoid oligopolistic practices, the interbank agreements would be based on an analysis of processing costs for the different payment instruments. Also, a minimum fee structure could be set in such a way that there will still be incentives for banks to reduce costs and promote efficiency, for instance, by basing the minimum fee for the different payment instruments on the processing costs of the bank that has the lowest internal processing costs.

In all countries, checks are used for large-value payments and check clearinghouses are systemically

[89]See Bank for International Settlements (2003), *Policy Issues for Central Banks in Retail Payments* (CPSS publication No. 52, March 2003).

Box 4.1. Public Policy Goals, Central Bank Minimum Actions, and Range of Possible Additional Actions for Retail Payment Systems

Legal and Regulatory Framework

Public Policy Goal A. Policies relating to the efficiency and safety of retail payments should be designed, where appropriate, to address legal and regulatory impediments to market development and innovation.

The central bank should, at a minimum:

- review the legal and regulatory framework to identify any barriers to improvements in efficiency and/or safety; and
- cooperate with relevant public and private entities so that the legal and regulatory framework keeps pace with the changing circumstances and barriers to improvements in efficiency and/or safety are removed, where appropriate.

The range of possible additional actions could include, depending on the individual central bank's responsibilities, powers, and priorities:

- altering regulations that currently present barriers to improving efficiency and safety, where this is within the central bank's remit and where other public interest arguments do not militate against such action;
- introducing or proposing new regulations, as the central bank's remit allows, where the legal or regulatory framework is insufficient to support increased efficiency and/or safety; and
- offering expert advice to other responsible authorities; for example, in the preparation of relevant legislation.

Market Structure and Performance

Public Policy Goal B. Policies relating to the efficiency and safety of the retail payments should be designed, where appropriate, to foster market conditions and behaviors.

The central bank should, at a minimum:

- monitor developments in market conditions and behaviors relating to retail payment instruments and services and assess their significance; and
- cooperate with other public or private entities, as appropriate, to foster competitive market conditions and to address any significant public policy issues arising from market structures and performance.

The range of possible additional actions could include, depending on the individual central bank's responsibilities, powers, and priorities:

- promoting appropriate standards or guidelines for transparency, in cooperation with relevant public and private sector entities;
- reviewing conditions in the market for cross-border retail payments, with a view to promoting improvements, if such action is warranted; and
- considering and, if appropriate, performing regulatory and/or operational intervention in cases where market forces are judged not to have achieved or not to be likely to achieve an efficient and safe solution.

Standards and Infrastructure

Public Policy Goal C. Polices relating to the efficiency and safety of retail payments should be designed, where appropriate, to support the development of effective standards and infrastructure arrangements.

The central bank should, at a minimum:

- monitor developments in security standards, operating standards, and infrastructure arrangements for retail payments that the central bank judges to be important for the public interest, and assess their significance; and
- cooperate with relevant public and private entities to encourage market improvements in such standards and infrastructure arrangements, where appropriate.

The range of possible additional actions could include, depending on the individual central bank's responsibilities, powers, and priorities:

- participating actively in reviewing and developing appropriate standards and arrangements, in cooperation with relevant public and private entities, where the central bank judges its more intensive involvement to be necessary to furthering the goal; and
- considering and, if appropriate, performing regulatory and/or operational intervention in cases where market forces are judged not to have achieved or not to be likely to achieve an efficient and safe solution.

Central Bank Services

Public Policy Goal D. Policies relating to the efficiency and safety of retail payments should be designed, where appropriate, to provide central bank services in the manner most effective for the particular market.

The central bank should, at a minimum:

- review and, if appropriate, adapt its provisions of settlement services to contribute to efficient and safe outcomes; and
- be transparent in its provision of services.

The range of possible additional actions could include, depending on the individual central bank's responsibilities, powers, and priorities:

- reviewing the relevant non-settlement services it provides and considering their adaptation to changing market conditions; and
- reviewing policies on access to central bank services and on pricing.

Source: Bank for International Settlements (2003).

important payment systems. Central banks should be proactively pursuing the removal of all large-value items from the check clearinghouse. In parallel, the introduction of some risk control measures (such as guarantee funds and loss-sharing agreements) should be considered.

Some efficiency gains could also be implemented in the check clearing system, such as full or partial truncation (for checks under a given value). Investments required for these efficiency gains should not create an obstacle for the development of modern payment instruments (e.g., electronic transfers, direct debits), by giving system participants the illusion that check processing can be less costly than processing of other instruments.

Retail circuits are characterized by very low interoperability (e.g., automated teller machines (ATMs) and electronic funds transfers at point of sale (EFTPOS)), resulting in the inefficient use of the current infrastructure. Many of the positive effects of a payment cards system for increased efficiency are not being captured because of the lack of electronic payment instruments for retail transactions. For example, ATMs of any network can be used only by the customers of the banks belonging to that network. As a result, the volume of transactions needed to amortize the investment in the ATM is slow to be achieved, creating disincentives for the deployment of more ATMs. Although ATMs are not payment instruments on their own, they are an effective means to reduce the use of "on us" checks and are a useful infrastructure through which electronic payments and other services may be channeled. In the case of EFTPOS, lack of interoperability translates into merchants having three terminals (one for each card processor) on their premises, which increases overall costs and may translate into merchants giving customers incentives to pay in cash or by checks. Finally, the lack of retail electronic payment instruments makes the card system more cumbersome and costly as card processors pay merchants with checks, or merchants need to have an account at many banks in order to receive credits from every card processor they work with.

Some banks are starting to offer retail payment instruments and services in multiple countries in the region. These efforts should be monitored and supported by central banks and banking supervisors. However, there is no project to develop a common regional infrastructure in the retail sector. Consideration should be given to fostering the standardization and harmonization in this area to allow for the creation of some form of regional ACH in the future.

In sum, central banks and commercial banks have a role to play to ensure that retail circuits support customer needs and that such arrangements are safe, convenient, and efficient for the economy as a whole. The central bank, as the entity leading the efforts to improve the country's financial infrastructure, should promote agreements among banks to facilitate increased interoperability. Central banks should examine developments in the market periodically in the light of public policy goals and take action as necessary. In particular, the central bank should (1) review the legal and regulatory framework to identify barriers to efficiency and/or safety, and cooperate with relevant public and private entities to ensure that such a framework keeps pace with market developments; (2) monitor market conditions and behaviors, and ensure they are competitive; and (3) support the development of effective standards and infrastructure arrangements. Central banks could engage participants in a dialogue on national payment systems with a view to agreeing on necessary improvements. Once conditions are ready (e.g., when agreements on interoperability are reached and/or when an ACH is deployed that would produce interbank obligations that need to be cleared and settled somewhere), central banks could adapt their provision of settlement services for systems operated by other entities to contribute to efficient and safe outcomes, allowing all such systems to settle in central bank money.

Government Payments

Context

The public sector is a heavy user of payment systems. The government receives and remits many payments (tax collection, salaries, purchase of goods and services, and so on). In several countries, the public sector has lagged behind the private sector in terms of efficient use of payment instruments and has failed to make effective use of the banking sector. In recent years, increasing attention has been devoted to this issue and, in some countries, the government has been able to use efficiently the options offered by new technologies, such as ACHs, smart cards, and so on, significantly reducing its processing costs.

For the status of government payments in the region, see Appendix Table A4.5.

Observations

Costa Rica, Guatemala, and Panama have implemented or are in the process of implementing projects to integrate the public sector in the national payment system. In one case (Costa Rica), the integration has been particularly successful. In others, these projects are stand-alone and are not fully consistent with a long-term strategic vision of the payment system.

Central banks and relevant government agencies should foster coordination and communication to ensure that collections and disbursements of public institutions that are major players in the payment system be processed electronically and timely through an appropriate system, such as an ACH for retail electronic payment instruments. In many cases, gains in efficiency and cost reduction for government payments have resulted from the reform effort. Such a strategy can also ensure that all sectors can benefit from new payment alternatives, for example, by increasing the banking services used by the public. Moreover, government payments provide an opportunity to channel a high volume of transactions, thereby making the ACH project for electronic payment instruments more attractive for potential investors.

Government payments are also a major source of liquidity for the banking system. If coordinated effectively, they can facilitate the smooth functioning of the RTGS system being implemented in the region and increase its appeal to participants.

Foreign Exchange and Cross-Border Settlement Mechanisms

Context

Foreign exchange markets present relevant risks. The foreign exchange settlement risk clearly has a credit risk dimension. If a bank cannot make the payment of the currency it sold conditional upon its final receipt of the currency it bought (as is usually the case under current market practices), it faces the possibility of losing the full principal value of the transaction. Foreign exchange settlement risk also has an important liquidity risk dimension. Even temporary delays in settlement can expose a receiving bank to liquidity pressures if unsettled funds are needed to meet obligations to other parties. Foreign exchange settlement risk has other dimensions as well, for example, legal risk. In the case of foreign exchange deals, legal risk can be complicated by the fact that settlement normally takes place in more than one jurisdiction. In a 1996 CPSS report, the G-10 central banks agreed to a three-track strategy providing for[90]

- action by individual banks to control foreign exchange settlement exposures;
- action by industry groups to provide risk-reducing multicurrency services; and
- action by central banks to induce rapid private sector progress.

The report also states that "the G-10 central banks encourage existing and prospective industry groups to develop and offer services that would contribute to the risk-reducing efforts of individual banks."[91]

Also as a result of the recommendations included in the 1996 CPSS report, the continuous linked settlement (CLS) service was launched in September 2002. The CLS, provided by CLS Bank International, settles foreign exchange transactions in fifteen currencies—U.S. dollar, euro, British pound, Japanese yen, Swiss franc, Canadian dollar, Australian dollar, Swedish krona, Danish krone, Norwegian krone, Singapore dollar, Hong Kong dollar, New Zealand dollar, Korean won, and South African rand—on a payment-versus-payment (PvP) basis on the books of the respective central banks. The CLS Bank is supported by over 70 of the world's largest financial institutions, accounting for a large share of cross-currency transactions across the world. Transactions in other currencies are likely to be settled by the CLS Bank in the future. The CLS Bank is subject to the cooperative oversight of the central banks that are involved and it is under the direct oversight of the U.S. Federal Reserve.

For the status of foreign exchange and cross-border settlements in the region, see Appendix Table A4.6.

Observations

Foreign exchange transactions are not settled on a PvP basis. Central banks should investigate the

[90]See Bank for International Settlements (1996), p. 40.
[91]See also Basel Committee on Banking Supervision (2000).

possibility of introducing measures to mitigate the risks associated with these operations when PvP is not possible. Risks in this market can be evaluated by taking as a reference the reports and questionnaires published by the CPSS. For domestic foreign exchange transactions, that is, those that involve only domestic counterparties, the central banks that allow holding reserve accounts both in local currency and in U.S. dollars need to ensure, as matter of urgency, that wholesale foreign exchange trades are settled in central bank money on a PvP basis (not necessarily RTGS, but always maintaining PvP). In this direction, these central banks could eventually consider the provision of a settlement-only account to other major players in the foreign exchange market such as the casas de cambio.

Central banks and banking supervisors should introduce measures to mitigate the associated risks. Attention should also be given to correspondent arrangements abroad of domestic banks to ensure that risk profiles and operating procedures of correspondents are constantly reviewed and do not generate any relevant risks in the country.

Proprietary mechanisms of commercial banks for cross-border payments can turn into a less costly and convenient alternative for customers. Another possible benefit is that remittances from other Central American countries can now be channeled all the way through banks instead of unregulated specialized companies, so that, among other things, remittances need not be paid in cash. Central banks, in cooperation with banking supervisors and among themselves, should carefully monitor these mechanisms and other developments in this area and decide whether regulations are necessary to ensure that they do not increase risks for the domestic banks that are involved.

On the other hand, a large share of remittances are still channeled through unregulated specialized institutions, for which there are no standards for aspects such as transparency of fees and other charges or the timing of accreditation of funds to end beneficiaries. In the latter cases, the regulatory perspective should be widened from the traditional areas of balance of payments and money laundering to include payment system issues, in particular issues related to efficiency, transparency, and risks.

In sum, Central American central banks should carefully monitor trading and settlement platforms and procedures for foreign exchange and cross-border transactions, especially remittances, to ensure that they can apply the principles of safety and efficiency to the clearance and settlement.

Interbank Money Market

Context

The adequate functioning of an interbank money market goes beyond clearance and settlement considerations. An efficient mechanism for trading and settlement of these transactions will allow for improved liquidity management and, thus, for increased safety and stability of the financial system. In addition it will help securities settlement through lower interest rates that will benefit the broker-dealers in the credit lines they negotiate with banks. Another important concern for the authorities is the smooth and effective functioning of the monetary policy because central banks normally use the interbank money market to give a clear signal to banks, which then is extended to the rest of the financial sector. If the operational procedures or the organizational and regulatory arrangements do not provide for an efficient system, the central bank can have difficulties in providing clear monetary policy signals.

Two key elements for the development of interbank money markets are a special purpose system for large-value payments to provide secure electronic interbank transfers with immediate settlement that can be interconnected to an electronic book-entry securities system to register and record changes in ownership of securities.

For the status of interbank money markets in the region, see Appendix Table A4.7.

Observations

The future evolution of securities markets needs to be discussed among responsible authorities and market participants. An adequate strategy that takes into account the national interest, leaving aside private interest, should be defined. Once the strategy has been agreed, a neutral securities clearance and settlement system can be implemented to allow fair competition in the financial sector. Authorities and market participants should openly discuss the likely future of securities markets and agree on organizational and regulatory arrangements that allow for adequately developing the interbank money market, on the one hand, and the securities market, on the other. This will be a difficult process because several private interests will be affected, but the only alternative is to develop safe and efficient securities markets that can take a lead in a potential regionalization process.

In sum, the adequate functioning of an interbank money market is crucial for the smooth functioning of payments and securities settlement. An efficient mechanism for trading and settlement will improve the system's liquidity management. Another important concern for the authorities is the smooth and effective functioning of monetary policy because the interbank money market is the backbone of monetary transmission. Two key elements for the development of interbank money markets are a special purpose system for large-value payments to provide secure electronic interbank transfers with immediate settlement that can be interconnected to an electronic book-entry securities system to register and record changes in ownership of securities.

Securities Settlement Systems

This section covers issues related to securities settlement other than legal issues, which have been covered earlier in the chapter. Included in this section are issues related to clearing and settlement processes, settlement risk, operational issues, custody risk, regulatory and oversight issues, depositories organizational arrangements, and cross-border settlement.

