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Systemically Important Payment Systems in Latin America and the Caribbean: Results of the Self-Assessment Exercises

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in cooperation with
The Working Group on Payment System Issues of Latin America and the Caribbean

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SYSTEMICALLY IMPORTANT PAYMENT SYSTEMS IN LATIN AMERICA AND THE CARIBBEAN: RESULTS OF THE SELF-ASSESSMENT EXERCISES

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Foreword

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

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

The second study appearing on this Series, "Systemically Important Payment Systems in Latin America and the Caribbean: Results of the Self-Assessment Exercises", co-authored by Carlos Arango and Joaquin Bernal in the context of the Working Group on Payment Systems Issues of Latin America and the Caribbean (WGPS-LAC), offers an analysis of the region's systemically important payment systems in terms of the Core Principles for Systemically Important Payment Systems published by the Committee on Payment and Settlement Systems (CPSS). The findings are based on the self-assessment exercises undertaken by 15 WGPS-LAC member central banks.

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This document was prepared by initiative and in the context of the Working Group of Payment System Issues of Latin America and the Caribbean (WGPS-LAC). The authors, Carlos Arango (Adviser to the Chief Banking Operations Officer / Researcher ascribed to the Chief Economist Office) and Joaquin Bernal (Chief Banking Operations Officer), are officers of the Banco de la República of Colombia. Joaquin Bernal is also Vice-Chair of the WGPS-LAC.

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1 INTRODUCTION

The national payments' system (NPS) is a basic component of the infrastructure of financial markets. The proper design and functioning of a NPS contributes to the overall soundness and stability of the financial system, to further integration and depth of financial markets and to prevention of systemic risk. A well-designed NPS is also crucial for the operation of a money market in which commercial banks may manage their liquidity efficiently, and in which the central bank may implement an efficient mechanism for the transmission of monetary policy signals, such as open market operations (OMOs).

Deficiencies in the design of a NPS may result in liquidity problems in the money market and may contribute to its segmentation, which, in turn, may put pressure on the central bank to act as a lender of last resort. Another relevant feature of the NPS is that it contributes to economic efficiency, since it is the channel through which economic agents settle their obligations stemming from pecuniary transactions. The NPS may make an important contribution to efficiency by fostering the timely and safe settlement of payments, thereby reducing transactions costs.

The design of an "optimal" NPS depends on the specific circumstances of each country or economy. When taking decisions on the design of its NPS, each country faces a different set of constraints. In particular, decisions are constrained by the country's legal and institutional frameworks, its culture, its infrastructure and its overall economic situation, as well as by its ability to deal with the trade-off between efficiency and risk that is associated with alternative NPS designs (Fry *et. al.,* 1999). Last but not least, decisions are taken within an overall budgetary constraint.

The importance of an adequately designed and regulated NPS that contributes to the overall financial stability, contains systemic risk and prevents moral hazard by market participants, was highlighted during the crises that several Asian countries experienced in the late 1990s. Many international initiatives to strengthen financial system infrastructure originated from this episode. One of the most noteworthy is that of the Committee on Payment and Settlement Systems (CPSS) of the G-10 countries, whose Secretariat is performed by the Bank for International Settlements (BIS). The CPSS established a task force comprising representatives from both developed and emerging economies, as well as the International Monetary Fund (IMF) and the World Bank (WB), to consider what principles should govern the design and operation of safe and efficient payment systems. The task force defined a set of "Core Principles" (CPs) or minimum standards for "systemically important payment systems" (SIPS).[1] For a definition of systemically important payment systems see Box 1.

The task force also identified the key responsibilities of central banks in applying the CPs. The CPs are expressed in a general way "to help ensure that they can be useful in all countries and that they will be durable" (BIS, 2001).

[1] "Core Principles for Systemically Important Payment Systems", Bank for International Settlements, Basel, Switzerland, 2001.

Box 1: Identifying and Assessing Systemically Important Payment Systems
(from IMF and WB Guidance Note)

A payment system is systemically important where, if the system were insufficiently protected against risk, disruption within it could trigger or transmit further disruptions amongst participants and, as a consequence, systemic disruptions in the financial area more widely (systemic risk). Systemic importance is determined mainly by the size or nature of the individual payments or their aggregate value. Systems handling specifically large-value payments would normally be considered systemically important, although systemic importance does not necessarily apply only to high-value payments.

It is likely that a system is of systemic importance if at least one of the following is true:

a. It is the only payment system in a country, or the principal system in terms of the aggregate value of payments.

b. It handles mainly payments of high individual value.

c. It is used for the settlement of financial market transactions (for example, transactions in the money markets or foreign exchange markets or cash leg of securities market transactions) or for the settlement of other relevant payment systems.

Additionally, a system might also be considered as being systemically important if participants' bilateral and/or multilateral exposures within the system are high relative to the participant's liquid assets and equity structure.[2] Concentration of payment flows within the payment system might also be an important indicator, as failure of one large participant could have a systemic impact even on a system that is believed to be characterized by low value payments, especially if this system settles on a net basis.

In practice the boundary between payment systems, which are systemically important, and those, which are not, is not always clear-cut and authorities might define as SIPS also a retail payment system, as these systems in some countries are on the borderline of being systemically important. This is particularly likely if the retail system is widely used and users have no ready alternative methods of making payments. In such cases, however, the CPs will have to be used in full, as no standards exist for retail payment systems.[3]

The SIPS may be owned and operated by central banks or by private sector institutions. There are also cases where they are owned and operated jointly by public and private agencies. The CPs are relevant to all institutional and ownership structures.

[2] This may not be the case for small financial entities, which can exhibit high exposures compared to their equities but whose failure would not have a systemic impact.

[3] In drawing the final conclusions, however, one should be aware of the difficulties to apply certain CPs to retail systems in certain circumstances, as stated in the CPSS Report.

The CPSS CPs have become a key component in the assessments of financial systems aimed at identifying potential weaknesses, which are being carried out by the IMF and the WB (hereinafter, these and other multilateral organizations will be referred to as "international financial institutions" or IFIs). Furthermore, the central banks of the G-10 countries have performed voluntary self-assessments of their SIPS versus the CPSS CPs, with the purpose of identifying potential weaknesses and to establish possible paths for reforms.

The central banks of Latin America and the Caribbean (LAC) have also been working actively in this area since the mid 1990s. With the support of several institutions, including the BIS, Centre for Latin American Monetary Studies (CEMLA), IMF, WB and central banks from developed countries, several LAC central banks have assessed their situation and have engaged upon reform processes, in particular in the context of the Western Hemisphere Payments and Securities Clearance and Settlement Initiative (WHI).[4]

Following up on the international debate, in 2002 the Working Group on Payment System Issues of Latin America and the Caribbean (WGPS-LAC)[5] promoted among its members carrying out a self-assessment exercise of the region's SIPS *versus* the CPSS CPs.

The purpose of this document is to present the outcome of the above-mentioned effort, to which a total of 15 central banks in the LAC region contributed.

This document has six sections, this introduction being the first one. The second section describes the motivations behind this exercise and the value that is expected from its completion. In the third section the main outcomes are described and analyzed, based on the self-assessment exercises delivered by 15 central banks. Results are presented in an aggregate manner, highlighting the major strengths and weaknesses for each of the 10 CPs. Several references to the four Central Bank Responsibilities in applying the CPs are also made in this section. In the fourth section, the authors present an analysis that goes beyond the self-assessment exercise, in an attempt to compare the current situation of SIPS in the region with an "optimal scenario". This analysis also considers to what extent the reforms currently underway in several countries would lead to a different scenario for the region's SIPS. The fifth section compares the results of the self-assessment exercises in the LAC region with the assessments being carried out by the IMF and the WB all over the world as part of their Financial Sector Assessment Program (FSAP). In this section the authors stress that obtaining "standard" or highly comparable results from this type of exercise (*i.e.* the self-assessment) in many different countries is still difficult, since variables such as technical capacity, openness to self criticism and resources still vary widely among countries. Finally, the last section presents a summary of findings and conclusions, highlighting the current weaknesses of SIPS in the LAC region and what is being done at present to overcome this situation.