Clearing and Settlement Processes

Context

The clearance and settlement process includes capturing trade information, trade matching, confirming and affirming institutional investor's trades, clearing, and settlement. Various international organizations have attempted to set standards for prompt, efficient, and effective trade processing, including its cost-effectiveness (in terms of both system operation and fees paid by participants) and ease and convenience of use. One of the most widely recognized concepts is that the longer it takes to settle a securities trade, the greater the risk that settlement may not take place. In this regard, the CPSS and the International Organization of Securities Commissions (IOSCO) recommend that trade settlement occur by T+3 or less. However, T+3 often is no longer regarded as best practice. The shortest possible elapsed time between trade date and settlement date reduces settlement risks (especially market risk) and promotes liquidity in the maturity. Nevertheless, the practical impact of shortening this time must be assessed, especially if it affects the number of trades that fail to settle.[92] Same-day settlement could be considered as the final goal, although it is generally recognized that this may not be achievable in the short or medium term, particularly for cross-border transactions. The magnitude of the changes required to achieve a particular standard must also be carefully considered. For example, whereas it might be relatively easy to move from T+5 to T+3 by simply imposing more discipline on system participants, more fundamental changes (i.e., process re-engineering) in all aspects of the system are likely to be necessary to move to T+2 or T+1. Regardless of the settlement cycle, the frequency and duration of settlement failures should be monitored closely.

The profile of market investors (retail versus wholesale, domestic versus foreign) and their intermediaries should be taken into account because this can influence the practicality of the targeted clearing and settlement cycle. Appropriate trade-off between risk, cost, and convenience must be made, or else the system will not satisfy user requirements at an affordable and acceptable cost, and thus might constrain market development.

Another widely recognized concept is that trade matching should occur as soon after the trade as possible so that errors and discrepancies can be discovered early in the settlement process. The CPSS and IOSCO recommend that trade comparison be accomplished by T+0 and in any case no later than T+1. In addition, indirect market participants—institutional investors and custodians—should be members of a trade comparison system that achieves positive affirmation of trade details. Moreover, there should be an integration system for trade matching, comparison, and book-entry settlement of securities and funds. An automated link between the exchange/over the counter (OTC) and the central securities depository (CSD) is generally considered to be desirable and is a prerequisite for broker-dealer straight-through processing (STP) from execution to settlement. Likewise, when clearing and depository services are provided by different entities, it is recommended that these two functions be closely tied together, otherwise finality of settlement is difficult to achieve. Fortunately, the cost of imple-

[92]Currently, there is a debate about the adequacy of moving the settlement cycle to T+2 or even T+1. Given globalization of financial markets, there is an increasing necessity to standardize this process at an international level, even if this implies increasing the settlement cycle for some countries.

menting automated systems is decreasing. However, care should be taken to ensure that sufficient transaction volume exists and that users are willing to pay for the automated services based on tangible benefits in terms of efficiency or risk reduction.

Mature and liquid securities lending markets, including markets for repos and economically equivalent transactions, generally improve the functioning of securities markets by allowing sellers ready access to securities needed to settle transactions where those securities are not held in inventory; by offering an efficient means of financing securities portfolios; and by supporting participants' trading strategies. The existence of liquid markets for securities lending reduces the risk of failed settlements because market participants with an obligation to deliver securities that they have failed to receive and do not hold in inventory can borrow these securities and complete delivery. Securities lending markets also enable market participants to cover transactions that have already failed, thereby curing the failure sooner. Intraday finality is crucial for these operations. In cross-border transactions, particularly back-to-back transactions, it is often more efficient and cost-effective for a market participant to borrow a security for the delivery rather than to deal with the risk and costs associated with a settlement failure.

Because of increased automation and globalization of securities markets, it is beneficial for domestic systems to use internationally recognized securities identification numbering standards. With this in mind, the G-30 recommended that all markets should adopt a numbering system that meets the international securities identification number (ISIN) standards. The CPSS-IOSCO "Recommendations for Securities Settlement Systems" insist on this point in recommendation 16.[93]

For further details on the status of securities settlement systems in the region, see Appendix Table A4.8.

Observations

There is significant manual handling in the confirmation process, which increases the probability of errors and, thus, settlement failures. Manual handling of securities results in inefficiencies and risks that limit the development of the markets. Indeed, the bulk of the market is sometimes settled in-house to minimize these risks.

Some systems (e.g., in Costa Rica and Panama) have close links between trading and settlement such as blocking of transactions prior to matching. This procedure ensures the availability of securities but hampers back-to-back transactions and the effective arbitrage between trading and settlement platforms. To arbitrate, an investor might wish to sell in one system securities that were bought in another during the same day. This is not possible if securities have to be blocked in advance. This blockage also makes the rollover of repos difficult. More orthodox risk management tools should be used to avoid the rigidity introduced by this mechanism. The development of a new system that allows for the separation of trading and settlement is crucial for the efficient operation of stock exchanges as well as observance of international standards for settlement risk. In addition, as long as no robust risk management procedures are implemented, cash settlement on a multilateral net basis should be done separately for each trading system in order to minimize systemic risk even if it raises costs through higher liquidity needs of broker-dealers.

The standardized settlement cycle must be fixed and identified for all the trades executed in the securities markets. This is particularly relevant in the stock exchanges where a T+3 settlement cycle would be appropriate. Shorter settlement cycles for securities traded in the stock exchanges should be taken into consideration, especially those related to bilateral trades between market participants.

Some stock exchanges (e.g., Costa Rica) play a crucial role in money markets and have difficulties in accommodating different settlement needs. Should these stock exchanges evolve to have a more traditional role of secondary market transactions, the introduction in a standardized settlement cycle will be needed.

Shorter settlement cycles can reduce risk in line with international standards. However, the costs and benefits of a shorter settlement cycle should be assessed, in particular the impact on retail customers. Retail customers may be required to keep funds with broker-dealers or deposit funds with a broker before a broker can execute a buy order. In general, STP will help the reduction of settlement cycles without increasing settlement risks.

Some SSSs allow for the extension of the standardized settlement cycle should a failure occur in the settlement process. It is essential to count with appropriate risk management tools to guarantee settlement in the case of failures on settlement date.

[93]Bank for International Settlements (2001b).

Settlement procedures on a delivery versus payment (DvP) basis help to avoid settlement extensions. Given a failure in the delivery of securities on settlement date (and counting on a guarantee regime and a settlement system on a DvP basis), it is recommended that SSSs can execute buy-in procedures in the securities markets to reduce the risk in the system.

Automatic securities lending and borrowing facilities are not available in Central American markets, mainly because of the low level of activity. Such mechanisms provide the SSS with an effective risk management tool for the securities leg of market transactions. Prior to its establishment, securities lending must be recognized and encouraged by law. The finalization of the standardization process is essential for this mechanism to be effective. All legal, tax, and other barriers, including lack of standardization, should be removed. Securities lending could be implemented in two different ways:

- bilaterally between market participants: in this case the CSD will act as loan register; and
- multilaterally or centralized: this implies the creation of a group of entities, mostly banking and financial institutions, capable of lending securities against an interest rate. The administration of the pool of potential available securities and the allocation process normally is delegated to the securities depository or another entity acting on a policy of no risk-taking. The efficiency of existing ways to cope with securities shortages should be evaluated vis-à-vis standardized forms of securities lending.

In addition,

- all securities lending operations must be collateralized and backed by private contracts subject to international standards;
- fiscal treatment of securities lending contracts must be neutral and objective; and
- if short-selling is permitted, for example, as a way to increase the liquidity of the markets, it should be linked to securities lending operations in order to cover the oversold positions. Regardless, securities regulators must be alert against unhealthy market practices relating to short-selling that could lead to market manipulation.

With the exception of Costa Rica, communication networks do not follow international standards. Although the local communication networks work correctly, for cross-border transactions to be relevant, the networks should also be consistent with international communication procedures. Securities depositories and investment firms with a relevant foreign business share should adopt in the short term international standardized communication procedures to facilitate cross-border transactions both free or against payments. Local firms should adapt their communication procedures to the international communication networks using the same standards.

In sum, improved clearing and settlement processes in SSSs are necessary to reduce market fragmentation, increase standardization of settlement cycles, accommodate different settlement needs, operate with shorter settlement cycles, avoid extension of settlement cycles due to inadequate risk management tools, improve market liquidity through automatic securities lending, and introduce international communication standards.

Settlement Risks

Context

The settlement process exposes market participants to different risks. The system should be designed to minimize these risks. The immobilization or dematerialization of securities reduces or eliminates certain risks, such as destruction or theft of certificates. The transfer of securities by book entry is a precondition for the shortening of the settlement cycle for securities trades, which reduces replacement cost risks.

The main settlement risk is counterparty—credit or principal—risk. DvP is one of the primary means by which a market can reduce the risk inherent in securities transactions. The DvP concept seeks to eliminate principal risk from securities transactions by ensuring that sellers give up their securities if, and only if, they receive full payment and vice versa. There are three essential elements in a DvP transaction: (1) good and irrevocable delivery of securities, (2) final and irrevocable funds, and (3) simultaneous exchange. The CPSS has identified three different models of DvP.[94] Although these models vary in their approach to achieving DvP, they all meet the concept of real DvP.

The use of a central counterparty that interposes itself between the counterparties to securities trades

[94]See Bank for International Settlements (1992).

is becoming more common. It is an especially effective tool for reducing risks vis-à-vis active market participants. The use of a central counterparty concentrates risk and reallocates it among participants. The ability of the system as a whole to withstand the default of individual participants depends crucially on the risk management procedures of the central counterparty and its access to resources to absorb financial losses.

Risk management procedures to reduce market risk and strengthen a DvP mechanism include (1) establishing admission standards, participation funds, collateral, margins, buy-ins and sell-outs, net debit caps, bilateral credit limits, and loss-sharing arrangements; and (2) monitoring members' creditworthiness. Most settlement systems use more than one procedure to minimize market risk. In addition, there are a number of mechanisms designed to improve the settlement process. Among them are central lending facilities, pledge recording facilities, and prompt re-registration procedures. Lending and borrowing of properly regulated securities lending and borrowing can bring significant benefits to a market and its users, leading to more liquid markets. Short-selling could be a useful mechanism to add liquidity, but regulation must be in place against manipulative practices, including those associated with significant short positions.

Systems that are considering whether to implement RTGS or a netting scheme should examine market volume and participation to determine if these mechanisms are appropriate. Historically, netting was introduced to reduce the amount of physical documents passing between market members. Later, with the introduction of early computer systems, it was used to reduce the number of electronic settlements. Today efficiency advantages are less important because of the high speed introduced by powerful computers and RTGS systems. Thus, the debate is focused on the trade-off between liquidity requirements and risk mitigation, as discussed earlier in this book.

Settling in same-day funds is essential when operating in an RTGS environment and is useful in achieving real intraday DvP.[95] To achieve timely and risk-free settlement in same-day funds, efficient banking arrangements will need to be developed that enable funds to be moved quickly and relatively inexpensively.

The finality of the ownership transfer of both payments and securities is a crucial factor in the development of a securities market. Otherwise, only local investors will operate in the market based on well-established client relationships and the confidence that these provide. In emerging markets, this factor is critical if there is a desire to attract foreign investment. Foreign investors will be reluctant to participate in a market that is not considered to be safe and sound. Payments finality is equally important.

The failure of a bank providing cash accounts to settle payment obligations for CSD members could disrupt settlement and result in significant losses and liquidity pressures. The use of the central bank as the single settlement bank may not always be possible, however. In such cases, a private bank sometimes is used as the single settlement bank, and steps must be taken to protect CSD members from potential losses and liquidity pressures that would arise from its failure.

For the status of settlement risk management in the region, see Appendix Table A4.9.

Observations

A modern securities market needs to have a securities depository and fungible securities. All physical securities kept in custody by participants of the securities depositories should be immobilized or dematerialized in a securities depository.

Additional efforts are necessary to achieve full dematerialization and immobilization of securities. Central banks and ministries of finance are making efforts to achieve the complete dematerialization of government securities. Similar efforts are being undertaken by the private sector. Lack of securities standardization is an important obstacle, mainly in the case of public securities. Regular meetings with issuers and both institutional and noninstitutional investors are practical measures to promote dematerialization and immobilization and the movement of securities on a book-entry basis.

Some systems—those in El Salvador, Guatemala, Honduras, and Nicaragua—still do not settle on a DvP basis. Consequently, payments are not necessarily linked to securities transfers and vice versa. Therefore, principal risk exists. No measures have been taken to eliminate principal risk and to reduce and mitigate replacement risk (i.e., a guarantee regime). Coordination and links between securities

[95]A payment is made in same-day funds when it is made on an irrevocable basis to the counterparty on the day of settlement such that they are available for use on the day of settlement.

and monetary flow transfers on a DvP basis model are essential. Replacement risk must be reduced or mitigated with the implementation of a strict guarantee regime.

Most systems have imperfect DvP procedures. Due to the time differences between the clearing of the cash leg and that of the securities leg, principal risk could occur if a broker goes bankrupt in this period. In that case it might be difficult to transfer the securities from the account of the depository in which they are blocked at the beginning of the trading day to the defaulter's counterparty, even if the counterparty has already paid for these securities. In addition, principal risk in these systems is sometimes substantially enlarged by the decision to release securities in the second leg of a repo transaction before cash settlement to allow for rollover. The securities might already be transferred to a third party by the original owner while no money might be available to fulfill the obligation to its counterparty. One reason behind this kind of a settlement arrangement is lack of standardization.

In general, there is an absence of risk management tools for covering settlement failures. Some systems do not offer any tools, while others offer some clearly insufficient ones. Authorities should analyze if current risk management tools are sufficient to cover potential failures, especially taking into account that existing guarantee funds can be used for failures other than those associated with settlement. A specific guarantee fund for settlement failures could be separated from a more general guarantee fund. In some cases, operations are unwound prior to the use of the guarantee funds and no risk management tool is established for failures on the settlement side, except to compensate the broker-dealer for the fee. To avoid potential systemic risk, the guarantee funds should be used prior to the unwinding, and a buy-in or similar mechanism could be established to cover securities failures. In some cases, the total value of the guarantees seems insufficient to cover failures for both securities and funds, at the current levels of market volume and value.

Related to the funds side, the common use of checks in the settlement process implies that the same-day-fund principle could not be fulfilled. Central bank money is often used in transactions. However, settlement in central bank money is not normally mandatory and payments by checks are commonly used in many systems. The use of central bank money to settle transactions relating to securities markets should be encouraged (this is especially important for developing markets although not required by the standards). Existing fund settlement systems in the region already allow for the use of the other type of fund transfer that would eliminate this risk. Due to the nature of securities transaction, fund settlement should take place with an instrument that allows for finality at the end of settlement day.

Normally, nonbank clearing members and broker-dealers do not have access to central bank money, which imposes a liquidity constraint on their operations. If there is a lack of liquidity in the financial system or inefficient liquidity management and market practices of broker-dealer and their clients, the shortage of liquidity could be exacerbated by settlement without DvP. In some cases, broker-dealers have difficulties accessing intraday liquidity facilities from commercial banks. Banking innovation in payment mechanisms might bring some reduction of liquidity pressures at the broker and customer levels. Provision of funds from the final investor to the broker-dealer to execute the transactions would also ease liquidity pressures. The reliability of the system as a whole, and of clearing and settlement procedures on a DvP basis, are essential to bringing confidence to the system and, thus, allowing final investors to provide broker-dealers with liquidity for operations carried out on their behalf.