[4] As of the publication date of this document, the Western Hemisphere Payments and Securities Clearance and Settlement Initiative (WHI) has assessed, with a reform-driven perspective, the payments and securities clearance and settlement systems of 18 countries in the LAC region. Additional information on the objectives and outcomes of the WHI is available at its website: www.ipho-whpi.org.

[5] The Working Group on Payment System Issues of Latin America and the Caribbean (WGPS-LAC) was created in 2001 under the auspices of the WHI and its sponsors. It comprises the central banks of the LAC region as members and other national and international institutions (Bank of Canada, Board of Governors of the Federal Reserve System, CPSS, IMF and the World Bank) as formal observers. CEMLA acts as its Secretariat.

2 INITIATIVE TO CARRY OUT A SELF-ASSESSMENT EXERCISE OF SIPS IN THE LAC REGION

The purpose of the self-assessment exercise is that every central bank performs a self-criticism, based on a standard methodology, of the current situation of its systemically important payments system(s) and the reforms that are being implemented. A key objective is to determine the degree to which the region's SIPS comply with the CPSS CPs.

The motivation for this effort is that each country in the region is able to identify the major weaknesses and potential vulnerabilities of its SIPS, which under certain conditions may lead to systemic risk, introduce limitations in the implementation of national monetary policies, or be a source of inefficiency for the economic structure. Another major result expected from the exercise is an increase in the awareness on the specific aspects of SIPS. The identified shortfalls must receive an appropriate follow-up, both in the short-term and considering possible future developments of financial markets. On the other hand, this exercise brings an exceptional opportunity to disseminate regional experiences and identify "best practices" among countries that are in a relatively similar stage of economic development.

This project is ambitious and it necessarily has to confront several challenges to accomplish the desired objectives. Probably, the most difficult challenge is how to ensure that the self-assessment exercises that were delivered are fully comparable. To this end, consistency in the assessment methodology and in the answering criteria plays a crucial role. In this regard, it is worth remembering that the CPs are relatively new, and that several central banks in developing countries are becoming familiarized with them only recently. In particular, many countries are still in a learning process regarding the scope of the CPs and their precise implications. On the other hand, some central banks have not yet collected all the information required to carry out a rigorous assessment for the sake of cross-country comparisons.

From the methodological standpoint, the basic tool that was used for this exercise was the CPSS Core Principles Report itself. Although this document provides a clear and comprehensive base for the interpretation of the Principles, the fact that these standards are of a general or universal nature introduces at the same time several difficulties for those who are not sufficiently familiarized with them and/or who lack a basis for comparison with the experiences in other countries and regions. The production, in 2001, of the "FSAP Guidance Note for Assessing Observance of Core Principles for Systemically Important Payment Systems" by the IMF and the WB has been particularly useful to provide a common reference guideline, as it is more detailed, with more specific questions to be addressed when performing the assessment (or self-assessment) exercise, thereby reducing interpretation hurdles.

Notwithstanding the usefulness of these documents to ensure a consistent assessment methodology, the answers provided by the various LAC central banks show evidence of different interpretations of several aspects of the CPs, particularly in terms of the degree of self-criticism regarding compliance. Furthermore, not all central banks have the same willingness to "publicly" share the details of their self-assessment exercises. It is also worth mentioning that while the majority of countries engaged in this exercise with their own means and resources, others relied heavily on those assessments that were produced as part of the FSAP process. Some others delivered "assessments" of future payment systems, *i.e.*, the systems that will result from the current reform efforts and for which a high degree of observance with international standards is expected. In this regard, it must be stressed that for those payment systems that are not yet in operation it is very difficult to ascertain that what was planned *a priori* will actually be accomplished once the system begins operating, as well as to visualize all risks and interrelations (*e.g.*, the interoperability with the securities settlement system).

For all these reasons, the assessment methodology for SIPS is an ongoing process, which needs improvements. However, these arguments do not undermine the usefulness of the exercise as a way for the participating countries to increase their own expertise in this area. Thanks to this enhanced expertise, differences in interpretation of the standards, although not fully eliminated, are being reduced. Also, participating central banks see value in producing a report that is useful for the exchange of experiences with other regional and international experts. Finally, this project has been helpful to increase the visibility of the CPs before the respective authorities of the participating central banks, raising awareness on the strengths and weaknesses of their SIPS.