In the case of settlement of funds being made at a private settlement bank (not common but present in the region), assets used to settle the cash leg of securities transactions between SSS members should carry little or no credit or liquidity risk. If central bank money is not used, steps must be taken to protect participants from potential losses and liquidity pressures arising from the failure of a settlement bank. Often, when a private settlement bank is used, there is no supervision of its settlement function. Lack of coordination between regulators on this raises additional concerns. Authorities should explore alternatives in terms of the assets used to settle the cash leg of securities transactions and, if a private settlement bank is used, adequate regulatory and supervisory mechanisms should be put in place.

Plans for the development of new securities depositories in the region are not always realistic in terms of timing and are driven by a specific technological solution, not by a strategy agreed by all stakeholders. Some stock exchanges are developing technological solutions based on other countries' experiences in the region. The launch of a securities depository is a desirable and necessary element, but it implies much more than the establishment of an

operational system. The launch of the securities depository should be considered in the context of a comprehensive reform of the payment and securities settlement systems. Some of the following crucial elements should be agreed by regulators and other stakeholders before any implementation takes place:

- What should be the role of the central bank?
- What kind of securities will the securities depository immobilize or dematerialize?
- Which settlement bank will it be and what implications does the legal framework have in this regard?
- What are the most appropriate settlement cycles?
- Should the depository identify the beneficial owner or should this be done only at the custodian level (this decision depending on the strength of the supervisory function)?
- What model of DvP will be implemented?
- Which risk management tools will be in place to mitigate settlement risks in case of a multilateral net system?
- What should be the operational security requirements and supervision?
- What ownership structure should the depository have?
- Will the system allow for fair and open access to all participants? and
- What will the governance arrangements be?

It is important that the reform focuses on all elements of SSSs and not only on the operational system for a securities depository. It is also important that the new SSS observes the "Recommendations for Securities Settlement Systems" issued by CPSS and IOSCO in November 2001, which include legal and custody issues, clearance and settlement procedures, settlement risk, cash settlement asset, operational risk, regulation and oversight, transparency, efficiency, access, and governance. Finally, formal coordination among regulators and cooperation with the private sector are crucial in developing this piece of financial infrastructure.

Where public authorities have not taken a leadership role in the development of securities settlement arrangements, private institutions have introduced solutions that are not integrated into a comprehensive payments and securities settlement reform. Due to public interest in the development of an SSS infrastructure (implications for fiscal and monetary policy, liquidity management, and development of the capital markets), public authorities (central bank, securities regulator, pension funds regulator, and ministry of finance) should take the lead in defining how such a system should be designed and implemented, and cooperating with the private sector in doing so. The public nature and neutral position of regulators can help overcome the conflict among private interests.

Some markets are exposed to concentration risk in settlement activity. Broker-dealers have a central function in some trading and securities settlement systems. In some cases, they have the monopoly on trading in the stock exchange. They are also the only participants in the depository with operational rights (pension funds and banks have nonoperational custody accounts) and for that reason have a monopoly on custody services for immobilized securities. In some cases, all money market transactions have to be done via broker-dealers. Broker-dealers also provide services to the public by attracting deposits and by investing in capital or money market instruments. This full range of services includes substantial liabilities of the broker-dealers to banks, other financial institutions, and the public. However, capital requirements for broker-dealer houses are relatively low.

The settlement of securities and funds should be linked to stock exchange transactions settled on a DvP basis in order to eliminate principal risk. The main improvements needed are achievement of full dematerialization and immobilization of securities, establishment and completion of DvP procedures, upgrade of current risk management tools, mitigation of credit and liquidity risk in the cash leg settlement (including elimination of checks as a cash asset), better access to liquidity for SSS participants, and comprehensive strategic approach for the reform of SSSs as opposed to technology-driven and exclusively operational reform projects.

Operational Issues

Context

Operational risk is the risk of deficiencies in information systems or internal controls, human errors, or management failures resulting in unexpected losses. As clearing and settlement systems become increasingly dependent on information technology systems, the reliability of these systems becomes a

key element of operational risk. Operational risk can arise from inadequate (1) control of systems and processes; (2) management more generally such as lack of expertise, poor supervision or training, and inadequate resources; (3) identification or understanding of risks and the controls and procedures needed to limit them; and (4) attention paid to ensure that procedures are understood and complied with.

To minimize operational risk, system operators should identify the sources of this risk. All key systems should be secure (i.e., have access controls, adequate safeguards to prevent external intrusions, and provide audit trails), reliable, scalable, able to handle stress volume, and with contingency plans in case of a system interruption. The system should maintain an adequate capacity to process current and anticipated future transaction volume, including projected peak day and peak hour volume demands. To achieve this, the operator must (1) establish formal current and future capacity estimates for their automated trade comparison systems; (2) conduct periodic capacity stress tests to determine the behavior of systems under a variety of simulated conditions; and (3) conduct independent annual reviews to assess whether these systems can adequately perform at their current and estimated future capacity levels.

Operational capacity must also be demonstrated to exist at the mandatory disaster recovery site. Operators must have in place a well-designed and adequately tested mechanism for transferring system control to the backup site in an acceptable time frame without loss of data or unacceptable reduction in service levels.

In assessing the efficiency of settlement systems, the needs of users and the costs imposed on them must be carefully balanced with the requirement that the system meet appropriate standards of safety and security.

For more details on the operational reliability of securities settlement systems in the region, see Appendix Table A4.10.

Observations

The physical handling of securities is still common in many SSSs. The clearing and settlement of securities transactions with physical certificates instead of a transfer via a book-entry system is not only risky but also cumbersome and costly, and hampers the development of capital markets. It is not in line with international standards. Thus, an important target should be to eliminate physical handling of securities. General laws on securities or capital markets must recognize the immobilization, dematerialization, and the transfer of securities on a book-entry basis. Depositories should encourage the dematerialization and immobilization of all securities as a matter of urgency.

Straight-through processing is not the rule in SSSs in the region. Many procedures imply physical handling of securities. This makes some clearance and settlement procedures cumbersome, for example, dividends payments and corporate actions in general that require a substantial amount of manual intervention. Gradual implementation of STP procedures would be desirable for all kinds of securities in order to reduce operational risk. STP for securities transactions will mean a fully automated transactional link for trade matching, comparison, and book-entry settlement of securities and funds. Such an integrated system would not only reduce the possibility of errors but also make the clearing and settlement process more efficient by, for example, eliminating duplicate processes and giving the participants immediate information for effective liquidity management.

In many cases, backup facilities are missing or are in the process of being implemented. They should be in place as early as possible to cover any contingency in the system. Alternate sites and disaster recovery facilities must enable operations to be recovered in a manner that does not disrupt settlement.

External auditing of operational systems should be considered to assess the security and cost efficiency of all systems. The authorities and the private sector have made very important efforts in developing technological platforms for the operation of the SSSs. In some cases, an in-house solution has been adopted versus the acquisition of standard systems. In these cases, an external audit of the systems should be conducted to ensure that all required features (i.e., security, contingency, backups, capacity) are in place for safely and efficiently operating the new systems. This is even more important when the supervision of operational risk is not well developed.

In sum, there is room for important efficiency gains in the securities settlement infrastructure. In particular, physical handling of securities should be eliminated to increase the safety and efficiency of SSSs. In addition, there is room for improvement in the clearing and settlement process as STP is not the common rule. Various plans for backup sites and disaster recovery facilities should be accelerated or

established when nonexistent. Finally, external audit of the systems should be undertaken, especially when systems have been developed in-house. The latter is especially important when the supervision of operational risk is weak.

Custody Risk

Context

Custody risk is the risk of losses on securities held in custody because of the custodian's (or subcustodian's) insolvency, negligence, misuse of assets, committing of fraud, poor administration, or inadequate record keeping. A custodian should employ procedures ensuring that all customer assets are appropriately accounted for and kept safe. Customer securities must also be protected against claims of the custodian's creditors (typically client assets are given preferential treatment under insolvency law).

Custodians must have a demonstrated capacity to safeguard securities and funds in their custody or control, or for which they are responsible, and to protect against reasonably anticipated internal or external threats to the integrity of their operations. In many markets, settlement is carried out and controlled through automatic data processing systems. In these cases, the system should have appropriate procedures to backup data and a contingency plan to minimize disruptions.

The use of electronic technologies such as the Internet for initiating financial transactions increase consumer choices but at the same time has the potential for abuse and illegal activity. Safeguards should anticipate, and be designed to provide protection against, the possibility of theft, accidental or malicious destruction or loss of securities or funds, and accidental or intentional but unauthorized modification, disclosure, or destruction of data.

Custodians should have an adequately staffed internal audit department, which has the authority to review, monitor, and evaluate the organization's system of internal controls and the integrity of operational procedures.

In summary, special attention must be paid to reducing incidence of fraud. Some of the issues to be addressed are (1) the operational security of systems, including identification systems, message authentication, and protection measures in safeguarding access to the system; (2) protection against insider fraud; (3) a regular independent audit of the systems to ensure continued integrity; and (4) the determination of liability for loss or technical failure.

For details on custody arrangements in the region, see Appendix Table A4.11.

Observations

There is a need for additional legal developments to guarantee the protection of customer assets in the event of bankruptcy of the depository or insolvency of the custodian. Country authorities should make sure that the segregation of accounts for securities and funds under custody have a clear legal basis. They must also ensure that all customer assets are appropriately accounted for under the beneficial owners in the depository or in the custodian's omnibus accounts. Specifically, they must ensure that customer assets are protected against the insolvency of custodians, whatever the nature of the custodian.

Regulatory and Oversight Issues

Context

A specific allocation of responsibilities for securities clearance and settlement supervision is important. In most cases, this function is performed together with the general supervision function of participant entities without any special attention being given to clearance and settlement issues. There is a trend toward regulatory oversight policy being implemented at two levels, substituting for traditional direct supervisory activity. The regulator conducts oversight of the activities of self-regulatory organizations (SROs) such as CSDs and exchanges, while the SROs conduct oversight of the activities of participants.

A securities regulator should have the authority to license central clearinghouses and CSDs (i.e., the system operators) as SROs, and to review and approve their rules. As an SRO, a system operator should have the authority to make rules and enforce them on its participants. The securities regulator should have the power to issue guidelines for system operators. In addition, the securities regulator should ensure that rules and procedures issued by SROs permit a sound and effective operation of the system and provide fair access to all market participants. The securities regulator should also have the authority to conduct periodic inspections, require the production of periodic reports, and enforce securities laws and regulations.

Mutual cooperation between the securities regulator and the central bank as well as their cooperation with other relevant authorities is important in achieving their respective policy goals.

For more details on the regulatory and oversight issues in the region, see Appendix Table A4.12.

Observations

Most countries do not have an oversight role over securities settlement other than the SRO role of the stock exchange. This undermines trust in the system, especially from a foreign investor perspective, and is an obstacle to the development of securities markets. This will become a clear bottleneck as envisaged reforms in the payment systems will make liquidity management important through the collateralized money market.

In general, the capacity of securities regulators in the area of securities settlement should be strengthened. Some securities regulators have only recently come into existence and, therefore, their capacity for securities settlement is yet to be developed. The securities regulator must have the appropriate human and material resources to supervise participating institutions and the SSS as a whole. If the skills cannot be found in-house, external assistance should be sought.

The oversight empowerment for securities settlement systems is missing in some cases. The securities supervisor's oversight responsibilities for SSSs must be strengthened by law. This law must regulate the powers of the securities regulator and authorize it, in cooperation with the central bank, to issue regulations relating to securities clearing and settlement activities. Since the oversight of an SSS and its participants is normally shared among regulators (central bank, securities regulator, and pension funds regulator), cooperation is crucial. Potential conflicts between the roles of the central bank as operator and overseer of SSSs should be addressed by appropriate internal organizational arrangements. Cooperation could be achieved through formal agreement among the parties (e.g., a memorandum of understanding).

In sum, oversight of securities settlement should be institutionally strengthened by devoting adequate resources and establishing an effective cooperative framework with other regulators, SROs, and the private sector.

Organizational Arrangements of Central Securities Depositories

Context

It is widely accepted that a securities market should be supported by the CSD with the broadest possible industry participation. Admission should be open to all qualified market participants needing access to the CSD.[96]

Membership standards for system operators should be established to minimize risk. Certain minimum standards of financial responsibility, operational capacity (including system security and integrity), experience, and competence should be required for participation in the systems. Mandatory capital requirements for participants are the first safety net against a participant's failure. However, these requirements are frequently established for reasons other than clearance and settlement, and a system operator should have the authority to impose higher financial standards on its members/participants if the general requirements do not adequately cover the perceived risks.

The rules for clearing and depository organizations should avoid discrimination among potential and actual participants. The rules should provide fair procedures for review of decisions concerning denials of access. In addition, the system should provide participants with a meaningful opportunity to participate in the administration of the organization's affairs.

The above applies to CSDs and central counterparties, which are at the heart of the settlement process. Many are sole providers of services to the markets they serve, and their performance is a critical determinant of the safety and efficiency of those markets. Therefore, their performance is a matter of public as well as private interest. In addition, there may be other providers of services (e.g., trade comparison or messaging services) whose performance is also critical to the functioning of some markets. The governance arrangements of any critical service providers should also be consistent with the above recommendation.

No single set of governance arrangements is appropriate for all institutions in the securities markets. However, an effectively governed institution should meet certain basic requirements. Governance arrangements should be clearly articulated, coherent, comprehensible, and fully transparent. Governance arrangements should therefore seek to minimize the conflicts between the objectives of owners, users, and other interested parties, and as far as possible to resolve any remaining conflicts.

[96]The cost is an important element to consider in order to avoid an unfair situation for the minority investor. In any case, transaction costs per unit should be clearly identified.

Financial markets operate most efficiently when participants have access to information on the risks to which they are exposed and can take action to manage those risks. The need for transparency applies to the entities that form the clearing, settlement, and custodial infrastructure of the securities markets. Informed market participants are better able to evaluate the costs and risks to which they are exposed as a result of participation in the system. Relevant information should be accessible to market participants. Information should be current and available in formats that meet the needs of users.

For further details on the status of the organizational arrangements of the CSDs in the region, see Appendix Table A4.13.

Observations

Although, in general governance arrangements are adequate, it is unclear whether they prevent conflicts of interest. These aspects should be carefully evaluated by the overseers, especially in light of possible expansion of the stock exchanges in the clearing and settlement industry. Also, the stock exchanges might want to form a user group to ensure that the needs of all participants are represented and all parties have the opportunity to participate in the decision-making process.

Some legal and governance arrangements introduce monopolistic situations that impede the adequate development of some markets (e.g., the money market). This could lead to the development of settlement infrastructures that are not adequate for market needs. These include high entrance fees, inadequate facilities, and lack of facilities to process intraday repos used by the central bank to provide intraday liquidity.

Unsolved conflicts of interest are the main reason for the underdevelopment of basic SSS infrastructures such as depositories. In these cases, under the leadership of the securities regulator and the central bank, in coordination with the ministry of finance, a legally sound solution should be agreed with stakeholders to establish the depository function as soon as possible. Depending on the solution adopted for the immobilization/dematerialization of securities and establishment of the depository function, careful attention should be given to the ownership structure of the depository to make sure that the system is efficient and fair in terms of access, and that it has appropriate governance arrangements. The depository should provide participants with a meaningful opportunity to participate in the organization's decision-making process for system design and settlement procedures, among others.

A strong, capitalized, and autonomous securities depository, with reliable and flexible systems to expedite settlement of transactions and accessory rights, is crucial for the development of the securities markets. When important conflicts of interest emerge, the authorities should take the lead in their resolution.

Cross-Border Settlement

The settlement of cross-border securities transactions is more complicated and involves more risk than that of domestic transactions. Links among CSDs permit participants from multiple jurisdictions to settle trades in securities through a simple gateway operated by either the domestic or an international CSD. However, CSDs need to design links carefully to ensure that risks are reduced. They must address legal and operational complexities. If links are not properly designed, risks can be exacerbated. Inefficiencies may arise because of variations in operating hours. Links may create significant credit and liquidity interdependencies between systems. A CSD should evaluate the financial integrity and operational reliability of any CSD with which it intends to establish a link. Any credit extensions between CSDs should be fully secured by securities, letters of credit, or other high-quality collateral, and should be subject to limits.

For more details on the status of cross-broker settlement in the region, see Appendix Table A4.14.

Observations

Most securities depositories include cross-border links. Authorities should analyze in detail the risks associated with these links as settlement of cross-border transactions typically involves more risk than settlement of domestic transactions. Particular attention should be paid to the multiple jurisdiction profile of these transactions, especially from a legal and operational perspective. At the international level, the main improvement in this area is related to the international law governing the cross-border pledge of securities as collateral. Some depositories have been participating in the Hague Convention efforts to build an internationally accepted principle on this issue, but they believe that market participants and clearing and settlement systems were not

sufficiently involved. Some securities regulators are already involved in this discussion.

Transparency, Oversight, and Cooperation in Payment Systems

Context

Smooth and reliable money transfer mechanisms affect the efficiency of financial markets and the real economy; they also have an impact on the central bank's lender-of-last-resort function, the conduct of monetary policy, and liquidity management. Market forces alone may not be able to achieve the objectives of efficiency and reliability of the payments system because participants and operators may not have adequate incentives to minimize the risk of their own failure, or the costs their failure may impose on other participants. In addition, the institutional structure of the payment system may not provide incentives or mechanisms for efficient design and operation.

For these reasons, central banks' involvement in the payments system is an integral component of their overall mandate to ensure financial system stability and maintain confidence in the domestic currency. In this context, central banks perform a number of functions in their national clearing, settlement, and payment arrangements. These functions may include direct involvement in managing clearing and settlement systems and in overseeing the payments system by developing rules, principles, and best practices under which private payment arrangements operate. The oversight role of the central bank is at the heart of the current international debate and the function is emerging as a key facet of central bank activity.[97]

The role of the central bank is particularly important when the country is engaged in a comprehensive reform of its payments system. In this case, the central bank has a leading role to play in developing a vision for the reformed system, in coordinating with all stakeholders, and in carrying out the reform plan. Direct involvement of the central bank in managing clearing and settlement systems has been the first step toward governing the overall structure and operation of a country's payments system and ensuring that the desire to limit systemic risk, especially in the area of large-value payment systems, is adequately taken into account. In many cases, this role stems from the need to ensure a widespread adoption of more advanced technology in the fund transfer mechanisms and to avoid possible discriminations in access to payment services. In all cases, to pursue the public interest in the payments system, central banks should ensure that the systems that they operate comply with the principles and guidelines they establish and, as overseers, ensure the (financial and operational) reliability and efficiency of the clearing and settlement systems they do not operate. The central bank's oversight role is more prominent when payments reform is complete and the central bank is called upon to ensure the ongoing monitoring of the reliability and efficiency of the domestic system.

In an increasing number of countries, payments system oversight is entrusted to the central bank by law. Specifying objectives in the law may be the most direct way of providing a well-founded legal basis for the central bank to implement its policies and make it accountable in pursuing its goal and mandate in the payment system. For countries that are reforming their payment systems, it is important

Box 4.2. Oversight Role of the Central Bank

Central banks have the following responsibilities in applying the Core Principles:

Responsibility 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.

Responsibility B. The central bank should ensure that the systems it operates comply with the Core Principles.

Responsibility 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.

Responsibility 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.

Source: Bank for International Settlements (2001a).

[97]See Bank for International Settlements (2005) for a framework for payment system oversight. Other examples are the focus on central bank's responsibilities in the CPSS Core Principles, the CPSS-IOSCO recommendations for securities settlement systems, and the *Payments System Oversight* reports of the Bank of England. See also Bossone and Cirasino (2001).

for the central bank to have a well-founded legal framework that clearly defines its payment system role and objectives.

As for the scope of the oversight function, at the international level there is consensus that systems posing systemic risks should fall under the direct control of the overseer. Typical examples of these systems are those that handle transactions of a high value at both the individual and aggregate level. For example, the CPSS Task Force on Core Principles identified four responsibilities of the central bank in applying the CPSIPS (Box 4.2).

Increasing attention is being paid to securities clearance and settlement systems as relevant components of the overall payments system. The oversight of these systems might well be a cooperative effort of two or more regulatory agencies. In some countries, retail (low-value) systems also fall under control of the oversight agency because of their importance in the overall efficiency of the payments system, their potential impact on the public trust of money, and their relevance to the ultimate objective of economic growth.[98]

The evolution toward a new central bank role in payment systems calls for a careful consideration of at least three issues:

- The adequacy of legal enforcement of central bank actions in the payments system should be evaluated. The central bank role in payment systems stems from its responsibility for financial market stability and monetary policy. In many countries, a clearly stated legal enforcement for the central bank's activity as overseer of the payments system has facilitated the fulfillment of the central bank's objectives.
- The internal organization of the central bank may also be worth evaluating. Experience in many central banks indicates that significant improvements can be derived by setting up a unit specifically devoted to payments policy issues. Typically, such a unit could develop a policy framework and tools (e.g., data collection and periodical inspections) for use in assessing the appropriateness of individual payment systems. This function could be undertaken in close coordination with the banking supervisor. The staff of this unit should have adequate skills. Typical aspects to be analyzed in administering the oversight functions include, inter alia, potential risks emerging from the clearinghouses, the adequacy of risk control measures, the potential implications of unwinding procedures, and efficiency issues.
- Effective cooperation must be achieved between the overseer and market players, among domestic regulators, and among international oversight agencies. In particular, central banks without bank supervisory powers may face considerable information limitations, especially in crisis management situations.[99] An effective way to overcome this problem is to stipulate formal 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 might be hampered by frictions in cooperation between different institutions. Various solutions can be adopted for this purpose, from signing a memorandum of understanding that specifies the framework for cooperation, to assuring contacts between institutions through joint board membership, or the establishment of a comprehensive market regulatory/supervisory body where all the institutions with oversight responsibilities are represented and mandated to cooperate.[100] Cooperation must also be pursued between the overseer and the securities market regulators, as securities settlement is an integral part of the payments system, and problems in securities market clearing and settlement may easily spill over to the payments system and vice versa.

[98]There are many examples of how an inefficient retail system can affect economic activity, for example, by failing to accommodate the needs of customers and merchants in a transaction that, as a result, cannot take place.

[99]The overseer would have to rely on information from the supervisory authorities, or should develop its own independent access to information on payment system participants. While the first option de facto transfers the responsibility for triggering oversight action to the supervisory authority, the second one raises risks of duplication in information collection, inconsistent public action, and additional costs to participants.

[100]See Banca d'Italia (1999) for a description of institutional arrangements adopted in some industrial countries. In the United Kingdom, the Bank of England and the Financial Services Authority (FSA) 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" (Bank of England, 2000). In the European Union, the European Central Bank (ECB) issued a protocol for payment system oversight to be adopted by the euro-area national central banks and the ECB.

Effective cooperation among market participants, between regulators and market participants, and among regulators is essential for the development of a sound and efficient payments system. In particular, the systemic nature of the underlying operating procedures for the transfer of money makes the payments system an "institution" whose existence and smooth functioning requires effective cooperation between all participants. On the one hand, the use of payment instruments generates significant externalities on the demand side, because the usefulness of an instrument is strictly linked to the degree of its acceptance and use for transactions purposes. Consequently, widespread use of new payment instruments and services relies heavily on public confidence in them. On the other hand, within the payments system, the supply of services can be affected by coordination failures because of the existence of conflicts of interest (and information costs) as well as the intermediaries' unwillingness to cooperate. This can lead to suboptimal equilibria in the organizational arrangements in terms of reliability and efficiency. The payments system overseer is therefore entrusted with making up for coordination failure in the market for payment services. Cooperation problems may be especially relevant within interbank clearing and settlement systems. In these systems, risk profiles—both at the system level and at the level of the individual intermediary—may not be fully assessed by participants. In addition, the concern with having to support less reliable intermediaries may lead larger participants to discriminate against smaller ones, even when the smaller ones are technically eligible to participate in the system. Finally, the payment system industry also depends on agreements between producers to ensure that different components of the system are compatible. Most recently, the emergence of new types of nonbank intermediaries and payment instruments has strengthened the need for a comprehensive level of cooperation in payment systems.

The safety and efficiency objectives of payment and securities settlement systems may be pursued by other public sector authorities in addition to the central bank and the securities commission. Examples include legislative authorities, ministries of finance, and competition authorities. There are also complementary relationships between oversight, banking supervision, and market surveillance. Appropriate cooperation among supervisors can be achieved in a variety of ways, for example, exchanges of views and information between relevant authorities may be conducted by holding regular or ad hoc meetings. Agreements on the sharing of information may be useful for such exchanges.

For further details on the status of transparency, oversight, and cooperation in payment systems in the region, see Appendix Table A4.15.

Observations

In most Central American countries, except El Salvador and Panama, the law gives some authority to the central bank over the payment system. However, the legal foundation of oversight of clearance and settlement systems is not always solid. For example, the law is often not clear about the scope of application of the function and the relative roles of the central bank and other authorities. To overcome these problems, it is important that central banks prepare and encourage approval of primary or secondary legislation to complete the legal framework and ensure the secure foundation of payment mechanisms that effectively contributes to the integrity, efficiency, and safety of all financial markets and the operation of monetary policy, especially in the area of securities settlement systems. Legislation should clarify in detail the empowerment and enforcement of the central bank as the payment system overseer.

In the context of establishing the oversight function, central banks should disclose publicly their objectives and implementation strategies relating to payment system matters. To this end, central banks should develop a comprehensive policy statement providing guidance to the private sector on matters relating to payment system governance, day-to-day management, risk mitigation, and on the policies that must be satisfied by all transactions that are ultimately settled on its books.

Central banks should broaden the set of policy objectives from efficiency and reliability of payment systems to including competition in the payment services market and consumer protection. These objectives might be pursued by central banks, especially where they are not included in other regulators' mandates. With regard to their oversight role, central banks should apply their authority over all payment and securities settlement systems in the country, both the systemically important ones and retail systems, since the latter have a role in supporting economic activity and the public trust in money.

Central American central banks should be able to carry out their oversight role effectively. To this end, central banks should (1) establish appropriate orga-

nizational arrangements and staffing;[101] (2) ensure that an adequate degree of participant cooperation exists and is sufficient to promote and realize the desired organizational and operational arrangements; (3) verify that individual payment systems satisfy user needs as well as risk and efficiency requirements through appropriate interventions both at the development stage and during the ongoing system implementation and operational phases; (4) define and implement appropriate actions should participants not comply with published rules and regulations (e.g., the application of predetermined penalties and sanctions for compliance failures); and (5) collect and distribute relevant statistical information to demonstrate how each system is being used and the extent to which the systems are satisfying end-user and other market needs. Information on substantial payment system matters should be disclosed in a manner that assures wide dissemination among payment system stakeholders and the general public.

Central American central banks should move toward compliance of their systemically important payment systems with international standards. In particular, central banks will continue to be direct providers—owners and operators—of clearing and settlement services. In this regard, care should be taken to ensure that appropriate service and performance levels are routinely achieved and adequately cover all critical safety and efficiency requirements. To this end, central banks should continuously review and seek to improve the design and operation of the systems they operate (e.g., along the lines that the CPSS Core Principles envisage for payment systems operated by private entities).

In performing the oversight function, central banks should ensure that policies and conditions for payment services offered are transparent. In each country, the central bank, banks, and other financial institutions should be encouraged to provide information to the public on the services they offer in the payment system. Moreover, arrangements for the resolution of conflicts should be disclosed and understood by providers, users, and regulators of payment systems and services. The general public should be able to resort to consumer protection agencies (e.g., a bank ombudsman) for resolution of conflicts related to payment services. The central bank should cooperate with the banking supervisor and other relevant authorities to ensure that payment services and instruments are appropriately covered by the new arrangements.

Cooperation among regulators is weak in Central America. The payment system overseer (central bank), the ministry of finance, the banking supervisor, the securities commission, and other relevant authorities should identify and implement procedure and process changes to address any weaknesses or inconsistencies in the regulatory arrangements and assure a high level of cooperation in the way that policies are implemented. Consideration should be given to establishing joint task forces to address problems of common interest and/or the preparation of appropriate memoranda of understanding. At the international level, central banks should get involved in the efforts of harmonization at the subregional level in Central America and in the activities of the WHF Working Group on Payment System Issues of Latin America and the Caribbean.

Cooperation among regulators and stakeholders should also be strengthened. No formal cooperative arrangement for the payment system as a whole exists in Central America. In each country, the central bank should establish a formal national payment system council. The new body should include representatives from all major stakeholders with an interest in improving payment and securities clearance and settlement systems and should also be used as the main tool to secure a constructive dialogue between regulators and market participants. The central bank should provide strong leadership and the secretariat. Payment system councils in Central American countries could establish forms of interaction with a view to moving forward the harmonization and integration agenda.

Binding interbank agreements are equally important to enhance cooperation within the banking sector. Cooperation at the interbank level has not always been satisfactory in Central America. Evidence can be seen in the area of retail payment circuits, the development of the interbank market, and the slowness to reduce dependency on checks. In light of possible market concerns about the potential loss of competitive advantages, which are however lower than the social benefit of taking these actions, the central bank and the banks are urged to work together toward the implementation of some

[101]This includes forming a small unit in charge of payment system oversight to be separated to the extent possible from the units in charge of operating the systems offered by the central bank. Skills of the staff involved in the function should be as wide as possible and include operational, technical, and policy expertise as well as proficiency in the areas of law and economics.

agreements in the area of payment systems, which could enhance efficiency for the banking sector as a whole.

In sum, there is a need to establish the oversight function over the payments system. Regarding the oversight function and its transparency, Central American central banks should strive to fully observe the key responsibilities assigned to them by the CPSIPS (see Box 4.2). Cooperative arrangements in payment systems among all stakeholders should also be enhanced.

Conclusions

In recent years, Central American central banks have played a very active role in the reform of national payment systems. Important efforts have been completed and others are ongoing. Reform programs have allowed for a better integration between the central bank and the banks and have given the banks a means to send and reduce settlement lags and settle their payments more efficiently on the accounts they hold at the central bank. In some countries, these results have been achieved despite instability in the financial sector. Acknowledging these important achievements, central banks need to undertake an exercise to finalize the reform effort. Elements such as improvements in the legal framework, compliance with international standards, full integration of all systems, introduction of new and efficient payment instruments, and establishment of the oversight function for payment and securities settlement systems have not been fully included in the reform projects. The degree of coordination and communication with other stakeholders and government treasurers has been on some occasions informal and asymmetrical, resulting in a technology-driven approach with strong emphasis on some components of the operational aspects of the payment system (e.g., the automation of the check clearinghouse), and less emphasis on others. In general, this has not permitted Central American countries to catch up rapidly with the systems found in other Latin American countries.

As a result, Central American central banks should broaden the scope of reform to include additional elements (e.g., electronic retail payment and securities settlement) and incorporate improvements not only in the systems but also in the legal, regulatory, and oversight environments. In doing so, central banks should follow the guidelines defined in the 2006 Report on General Guidance for National Payment System Development (Bank for International Settlements, 2006).

Central banks should develop a long-term, comprehensive strategy for the payments system as a whole, and discuss it with stakeholders. In conducting a reform, the logical sequencing process would be as follows: (1) diagnostic, stocktaking, and situational analysis; (2) vision development; (3) conceptual design and implementation planning; (4) user requirement specifications; and (5) acquisition, procurement, development, testing, and implementation. Furthermore, important issues to be decided when launching a payment and securities settlement reform are scope (holistic versus specific); approach (gradualist versus leap-frogging); degree of sophistication (e.g., innovative products); number of systems; system operator (central bank, external provider, private provider); ownership of the system (central bank, private, joint); and time frame.

In some countries, important projects, such as an RTGS system, have already been launched or are in the pipeline. Indeed, the definition of formal cooperative arrangements with all stakeholders is very important to avoid different positions and opinions of participants once the reform has been launched.

Countries should reform their payment systems as a matter of urgency. By adopting a broad approach based on international standards and best practices, and with support from international organizations, other central banks, and payment system experts, each Central American country will count on a set of payment arrangements, services, and circuits able to serve the needs of all users in the economy. Appropriately reforming each national payments system in the region will also create the conditions for further harmonization and integration among the different payment systems. Central banks should, therefore, work in parallel in reforming, as a first priority, their national payments systems and, at the same time, work toward closer integration within the region by discussing and preparing minimum common features and a realistic timetable.

Specifically, assessments of national payment and securities settlement systems in Central America point to the following key findings:

- There is a need to improve the legal framework, notably as regards the irrevocability of final settlement, adequate protection of the systems against the effects of bankruptcy procedures,

legal basis for custody arrangements, legal definition of a repurchase (repo) operation, legal recognition of multilateral netting arrangements, legal definition of immobilization and dematerialization of securities (especially public securities), and legal definition and regulation of central bank oversight powers. From a developmental viewpoint, improvements are also needed on the legal basis for collateral pledge and securities lending in all countries except El Salvador and Costa Rica where the laws contain specific provisions for the creation, regulation, and enforcement of pledges. Due to the variety and importance of these legal issues, passage of a separate payments system law might be advisable in some countries.

- Upgrading RTGS systems as recommended will modernize the national payment systems and create the conditions for future regional integration through the interlinking of the different systems. Such recommendations would create common features in all relevant areas of the payment systems (such as legal, risk control mechanisms, liquidity provision, access policies, governance, organizational arrangements, operational aspects, reliability, and business continuity), which would facilitate their integration.

- Central and commercial banks have roles to play in ensuring that the existing retail circuits support customers' needs and are safe, convenient, and efficient for the economy as a whole. Central banks should monitor market developments and take action as appropriate, in consultation with other relevant authorities (e.g., consumer protection agencies), to restore safety and efficiency. In particular, the central bank should (1) ensure that the legal and regulatory framework keeps pace with market developments;[102] (2) monitor competitive market conditions and behaviors and take appropriate actions to foster such conditions; (3) support the development of effective standards and infrastructure arrangements;[103] and (4) adapt as necessary its provisions of settlement services for systems operated by other entities to contribute to efficient and safe outcomes, allowing all such systems to settle in central bank money.[104]

- Central banks and relevant government agencies should coordinate to ensure that collection and disbursements of public sector institutions that are major players in the payment system are processed electronically through an appropriate system, such as an ACH for retail electronic payment instruments. Government payments are also a major source of liquidity for the banking system and, if coordinated effectively, can facilitate the smooth functioning of the RTGS system being implemented by Central American central banks and increase its appeal to participants.

- Central banks should monitor trading and settlement platforms and procedures for foreign currency and cross-border transactions, notably remittances, to ensure that the principles of safety and efficiency can be applied to clearance and settlement.

- An adequate interbank money market is key to the smooth functioning of a country's payments and securities settlement system. An efficient mechanism for trading and settling these transactions will improve systemic liquidity management. A key element for the development of interbank money markets is a special purpose system for large-value payments providing secure electronic interbank transfers with immediate settlement that is interconnected to an electronic book-entry securities system, which is registering and recording changes in securities' ownership.

- Improved clearing and settlement processes in securities settlement systems are necessary to reduce market fragmentation, increase standardization of settlement cycles, accommodate different settlement needs, operate with shorter settlement cycles, avoid extension of settlement cycles because of inadequate risk management tools, improve markets' liquidity through

[102]Particular issues in this regard would be for central banks to assess whether the current legal framework effectively supports the use of modern (i.e., electronic) payments and related arrangements.

[103]The central bank could engage participants in a dialogue to analyze all payment systems in the country and come to agreements on necessary improvements, possibly building on the already existing groups that in most countries are engaged in the discussion to improve the check clearinghouse or other retail systems.

[104]This would become necessary when agreements on interoperability are reached and/or when an automated clearinghouse is deployed producing interbank obligations that need to be cleared and settled.

automatic securities lending, and introduce international communication standards.

- Linking the settlement of securities and funds would allow stock exchange transactions to be settled on a DvP basis so as to eliminate principal risk. The following aspects need to be improved: achieving full dematerialization and immobilization of securities; establishing DvP procedures; upgrading risk management tools; mitigating credit and liquidity risk in the cash leg settlement (including eliminating the use of checks as a cash asset); providing better access to liquidity for SSS participants; and developing a comprehensive strategic approach to the reform of SSSs, as opposed to technology-driven and purely operational reform projects.
- There is room for efficiency gains in the securities settlement infrastructure. Physical handling of securities should be eliminated to increase the safety and efficiency of SSSs. In addition, clearing and settlement should aim at achieving STP. The various plans for backup sites and disaster recovery facilities should be accelerated or established when nonexistent. External audits of the systems should be undertaken, especially when the systems have been developed in-house and/or the oversight framework is weak.
- The legal framework needs to be strengthened to reduce custody risk—that is, to guarantee the protection of customers' assets in the event of bankruptcy of the depositary holding their titles or insolvency of the custodian. The country authorities should ensure that the segregation of accounts for securities and funds under custody has a clear legal basis; that all customer assets are appropriately accounted for as beneficial owners in the depository or in the custodian's omnibus accounts; and that customer assets are protected against the insolvency of custodians, whatever the nature of the custodian.
- The securities depository should be well capitalized, autonomous, and capable of expediting settlement of transactions and accessory rights. This would be crucial for the development of the securities markets. The authorities should take the lead in the resolution of conflicts of interest in the event they emerge.
- The authorities should analyze the risks associated with cross-border links among securities depositories, as settlement of cross-border transactions typically involves more risk than settlement of domestic transactions. Particular attention should be devoted to the multiple-jurisdiction profile of these transactions, especially from a legal and operational perspective. At the international level, the legal framework governing the cross-border pledge of securities as collateral should be improved. In this respect, some depositories and securities regulators participate in the Hague Convention efforts to develop internationally accepted principles in this area, but believe that market participants have not been sufficiently involved.
- There is scope for improving the oversight of payment and securities settlement systems. Central American central banks do not fully observe Responsibilities A, B, C, and D of the CPSIPS regarding payment system oversight. In addition, securities settlement oversight should be strengthened by devoting adequate resources to regulators and establishing an effective cooperative framework with other agencies, SROs, and the private sector. In performing the oversight function and as system operators, central banks and securities regulators should ensure transparency in their policies and conditions for payment services offered. The general public should be able to resort to a bank's ombudsperson and to the central bank or another appropriate supervisor and the consumers' protection agencies for resolution of conflicts related to payment services. Cooperative arrangements in payment systems should be enhanced in Central America as a matter of urgency.
- Central American central banks should work in parallel in reforming, as a first priority, their national payment systems and, at the same time, work toward closer harmonization and integration within the region by discussing and preparing minimum common features and a realistic timetable to achieve this objective.

Appendix

TABLE A4.1
Legal Frameworks for Payment and Securities Settlement Systems

Country	Legal Basis	Finality and Irrevocability	Netting	Oversight Empowerment	Custody Arrangements
Costa Rica	Organic Law of Banco Central de Costa Rica (BCCR) (Law 7558 of 1995) and Securities Market Law (SML) (Law 7732 of 1998).	No explicit zero hour rule but no complete certainty and finality.	No explicit legal recognition of netting arrangements.	Article 2 of the BCCR Law, but no clarity on power to regulate and oversee payment systems provided outside the central bank.	Adequate.
El Salvador	Ley de Integración Monetaria (LIM) introduced dollarization in January 2001. For securities, Legislative Decrees 806 (Organic Law of the Securities Superintendency) and 809 (Stock Exchange Law).	No provision regarding acceptance and irrevocability.	No explicit legal recognition of netting arrangements.	No legal clarity on the authority empowered to regulate and oversee payment systems.	No protection of custody arrangements.
Guatemala	Organic Law of Banco de Guatemala (BANGUAT) of May 2002 and Securities Markets Law (Ley del Mercado de Valores y Mercancías) of 1996.	No provision regarding acceptance and irrevocability.	No explicit legal recognition of netting arrangements.	Article 4 of BANGUAT Law, but no regulation developing the oversight function.	Protection of custody arrangements only included for the securities depository but not for other custodians.
Honduras	Banco Central de Honduras (BCH) Law 2001 SML; its regulation is under development.	No provision regarding acceptance and irrevocability.	No explicit legal recognition of netting arrangements.	Article 2 of BCH Law; recent reform of the BCH Law (in 2004), Article 54.	No clear legal basis for ownership transfer of dematerialized securities.
Nicaragua	Organic Law of Banco Central de Nicaragua (BCN); no legal framework for the securities market.	No provision regarding acceptance and irrevocability.	No explicit legal recognition of netting arrangements.	Article 3 of the BCN Law.	None due to lack of specific legal framework for securities.
Panama	Banking Law (Decree-Law 9 of 1998) and SML (Decree-Law 1 of 1999).	No provision regarding acceptance and irrevocability.	No explicit legal recognition of netting arrangements.	No central bank.	Adequate.

Sources: National authorities; Western Hemisphere Payments and Securities Settlement Forum; and IMF–World Bank Financial Sector Assessment Program reports.

TABLE A4.2
Use of Cash and Transferable Deposits, 2004[1]

Country	Population (in millions)/ GDP Per Capita (in U.S. dollars)[1]	Bank Notes and Coins in Circulation (in millions of U.S. dollars)	Transferable Deposits in Domestic Currency (in millions of U.S. dollars)	Transferable Deposits in Foreign Currency (in millions of U.S. dollars)	Systemically Important Payment Systems (SIPS)	Yearly Value Settled to GDP (in percent)
Costa Rica	4.0/4,280	449	1,074	898	SINPE[2]	312
					Check system (CLC)[3]	125
El Salvador	6.5/2,200	36	1,167	1,167	Check system	...
Guatemala	12.3/1,910	1,266	1,903	406	Check system	187
					MIT[4]	31
Honduras	7.0/970	408	531	...	Check system (CEPROBAN)[5]	173
					Funds transfer	125
Nicaragua	5.5/730	190	147	279	Check system	135
					Phone transfer system (TTS)[6]	32
Panama	3.0/4,250	...	...	...	Check system	220
					BNP-CIASA[7]	984

Source: National authorities.
[1]Population and GDP per capita are 2003 data.
[2]SINPE = Sistema Interbancario de Negociación y Pagos Electrónicos.
[3]CLC = Cámara de Compensación y Liquidación de Cheques.
[4]MIT = Mecanismo Interbancario de Dinero.
[5]CEPROBAN = Centro de Procesamiento Bancario.
[6]TTS = Transferencia Telefónica Segura de Fondos.
[7]BNP-CIASA = Banco Nacional de Panamá—Centro de Intercambio Automatizado, S.A.

TABLE A4.3
Systemically Important Settlement Systems

Country	System	Owner/ Operator	Type of Settlement, Closing Time	Settlement Asset	Credit and Liquidity Risk Mechanisms
Costa Rica	SINPE	Central bank	Real-time.	Central bank money.	Use of reserve requirements for settlement; no intraday credit; no queuing mechanism.
	CLC	Central bank	Multilateral net basis next day 2:00 p.m.	Central bank money.	Guarantee scheme based on defaulter's pay principle (amount of guarantee recalculated based on net debit position).
El Salvador	Check clearinghouse	Central bank	Multilateral net basis next day 5:00 p.m.	Central bank money.	None.
Guatemala	SICOF	Central bank	Deferred gross basis (manual procedures).	Central bank money	Use of reserve requirements for settlement.
	Check clearinghouse	Private banks	Multilateral net basis next day 3:00 p.m.	Central bank money.	None.
Honduras	Funds transfer system.	Central bank	Deferred gross basis (manual procedures).	Central bank money	Use of reserve requirements for settlement.
	CEPROBAN	Private banks	Multilateral net basis same day 7:00 p.m.	Central bank money.	None.
Nicaragua	TTS	Central bank	Deferred gross basis (manual procedures).	Central bank money.	Use of reserve requirements for settlement.
	Check clearinghouse	Central bank	Multilateral net basis same day 4:30 p.m.	Central bank money.	None.
Panama	Corresponding banks in the U.S.	Network of correspondent banks	Gross through SWIFT network.	Asset of the foreign correspondent banks.	None.
	Clearinghouse	BNP	Multilateral net basis next day 12:00 p.m.	Asset of BNP.	None.

Sources: National authorities; Western Hemisphere Payments and Securities Settlement Forum; and IMF–World Bank Financial Sector Assessment Program reports.

Notes: SINPE = Sistema Interbancario de Negociación y Pagos Electrónicos; CLC = Cámara de Compensación y Liquidación de Cheques; SICOF = Sistema Contable Financiero; CEPROBAN = Centro de Procesamiento Bancario; TTS = Transferencia Telefónica Segura de Fondos; BNP = Banco Nacional de Panamá.

TABLE A4.4
Use of Cashless Instruments for Retail Payments, 2001[1]
(In millions of U.S. dollars, unless otherwise noted)

Country	Checks in Domestic Currency	Checks in Foreign Currency	Number/Payments by Cards (in millions/millions of U.S. dollars)	Credit Transfers	Direct Debits	ATM Operations
Costa Rica	14,045	6,464	1.5/740	39,662	37	1,900
El Salvador	. . .	24,591	. . . /202	6,818	. . .	. . .
Guatemala	45,108	1,211	4.3/125	10,318	. . .	564
Honduras	11,179	. . .	. . .	. . .	. . .	. . .
Nicaragua	5,300	1,882	4.3/32	1,114	. . .	. . .
Panama	. . .	28,800	120	. . .	. . .	. . .

Sources: National authorities; and Western Hemisphere Payments and Securities Settlement Forum.

[1]Data for checks are for 2003. Data related to cards, credit transfers, direct debits, and ATM operations are for 2001.

TABLE A4.5
Government Payments

Country	
Costa Rica	Significant progress has been achieved in recent years in government payments. The launch of SINPE and the extension of its services to the treasury has generated a remarkable result in terms of efficiency and cost reduction for treasury operations. Payments of the central treasury are channeled exclusively through SINPE. They include payment of payrolls and public sector providers. Tax collection is done through the banking sector, which transfers funds to the treasury the day after receiving the payments. The reform has introduced important savings for the treasury in fees and reduction of costs (in the order of about six million dollars since its introduction) and is perceived as highly successful by the treasury. Currently a relatively high fee is charged by the banks for tax collection (0.25 percent of the value). An intended and beneficial side effect of government use of direct credit was the increase in bank customers. The same effects were and will be reached through the implementation of direct credit payments for social services. Several projects are under way to further improve the efficiency of public sector payments. They include the introduction of a centralized account, the connection of all local treasuries to the central account, and the reform of procedures for the collection of customs duties. These reforms will be key in reducing the public deficit since the current practice of assigning budget to local treasuries in advance, and the consequent investment of positive balances by local treasuries in government securities, generates the paradox of having a relatively high portion of the public debt in the hands of the public sector. The reform of customs procedures should, on the other hand, reduce corruption and guarantee a smooth functioning of import-export operations. These projects have a high level of support from the government.
El Salvador	The BCR serves as the government bank, issuing and receiving payments on behalf of the government. By law, overdrafts of government accounts at BCR are not permitted.
Guatemala	The central government treasury and the Social Security Institute have made some progress to reduce the use of cash or checks in their payments. Until recently, the treasury was using the ACH-like system offered by Bancared, but it decided to develop an alternative system for cost and efficiency reasons, as the system of Bancared entailed a relatively high use of paper and several manual procedures. At present, both institutions use credit transfers through the "*Oficios*" system of the BANGUAT. Paper instructions (*oficios)* are received by the BANGUAT from 8:00 a.m. to 2:00 p.m. The latter distributes the funds among commercial banks on the same day according to what is established in the *oficios*. Once the banks have received the funds and a fax confirmation of the transfer, which happens on T+1, they can access the website of the paying institutions to download the payment details. The final beneficiaries are credited on T+3. Nearly 70 percent of the total volume of payments of these institutions is channeled through the system explained in the previous paragraph. The rest is made by checks. In the case of local governments, payments are made mainly by cash or checks drawn on commercial banks. On the other hand, central government collections are managed by a different institution, the SAT. Taxes and other payments to the government are collected through the commercial banking network. The banks gather the amounts collected in a single account each of them hold for the treasury. Then, in T+1, through an *oficio* they request the BANGUAT to make a transfer from their reserve account to the single account the treasury holds at the BANGUAT. Finally, banks access the SAT system to send the details of payments they received.
Honduras	Currently the Secretaría de Finanzas makes payments to suppliers and government staff by means of checks. Tax collection takes place through the banking system through an electronic system (FENIX) or through manual procedures. The BCH makes payments associated to government securities through its accounts.
Nicaragua	At present, the ministry of finance and the Social Security Institute, two of the major users of the country's payments system, handle collections and make payments mainly with cash or checks. Every month, the ministry of finance draws nearly 50,000 checks on its BCN account that are paid to the final beneficiaries through the commercial bank network on behalf of the BCN. It also makes recurrent payments through the TTS system of the BCN to other government entities, particularly autonomous schools. However, this system does not handle third-party information and payments may take from several days to some weeks to arrive in the beneficiary's account. Recently, the ministry of finance has also been using direct credits to the account of the beneficiaries, basically for payments associated with its payroll, but these represent only 2 percent of the total volume of payments it made. Collections related to income taxes are operated mainly through the ministry's own premises, while customs taxes and other collections are operated basically through the banking network. For this latter purpose, the ministry of finance holds approximately 300 different current accounts at commercial banks.
Panama	Government payments and receipts follow a complex and lengthy process characterized by manual procedures, and lacking automation. The BNP serves as the government bank, collecting taxes through the banking network and placing them in government accounts at BNP, receiving payments on behalf of the government and acting as its paying agent. Overdrafts of government accounts at BNP are not permitted. The national treasury (part of the MEF) instructs BNP to execute payments to providers on its behalf. For payroll (wage) payments, the national treasury authorizes and prepares checks with a facsimile of the minister's signature, while these checks are handed physically to recipients by the Office of the Comptroller.

TABLE A4.5
(concluded)

Country	
	For servicing the domestic public debt, MEF-General Directorate of Public Credit authorizes the gross budgetary allocation and informs Latinclear and MEF-General Directorate for the treasury. Latinclear is the CSD in charge of the custody of public debt securities and in such capacity has detailed information on the custodians of the securities who are the beneficiaries of the payments. In order to fund Latinclear accounts for it to serve the debt, MEF-treasury instructs BNP (which acts as paying agent) to credit Latinclear's account (currently a CIASA account acting on behalf of Latinclear). When the CSD has confirmed reception of funds in its accounts, it credits custodians' accounts through an ACH order (using the services of CIASA for this purpose). The treasury has been working on alternatives to streamline procedures. Two projects developed with the financial support of the Inter-American Development Bank are particularly worth mentioning: • The "revenues module of the CUT project," which will make possible an automatic register (financial, budgetary, and for accounting posting) of all current and public debt revenue at a single treasury account (*cuenta única del Tesoro*, CUT), by interacting with other currently existing systems and in close coordination with BNP; the Directorates of Income, Customs, and Public Debt; the "institutional treasuries;" the Office of the General Comptroller; and banks that collect taxes; and • The centralization and concentration of revenues and expenditures at the CUT with a view to improving the efficiency of public finances management and reducing the fragmentation of public sector liquidity in different accounts of public entities. For this purpose, a secure electronic link between BNP and the treasury is expected to be developed to allow remote access on balance status, posting of recent transactions, sending electronic orders, and so on. In addition, to make it possible to execute electronic transfers, that is., direct credits (initially to providers, later on the payroll) through the ACH, the BNP has installed an electronic system at the Directorate of Treasury. Operations are expected to commence in 2005 (pending approval of a Manual of Operations).

Sources: National authorities; Western Hemisphere Payments and Securities Settlement Forum; and IMF–World Bank Financial Sector Assessment Program reports.

Notes: SINPE = Sistema Interbancario de Negociación y Pagos Electrónicos; BCR = Banco Central de Reserva de El Salvador; ACH = automated clearinghouse; BANGUAT = Banco de Guatemala; SAT = Superintendencia de Administración Tributaria; BCN = Banco Central de Nicaragua; TTS = Transferencia Telefónica Segura de Fondos; BNP = Banco Nacional de Panamá; MEF = Ministry of Economy and Finance; CSD = central securities depository; CIASA = Centro de Intercambio Automatizado, S.A.

TABLE A4.6
Foreign Exchange and Cross-Border Mechanisms

Country	
Costa Rica	Since 1992, residents in Costa Rica are allowed to hold deposits in the financial sector in U.S. dollars and make payments in dollars. Nowadays around half of the deposits held by residents in the financial sector are U.S.-dollar-denominated but only about a fourth of checks cleared at the clearinghouse are denominated in foreign currency. Authorized financial institutions can hold deposits denominated in foreign currency at the central bank for the settlement of their foreign exchange operations. However, the BCCR does not remunerate them. These accounts have the same characteristics as the reserve accounts in colones, and the clearing and settlement of domestic transactions in foreign currency are concomitant with those in colones. The value of interbank transfer of funds through TEF in dollars is around two-thirds of transfer in colones. The foreign exchange market is predominantly in U.S. dollars and the value of interbank transactions is around US$90 million a month, without considering BCCR interventions. The central bank conducts a crawling peg policy and intervenes accordingly. The domestic foreign exchange market trades in MONED, which is administered by the stock exchange. The market operates on an anonymous basis. All operations are settled gross on a real-time PvP basis on the reserve accounts of the central bank. Since only a few large banks (around five) are connected to the international SWIFT network, the BCCR performs a correspondent function for domestic financial institutions that have to settle trade and foreign exchange obligations or that are receiving payments from abroad. Orders are received and sent via TEF. BCCR is connected to SWIFT.
El Salvador	BCR and six large banks are members of SWIFT, which is used to process cross-border payments. As such, they have access to SWIFT hardware and software that permits the electronic transmission of payment instructions on a worldwide basis. These payment instructions can then be settled through the use of correspondent bank balances in the country of settlement. SWIFT access in El Salvador occurred in recent years and replaced the telex for international transfers. Banks that do not have SWIFT still resort to the telex for their payment instructions. The central bank has three types of clients for international payments. These are the government, commercial banks, and near-government agencies. The BCR serves as the government bank, issuing and receiving payments on behalf of the government. In order to facilitate international payments, the BCR will also provide international payment services for commercial banks in El Salvador. Banks continue to use the central bank to move their funds abroad, especially to transfer their excess reserves. As with government agencies, transfers will be made to and from the commercial bank's U.S. dollar holdings in their reserve account. The BCR will effect such transfers via SWIFT. Finally, there are a number of government or near-government agencies that receive funds from foreign donor institutions. Such agencies may receive the payments via SWIFT through the BCR.
Guatemala	The foreign exchange market in Guatemala is very active when compared to the overall size of the financial system, trading an average of US$70 million a day. There are two formal trading platforms in the country, the SINEDI, which is managed by the stock exchange, and the SPID. However, both systems combined account for less than 6 percent of the total traded value, as most of the trades are made bilaterally in the OTC market. For settlement, participants in the SINEDI and the SPID, which include banks, finance companies, and *casas de cambio,* may choose from three settlement alternatives (check vs. check, reserve account transfer vs. checks, international transfer vs. check), none of which guarantees that the two legs of a foreign exchange transaction are settled on a PvP basis. Furthermore, participants know who their trading counterparties are only in the case of the SPID. These problems have apparently led to the current fragmentation of the market. Participants have largely used bilateral OTC transactions as a less costly and apparently safer alternative, because they are based on mutual trust. However, not even in this latter case are PvP conditions met, since payments are also made with checks. Cross-border retail payments are relevant for Guatemala because there is increasing commercial and financial integration among Central American countries and because of the importance of remittances. A total of 13 commercial banks (nearly half of the country's total) and the BANGUAT are connected to the global SWIFT network. The BANGUAT only makes cross-border payments on behalf of the government, mainly those associated with servicing the external debt and the diplomatic service. In recent years, several commercial banks in the country are developing proprietary mechanisms to facilitate wholesale as well as retail cross-border payments through their banking subsidiaries in Central American countries or through joint ventures with other banks in this region.
Honduras	Accounts at the central bank are in domestic currency (*lempiras*) and foreign currency (U.S. dollars). The reserve requirement is 12 percent for domestic currency and 50 percent for foreign currency. The entities that have current accounts at the central bank are banks, savings and loans associations, finance companies, foreign exchange dealers (*casas de cambio*), stock exchanges, and the government. The 12 percent reserve ratio for domestic currency is calculated as an average every 14 days and balances can be used for making daily payments. Furthermore, the BCH Law specifically mentions that they should be used as the base for the functioning of the check clearinghouse (see Article 54). In the case of foreign currency, 12 percent has to be maintained in the accounts at the central bank and the remaining 38 percent can be held in a foreign bank in liquid assets. However, in this case, 12 percent has to be maintained as a minimum at all times and account holders can only make a transfer in U.S. dollars if after the transaction they still have more than 12 percent in the account. Foreign currency transactions can only be operated through the funds transfer "system" as the check clearinghouse only operates in domestic currency.

TABLE A4.6
(concluded)

Country	
	The foreign exchange market is intervened by the central bank, which operates a crawling peg system. Only banks and *casas de cambio* can trade in foreign currency in Honduras (BCH Law Article 29). They must convert foreign currency coming into the country to domestic currency at the central bank (see BCH Law Article 29).[1] They have to make a transfer to one of the central bank's accounts in a foreign correspondent bank. Then, the central bank credits the equivalent amount in domestic currency in the accounts of these institutions at the central bank.[2] The purchase of foreign currency is done through the central bank auction. The central bank has to receive the funds payment by means of bank check or funds transfer in order for an intermediary to participate in the auction two days in advance. The central bank debits the domestic currency account two days before the auction, and once the auction is finished, credits the foreign currency account of the buyer.
Nicaragua	Regarding foreign exchange trading and settlement, the BCN operates a wholesale foreign exchange market (local currency into U.S. dollars and vice versa) for banks, the *financieras,* and the government. In this market, the BCN is the seller for every buyer and the buyer for every seller, and PvP is achieved through the use of the current accounts in both currencies at the central bank. However, this is not necessarily the case for other important participants in this market, such as foreign exchange dealers (e.g., *casas de cambio*) or for trades among the banks and *financieras* themselves.
	Cross-border retail payments are very relevant for Nicaragua as there is increasing commercial and financial integration among Central American countries, particularly because of remittances, which are a major source of external income for the country. Only two commercial banks in the country are connected to the global SWIFT network. Furthermore, several commercial banks in the country are developing proprietary mechanisms to facilitate wholesale as well as retail cross-border payments, mainly throughout Central America.
Panama	Since the U.S. dollar is legal tender in Panama and bank assets and interbank operations are in U.S. dollars, foreign exchange transactions are very occasional and limited to transactions between the U.S. dollar and other currencies, especially the euro. At least 20 large banks are connected to the international SWIFT network, and Panama is an important hub for SWIFT services in the region. In 2003, BNP entered into an agreement with the U.S. Federal Reserve to receive international ACH direct credits from the United States, which are directed to American residents. BNP cannot send ACH payments to the United States.
	Cross-border retail payments and remittances with Central American countries are small.

Sources: National authorities; Western Hemisphere Payments and Securities Settlement Forum; and IMF–World Bank Financial Sector Assessment Program reports.

Notes: BCCR = Banco Central de Costa Rica; TEF = Transferencia Electrónica de Fondos; MONED = Mercado Organizado para la Negociación Electrónica de Divisas; PvP = payment versus payment; SWIFT = Society for Worldwide Interbank Financial Telecommunications; BCR = Banco Central de Reserva de El Salvador; SINEDI = Sistema de Negociación Electrónico de Divisas; SPID = Sistema Interbancario de Divisas; OTC = over the counter; BANGUAT = Banco de Guatemala; BCH = Banco Central de Honduras; BCN = Banco Central de Nicaragua; ACH = automated clearinghouse.

[1]The public can hold foreign currency but can only trade it with the central bank or authorized institutions.

[2]Other institutions operating with foreign currencies (such as remittances companies) must convert incoming foreign exchange into domestic currency in one of the authorized intermediaries (banks and foreign exchange dealers).

TABLE A4.7
Interbank Money Market

Country	
Costa Rica	For historical reasons, in Costa Rica brokerage houses are the main players in the money markets, and trading systems are operated by the stock exchange. The current trading and settlement systems, in order to avoid defaults on the securities leg of a settlement transaction, have introduced fragmentation in the liquidity market due to operational difficulties to arbitrate between different trading systems. This is basically a consequence of the need to block securities before trading to assure the security delivery in a nonstandardized securities market. However, as the banking system has evolved and banks have been more active in the money markets, new trading mechanisms have been required to attend to the need for an interbank money market. In this sense, the MIB was launched in 1997 by the stock exchange in order to facilitate interbank trading in this market. The current organizational and regulatory arrangements are not conducive to the development of an efficient interbank market. Legal impediments to directly executing a pledge in a bankruptcy case (without the intervention of a judge), unless the ownership is transferred to a trust, has led to the practice of collateralized interbank loans by means of repos.[1] However, the SML (Article 23) states that any repo transaction is considered a "securities transaction" and, thus, subject to trading by brokerage houses in the stock exchange. This situation could force banks to trade and settle in the systems operated by the stock exchange even if it is not the best solution in terms of cost and efficiency.
El Salvador	The treasury of El Salvador plays a relatively minor role in securities issuance. The secondary market is dominated by repo trading on the stock exchange (70 percent of stock exchange operations were repos in 2000). It is basically a money market as the bulk of repo transactions have a maturity of less than seven days (91 percent of repos in 2000).
Guatemala	The interbank money market is not very active. Banks exchange liquidity among themselves through the MIT and the checks system, but the central bank does not have the information to differentiate between interbank money market operations and other types of transactions carried out through this system. Interbank money market operations are normally outright loans, as collateralized interbank loans would require the exchange of physical certificates. Interbank money market transactions take place by means of an interbank check or a transfer through the funds transfer system, but the central bank does not capture the reason for the operation. This market is mostly uncollateralized as there is not an effective way to collateralize securities and, thus, it would mean the exchange of physical certificates. The other active money market is repos through the stock exchange but it is not a banking market but a broker-dealer one.
Honduras	The interbank money market is not very active. Banks exchange liquidity among themselves through the funds transfer and the checks system, but the central bank does not have the information to differentiate between interbank money market operations and other type of transactions carried out through this system.
Nicaragua	The interbank money market is almost nonexistent at the moment. Participants with liquidity shortages may resort to some facilities. They can (1) arrange an uncollateralized loan bilaterally, and since there is not an effective way to collateralize interbank loans it would mean the exchange of physical certificates; (2) get liquidity through a repo transaction at the stock exchange; and (3) obtain liquidity from the BCN. The combination of relatively high reserve requirements (16.25 percent) and the abundance of liquidity under normal circumstances ensures that the system does not experience liquidity shortages as a whole. However, the management of the liquidity in the system is far from efficient in part due to deficiencies in the financial infrastructure and the interbank market. This contributes substantially to the high levels of interest rates in the country. The market is very narrow at present for several reasons. First, there is a lack of confidence among financial institutions stemming from the period of financial distress. Furthermore, investors face a lack of investment alternatives as there are not enough instruments in the market. The public debt market is not yet very well organized and the government of Nicaragua does not issue securities on a regular basis. In addition, banks, the *financieras,* and brokerage houses (the latter are currently regulated by the banking law since there is no designated law for the securities market) are not allowed to invest freely in private sector securities, but only after the SBOIF gives them specific authorization, which occurs on a case-by-case basis and may take several days. However, an additional contributing factor is the lack of an adequate financial infrastructure. For example, in Nicaragua, securities settlement systems are risky owing to the lack in many cases of DvP. In this context, the emergence of a collateralized interbank money market, an important alternative in situations where the level of confidence is low, will face substantial difficulties.
Panama	There is not much information on the interbank money market in Panama since no public or private institution receives and collects systemwide statistics. It is noteworthy that most interbank money market operations in Panama are executed through correspondent banks in the United States (either Fedwire or CHIPS) and are non-collateralized. It is not possible to perform same-day domestic operations in BNP funds. When trading securities, banks recur mostly to their own broker-dealers (for tax reasons) and rarely perform OTC transactions.

Sources: National authorities; Western Hemisphere Payments and Securities Settlement Forum; and IMF–World Bank Financial Sector Assessment Program reports.

Note: MIB = Mecanismo Interbancario de Dinero; SML = Securities Market Law; MIT = Mecanismo Interbancario de Transferencias; BCN = Banco Central de Nicaragua; SBOIF = Superintendencia de Bancos y Otras Instituciones Financieras; DvP = delivery versus payment; CHIPS = clearinghouse interbank payments system; BNP = Banco Nacional de Panamá.

[1]This is not the case for dematerialized securities (see Article 123 of the SML). However, for the time being, there are no dematerialized securities in Costa Rica.

TABLE A4.8
Securities Settlement Systems

Country	Securities Settlement System	Trade Confirmation	Settlement Cycles	Securities Lending	International Numbering
Costa Rica	Stock exchange, CEVAL.	Lock-in (securities blocked before matching).	T (Mercado de Liquidez) T+1 (TEBEL) T+1 (SITE international securities) T+2 (Primary auction) T+3 (SITE equities). For all the systems only one multilateral net debit position is calculated every day for the cash settlement.	No	A standardization process is under way for both private and public securities and all issues in CEVAL have been assigned an ISIN number.
El Salvador	Stock exchange, CEDEVAL.	T	T	No	No
Guatemala	Stock exchange.	T	T	No	No
Honduras	Stock exchanges.	No confirmation.	No standardized settlement cycle.	No	No
Nicaragua	Stock exchange, CENIVAL.	T	T (market practice, no official settlement cycle).	No	No
Panama	Stock exchange, Latinclear.	T	T+3	No	No

Sources: National authorities; Western Hemisphere Payments and Securities Settlement Forum; and IMF–World Bank Financial Sector Assessment Program reports.

Notes: CEVAL = Central de Valores; TEBEL = Transacciones Electrónicas Bursátiles en Línea; SITE = Sistema Integrado de Transacciones Electrónicas; ISIN = international securities identification number; CEDEBAL = Central de Depósito de Valores; CENIVAL = Central Nicaragüense de Valores.

TABLE A4.9
Management of Settlement Risk

Country	Securities Settlement System	Risk Management Tools	Delivery vs Payment	Cash Settlement Asset
Costa Rica	Stock exchange, CEVAL.	Securities block prior to trading; credit line; guarantee fund (defaulters pay).	Model 2 (1.5 hours difference between cash settlement and securities leg).	Central bank.
El Salvador	Stock exchange, CEDEVAL.	None.	No	Central bank.
Guatemala	Stock exchange.	None.	No	Central bank or checks.
Honduras	Stock exchanges.	None.	No	Cash or checks.
Nicaragua	Stock exchange, CENIVAL.	None.	No	Checks.
Panama	Stock exchange, Latinclear.	Securities blocking prior to selling; guarantee scheme (a defaulter pays).	Model 2.	Private Settlement Agent (CIASA).

Sources: National authorities; Western Hemisphere Payments and Securities Settlement Forum; and IMF–World Bank Financial Sector Assessment Program reports.

Notes: CEVAL = Central de Valores; CEDEVAL = Central de Depósito de Valores; CENIVAL = Central Nicaragüense de Valores; CIASA = Centro de Intercambio Automatizado, S.A.

TABLE A4.10
Operational Reliability of Securities Settlement Systems

Country	Securities Settlement System	Operational Reliability
Costa Rica	CEVAL.	In the present systems for clearing and settlement and for central custody services, attention is paid to operational reliability. Every year an analysis of potential threats is made and the existing emergency plan is adapted accordingly. A contingency committee is installed. Protection measures against unauthorized access are tested periodically by an external expert. There is an own power supply in case of an electricity cutoff. Communication with the brokers is based on a client-server infrastructure. Every participant is connected with the server via two dedicated fiber-optic lines. Capacity of the systems can handle two times the peak hours' demand. Procedures are in place concerning procurement, development, and modification of the systems; and modifications are adequately tested before becoming operational. The systems have separate environments for production, developing, and testing. A changeover committee is installed with participants of the IT department who designed and implemented the modification, the internal audit department, and the person responsible for testing. The committee is chaired by the CEO. However disaster recovery facilities are not up to standard. There is no back-up server in standby mode and there is no second contingency site. Efficiency of the systems needs to be improved. There are too many systems for different segments, which leads to fragmentation. Integration of trading and settlement and the blocking of securities at the moment the participants enter the trading platforms are inefficient and costly.
El Salvador	Stock exchange, CEDEVAL.	Contingency plans are based on manual procedures.
Guatemala	Stock exchange.	The BVN reports that all their systems, including the securities depository, have safe operational features, back-up sites, and contingency plans. However, there is no regulation or supervision of these issues by any regulatory authority, as the stock exchange operates as a full SRO.
Honduras	Stock exchange.	Manual procedures.
Nicaragua	CENIVAL.	Neither the BVDN nor the CENIVAL have contingency facilities and/or back-up sites. The only contingency plan at present is the possibility to hold outcry floor sessions for trading purposes in case the electronic trading system malfunctions.
Panama	Latinclear.	Periodical analyses of potential threats are made. Communications with brokers are made through dedicated lines. There is no back-up server in standby mode, but there is a contingency site located in Panama City, about six kilometers away from the primary site. A tape containing a back-up copy of operations is sent daily to the back-up site.

Sources: National authorities; Western Hemisphere Payments and Securities Settlement Forum; and IMF–World Bank Financial Sector Assessment Program reports.

Notes: CEVAL = Central de Valores; CEO = chief executive officer; CEDEVAL = Central de Depósito de Valores; SRO = self-regulatory organization; CENIVAL = Central Nicaragüense de Valores; BVDN = Bolsa de Valores de Nicaragua.

TABLE A4.11
Management of Custody Risk

Country	Depository	Custody Arrangements
Costa Rica	CEVAL	Segregation of accounts in CEVAL exists at the client level. Investor/ownership rights are clearly defined. An investor who has given securities in custody is protected by law against the claims of the creditor or custodians (Article 142). Independent of form and location, securities of clients are no part of custodian assets, stay outside the available assets after bankruptcy, and cannot be claimed by its creditors. This is also the case for securities deposited by third parties. This article protects securities issued in Costa Rica and foreign securities kept in custody by a local custodian. The law protects Costa Ricans, foreign investors, and foreign custodians using a Costa Rican local agent.
El Salvador	CEDEVAL	Securities settlement occurs through CEDEVAL, which is the nation's security depository. Securities settlement occurs by transferring the ownership records at CEDEVAL. Since not all securities are immobilized, sellers must deliver physical securities to CEDEVAL 24 hours before the sale is made. A draft law for the dematerialization of securities has been presented for Parliament approval. The draft law makes it possible for the BCR to be the depository and maintain the registry for public securities. Considering that 80 percent of all transactions in the securities market are of official securities (treasury and BCR paper), mainly in the form of short-term repos, the proposed dematerialization will have an important impact on securities settlement.
Guatemala	Stock exchange	In principle, all public securities are issued in physical form; however, if the investor decides to keep them under the custody of the central bank, they are issued as book-entry notes at the central bank Registry. The central bank performs only the custody function, not the ownership transfer, that is, it only registers the ownership of the investor in the primary market. Subsequent ownership transfers are done by means of delivery (if bearer securities), or endorsement (if order securities), or book-entry note in the stock exchange's securities depository, once deposited. For stock exchange transactions, securities must be deposited in the correspondent securities depository (*Caja de Valores*). The securities depository of the BVN started operating in 1994. Physical custody of securities deposited in the *Caja de Valores* has been outsourced to a private bank, owner of broker-dealer members of the stock exchange. Custody of securities is formalized by means of a deposit contract, regulated in the SML (Article 79). Each participant in the depository must open an own account and an account on behalf of final beneficiaries, of which the depository keeps a record. Broker-dealers must send periodic information to their customers about their accounts statements. The depository also administers economic rights associated with the securities deposited.
Honduras	Stock exchange	Public securities are issued in dematerialized form and can be under the custody of the BCH or the stock exchange. On the rare occasion that those securities are traded in the secondary market, it is done through the physical exchange of custody certificates or at the custodian service of the stock exchange. In any case, there is no legal basis for this custody arrangement since the Commercial Law only recognizes securities issued in physical form. The SML provides the legal support for a CSD and ownership transfer of securities by book-entry notes through it, but it has not yet been established.
Nicaragua	CENIVAL	All public securities are issued in physical form. Subsequent ownership transfers are done by means of delivery (if bearer securities) or endorsement (if order securities) or book-entry note in the CENIVAL. To be traded at the stock exchange in a secondary market, securities must be deposited in the CENIVAL. Physical custody of securities is formalized by means of a deposit contract. Participants endorse their securities to CENIVAL in order for the latter to make the necessary securities transfers through book entries. The depository also offers the services of administering economic rights associated with the securities deposited. Regarding the protection of customer assets in the event of bankruptcy or insolvency of the custodian, each participant in the depository must open an own account and an account on behalf of final beneficiaries, of which the depository keeps a record. In turn, the CENIVAL keeps the deposited securities in so-called memorandum accounts. However, there is no specific legal protection for assets under custody for the securities market.
Panama	Latinclear	The SML mandates segregation of accounts of clients. The ownership rights of an investor are clearly defined. An investor who has given securities in custody is protected by law against the claims of creditors. Independent of form and location, the securities of the clients are no part of the assets of the custodian, stay outside the available assets after bankruptcy, and cannot be claimed by its creditors (SML, articles 27, 37, 122, 177, and 179). Ninety-nine percent of securities are either dematerialized or immobilized, so that 100 percent of transfers are book-entry.

Sources: National authorities; Western Hemisphere Payments and Securities Settlement Forum; and IMF–World Bank Financial Sector Assessment Program reports.

Notes: CEVAL = Central de Valores; CEDEVAL = Central de Depósito de Valores; BCR = Banco Central de Reserva de El Salvador; SML = Securities Market Law; CSD = central securities depository; CENIVAL = Central Nicaragüense de Valores.

TABLE A4.12
Regulatory and Oversight Issues

Country	Regulatory and Oversight Issues
Costa Rica	CONASSIF is responsible for issuing all regulations for the financial system as well as the overall policies that govern the three supervisory agencies of the financial system. In this regard, Article 169 of the SML states that the SUGEF, the SUGEVAL, and the SUPEN will all function under the direction of CONASSIF. The members of CONASSIF are the minister of finance, the president or general manager of the BCCR, and five representatives not holding public sector positions. The SUGEVAL was created by the SML (Law 7732 of 1998) and replaced the former National Securities Commission, which had been created by the previous SML (Law 7201 of 1990). The SUGEVAL is responsible for supervising broker-dealers, investment funds managing companies, financial groups, and financial and nonfinancial securities issuers. SUGEVAL is charged with the regulation, supervision, and control of the securities markets. However, its powers are limited by the SML, which confers to the CONASSIF the power to dictate the rules for authorization, regulation, supervision, control, and surveillance that SUGEVAL and the other supervisory agencies must execute. Regarding securities clearance and settlement, the SUGEVAL sets and supervises the rules regarding the functioning of CSDs, clearance systems, and centralized transaction and information systems for securities transactions. Article 6 of the SML specifically entitles SUGEVAL to regulate the organization and functioning of the RNVI, including the necessary information and updates, to which all individuals and firms participating either directly or indirectly in the securities market (except for investors) must subscribe. All actions and contracts associated with this market as well as all public offerings of securities must also be registered in the RNVI. Depositories must be authorized by SUGEVAL. Article 134 of the SML gives them also the possibility, together with broker-dealers and entities subject to SUGEF control, to offer custody services, including the administration of economic rights associated with the securities under custody. Articles 119 and 134 to 143 regulate different aspects of the central depository and custody functions, such as the constitution of a deposit; proof issuance; restitution of securities, bonds, or documents; and depositor protection in case of bankruptcy or insolvency of a custodian.
El Salvador	The SV is the entity in charge of supervising and overseeing the stock market and its participants. This institution began its operations on January 1, 1997, with the stock exchange, brokerage firms, deposit and securities custody firms, and risk rating firms falling within its supervision. Securities depositories must be approved by the SV, but apart from this, there is no specific oversight function of securities settlement.
Guatemala	According to the SML, the stock exchanges are SROs with regulatory and supervisory power over their members. There is neither a securities regulator nor any other public agency that performs this role. This function is completely assumed by the stock exchanges in their SRO capacity. Article 18e of the SML specifies that the stock exchange oversees and ensures that the activity of the broker-dealers and issuers complies with the regulation. Title V of the Internal Rules of the Stock Exchange develops the supervisory role of the stock exchange over the registered entities and broker-dealers. Penalties are included in Chapter III of Title II.
Honduras	The CNBS Law (*Ley de la Comisión Nacional de Bancos y Seguros*, 1995) states the institutions under the supervision of the CNBS (see Article 6) including entities involved in securities markets. There is no formal oversight of the securities settlement.
Nicaragua	The stock exchange, the depository(ies), and broker-dealers are all regulated by the SBOIF but only on the basis of the banking law. The SML draft gives self-regulatory powers to the stock exchange (Articles 39 and 123). In this draft, depository(ies) are to be authorized by the SBOIF according to some of the requirements set forth in the banking law. Depository(ies) are not considered SROs in the SML draft.
Panama	CNV is an autonomous entity, responsible for issuing all regulations for the securities market based on the principles of the Decree-Law 1, 1999. BVP and Latinclear are SROs with capacity to issue regulations and enforce them on their participants. CNV is responsible for supervising market participants (broker-dealers, investment societies, securities issuers, and SROs). Broker-dealers, investment societies, and SROs must be authorized by SUGEVAL. Articles 27, 56, and 122 of the SML regulate the conditions for the provision of custody services, including the administration of economic rights associated with the securities under custody. Title XI, Chapters I, II, and III, regulate different aspects of the central depository and custody functions, such as the constitution of a deposit; proof issuance; restitution of securities, bonds, or documents; and depositor protection in case of bankruptcy or insolvency of a custodian.

Sources: National authorities; Western Hemisphere Payments and Securities Settlement Forum; and IMF–World Bank Financial Sector Assessment Program reports.

Notes: CONASSIF = Consejo Nacional de Supervisión del Sistema Financiero; SUGEF = Superintendencia General de Entidades Financieras; SUGEVAL = Superintendencia General de Valores; BCCR = Banco Central de Costa Rica; CSD = central securities depository; RNVI = Registro Nacional de Valores Inmobiliarios; SV = Superintendencia de Valores; SRO = self-regulatory organization; SBOIF = Superintendendia de Bancos y Otras Instituciones Financieras; CNV = Comisión Nacional de Valores.

TABLE A4.13
Organizational Arrangements for Central Securities Depositories

Country	CSD	Organizational Arrangements
Costa Rica	CEVAL	Currently, only brokerage houses, with the exception indicated below, can open an account in CEVAL and have for this reason a monopoly on custodial services. Also, banks and pension funds have their own accounts at CEVAL; however, securities in these accounts can only be traded if they are transferred to a broker's account or to the MIB account in the case of the interbank market. In the present governance structure, brokers, as owners of the stock exchange, dominate the policy with respect to trading, custody, clearing, and settlement. It is sometimes difficult to change the situation separating the money market and capital markets. The CEVAL is a private institution fully owned by the exchange and governed by the members of the Exchange Board of Directors (brokerage houses and the stock exchange).
El Salvador	CEDEVAL	Currently, the CEDEVAL—an association specialized in the deposit and custody of securities that began operations in 1998—is the central securities depository. Companies specialized in the deposit and custody of securities are constituted as corporations and are subject to the commercial laws. The deposit and custody services can only be offered through stock exchanges, banks, or financial or specialized institutions. The principal shareholders of CEDEVAL are the stock exchange and brokerage firms. Presently, the stock market has 80 percent of CEDEVAL's capital and shares five directors, and the stock exchange's general manager is proprietary director of CEDEVAL. Institutions holding an account at CEDEVAL are the pension funds, the stock exchange, and foreign trustees. At present, brokerage firms are not connected online with CEDEVAL; nevertheless, this institution works so that the pension funds and the brokerage firms can directly access the trustee's information from their terminals.
Guatemala	Stock exchange	The creation of the *Cajas de Valores* is regulated in the SML (Article 79). They were created as a department of the respective stock exchanges. Thus, governance arrangements of the securities depositories in Guatemala are the same as those for the stock exchanges. The stock exchanges are equally owned by each member. As of December 2003, there were 33 registered broker-dealers of which 20 remain active, 14 of the latter being linked to a banking group. Some banking groups own more than one broker-dealer. In order to use the services of the *Cajas de Valores*, an entity must be an agent or broker-dealer of the respective stock exchange. The *Cajas de Valores* also allow for institutional participants to use the services of the depository for its own operations but not on behalf of others.
Honduras	N/A	There is no CSD.
Nicaragua	CENIVAL	The CENIVAL is a subsidiary of the stock exchange, which owns 90 percent of the former's equity. The CENIVAL started operating in December 1997, and current arrangements and practices are based on bilateral agreements and contract law because in Nicaragua there is no legal basis for the operation of a CSD. Governance arrangements of the securities depository are, in general, the same as those of the stock exchange; the two institutions share the Board of Directors and some managing directors. Access to the CENIVAL is broad. According to Article 8 of its Internal Regulation, all types of financial institutions duly authorized by the SBOIF, foreign banks, and other nonfinancial institutional investors may open a deposit account.
Panama	Latinclear	Brokerage house accounts are segregated into own accounts and client accounts. Also, banks and corporations have their own accounts at BVP but securities can only be traded if they are transferred to a broker's account. *Acuerdo* 7, 2003, of CNV explicitly encourages SROs' internal regulation to create conditions for fair and open access and prevents any discriminatory practice.

Sources: National authorities; Western Hemisphere Payments and Securities Settlement Forum; and IMF–World Bank Financial Sector Assessment Program reports.

Notes: CSD = central securities depository; CEVAL = Central de Valores; CEDEVAL = Central de Depósito de Valores; SML = Securities Market Law; CENIVAL = Central Nicaragüense de Valores; BVP = Bolsa de Valores de Panamá; SRO = self-regulatory organization.

TABLE A4.14
Cross-Border Settlement of Securities

Country	CSD	Links Among CSDs
Costa Rica	CEVAL	Regional links (see information for Guatemala and Nicaragua).
El Salvador	CEDEVAL	Regional links (see information for Guatemala and Nicaragua).
Guatemala	Stock exchange	The securities depository (Caja de Valores) also offers the custody of securities, in both physical or book-entry form, for securities issued outside Guatemala. For this purpose, the depository has links with Clearstream Banking; Central de Depósito de Valores, S.A. (El Salvador); Bolsa Hondureña de Valores, S.A.; Central Nicaragüense de Valores, S.A.; Central para el Depósito de Valores en la Bolsa Nacional de Valores, S.A. (Costa Rica); and Central Latinoamericana de Valores, S.A. (Panama). These operations are settled through an omnibus account open in the name of Bolsa de Valores Nacional, S.A.; in each of these entities. The BVN keeps a detailed registry of the securities deposited in each of the omnibus accounts.
Honduras	Stock exchange	Regional links (see information for Guatemala and Nicaragua).
Nicaragua	CENIVAL	Currently, the CENIVAL holds accounts for other CSDs in the Central America region: CEDEVAL (El Salvador); Caja de Valores (Guatemala); Bolsa Hondureña de Valores; CEVAL (Costa Rica); and Latinclear (Panama). Foreign investors may buy securities deposited in CENIVAL through the omnibus account these other CSDs hold with CENIVAL. The CENIVAL also offers the custody of securities, both in physical or book-entry form, for securities issued outside Nicaragua through the same group of Central American securities depositories. These operations are settled through an omnibus account open at the name of the CENIVAL in each of these entities.
Panama	Latinclear	Latinclear also offers custody services for securities issued outside Panama. It has depository links with Clearstream, CEDEVAL (El Salvador), and CEVAL (Costa Rica). These operations are settled through omnibus accounts.

Sources: National authorities; Western Hemisphere Payments and Securities Settlement Forum; and IMF–World Bank Financial Sector Assessment Program reports.

Notes: CSD = central securities depository; CEVAL = Central de Valores; CEDEVAL = Central de Depósito de Valores; CENIVAL = Central Nicaragüense de Valores.

TABLE A4.15

Transparency, Oversight, and Cooperation in Payment Systems

Country	Legal Foundations of the Function	Transparency of the Oversight and Dissemination of Information	Objectives, Scope, Instruments, Pricing, and Access	Organizational Arrangements and Cooperation
Costa Rica	Law 7558 of 1995 (Organic Law of the Banco Central de Costa Rica—BCCR), Article 2.	The operation of systemically important payment systems detailed in a set of documents known as the "Blue Book." The BCCR does not have any regular publications covering payment system developments. Statistical information on the payment system is not available on a regular and structured basis.	The BCCR has a significant role in payment system reform. The BCCR's objectives in the payment system have not been publicly disclosed. Instruments of oversight can be summarized as the operational involvement, its specific regulations, and moral suasion. Explicit provision exists to regulate the pricing of payment services in both the central bank law and the SINPE regulation. The BCCR determines access requirements for the systems it manages. As of yet, there is no general provision to regulate access to payment systems managed by the private sector.	Several departments under the Dirección de Servicios *Financieros* deal with payments system issues. Some aspects related to foreign exchange and cross-border payments are dealt with by another department. No formal unit is in charge of monitoring the payment system. At the top level, coordination exists through CONASSIF. At the working level, no formal framework exists to enhance cooperation on a continuous basis. No Payment System Council.
El Salvador	No legal clarity on the authority empowered to regulate and oversee payment systems.	Oversight function not formally performed.	Oversight function not formally performed.	Oversight function not formally performed. No Payment System Council.
Guatemala	The Statute of the BANGUAT (*Ley Orgánica del Banco de Guatemala*) of May 2002, Article 4.	The BANGUAT does not have any regular publications covering payment system developments. Statistical information on the payment system is not available on a regular and structured basis.	The BANGUAT plays a leading role in the reform of payment arrangements in the country, in particular, through the launch of the new RTGS system. The objectives and scope of the oversight function are not clearly defined. In absence of secondary legislation and/or any central bank document on payment system oversight, the available instruments are regulation and moral suasion in the context of central bank's activities. The BANGUAT has not yet defined a coherent pricing policy for the payment systems it operates and/or guidelines for the payment systems it does not operate.	Oversight function not formally performed. No formal cooperation exists between the BANGUAT and other regulators on payment system issues. Only recently, the BANGUAT has become more active in international and regional forums on payment and securities settlement issues. No Payment System Council.

TABLE A4.15
(concluded)

Country	Legal Foundations of the Function	Transparency of the Oversight and Dissemination of Information	Objectives, Scope, Instruments, Pricing, and Access	Organizational Arrangements and Cooperation
			There is no statement that clarifies BANGUAT objectives and policies related to access.	
Honduras	Banco Central de Honduras (BCH) Law, Article 2.	Oversight function not formally performed.	The BCH plays a leading role in the reform of payment arrangements in the country, in particular, through the launch of the new RTGS system. Oversight function not formally performed.	Oversight function not formally performed. Payments System Council recently established. Only recently, the BCH has become more active in international and regional forums on payments and securities settlement issues.
Nicaragua	Banco Central de Nicaragua (BCN) Organic law, Article 3.	Oversight function not formally performed.	Oversight function not formally performed.	Oversight function not formally performed. No Payments System Council.
Panama	No central bank.	Oversight function not formally performed.	BNP performs some regulatory and administrative responsibilities related to checks and other payments instruments and settlement.	Oversight function not formally performed. No formal cooperative arrangements are in place, but banks have reached important agreements in relevant areas.

Sources: National authorities; Western Hemisphere Payments and Securities Settlement Forum; and IMF–World Bank Financial Sector Assessment Program reports.

Notes: BCCR = Banco Central de Costa Rica; CONASSIF = Consejo Nacional de Supervisión del Sistema Financiero; SINPE = Sistema Interbancario de Negociación y Pagos Electrónicos; BANGUAT = Banco de Guatemala; RTGS = real-time gross settlement; BCH = Banco de Honduras.

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