The 15 countries that contributed to this project by completing their self-assessment exercise were: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Chile, Ecuador, El Salvador, Guyana, Mexico, Organization of Eastern Caribbean States, Peru, Trinidad & Tobago, and Venezuela. Two of these countries presented an assessment based on the expected outcome of the reform process, while other five countries presented an assessment based on the outcome of FSAP missions. Six countries refrained from giving "grades" to their degree of observance of the CPs.

In general, the countries of the LAC Region that did not participate in the exercise are those that at present are engaged in significant reforms to upgrade their payment arrangements.

3 DETAILED RESULTS OF SELF-ASSESSMENT EXERCISES

In this section, a detailed revision of the results of the self-assessment exercise in terms of each of the ten CPs is carried out. Facts and trends stemming from those exercises that were received are presented here. The most relevant aspects are regrouped in Section 4 to highlight the observed strengths and weaknesses in the current design and operation of SIPS in the LAC region.

3.1 CP I: LEGAL FOUNDATION

This principle is one of the most difficult to assess and to comply with. Only a few countries have enacted comprehensive payment system' laws covering issues such as settlement finality in payment systems, the legal recognition of netting arrangements, the protection of obligations in payment systems (and/or of the collateral backing such obligations, which, for the most part, is constituted by negotiable securities) in bankruptcy situations or insolvency proceedings, explicit references to the non-applicability of any zero hour rules, the powers of the central bank regarding regulation and oversight of payment systems, etc.

The lack of clarity in settlement finality of payments in cases of insolvency may lead to the prioritization of particular interests (*e.g.*, the savings of depositors in the insolvent bank) over the collective interest (*e.g.*, the protection of obligations in the payments system to prevent systemic risk). If the collateral backing such obligations in the payment systems is not adequately protected, risks eventually exacerbate and insolvency proceedings turn into value-destruction processes.

The latter is even more evident in the case of cheque-based systems, which are predominant in the group of deferred net settlement (DNS) systems. However, it also has implications for real time gross settlement (RTGS) systems: in those countries with a Latin-Roman legal heritage, the frequent omission of settlement finality in the relevant laws may lead to the reversal of payments already considered final; in countries with an Anglo-Saxon legal heritage this could also be the case due to the existence, in some cases, of the so-called "zero hour rule", that makes void all transactions by a bankrupt participant from the start of the day of the bankruptcy. In either case, there could be systemic consequences.

In fact, all cheque-based systems in the LAC region have provisions for the unwinding of the clearing session in case of a default by one or more of the participants, despite the potential risks stemming from unforeseen significant changes in participants' positions. In some cases, there is even an expectation among participants that the central bank is responsible for assuring settlement by having to undertake the shortfall of the defaulting party and giving liquidity to all other participants.

In the absence of such a comprehensive payment system law (and having assessed the difficulties, delays and even risks that a bill of this kind would entail in some Congresses), several central banks, on the basis of their Central Bank Law, have decided to develop internal regulations containing provisions on settlement finality and/or other desired legal features related to settlement. An example of this would be the three countries in the region where the law empowers the central bank as the sole monetary and exchange authority, responsible for "ensuring the normal functioning of payments ...", on the basis of which these central banks have developed the rules for the payments system. This is a valid alternative and may even be useful at this stage of development. Nevertheless, it carries risks as it can be confronted by higher-ranking rules or laws (*e.g.*, bankruptcy laws, contract law, commercial code, etc.).

In light of the above, eight out of fifteen countries have already adopted RTGS systems for large-value payment transactions, being one of the major reasons behind this decision the belief that RTGS by itself solves most credit risk and systemic risk problems in the NPS. However, as stated before, RTGS *per se* is not enough. If there is no clarity about prompt final settlement and/or the absence of zero hour rules, it is possible that a court of law may decide to make payment transactions void the day an institution is declared insolvent, even in RTGS systems.

On the other hand, the majority of SIPS in the Region already require collateral postings, either for intraday liquidity management or to support loss-sharing schemes in DNS systems. However, in none of the countries where DNS is the prevailing SIPS there is an explicit law or regulation regarding the timely execution of collateral for payment system purposes, which could constitute an alternative to assure settlement finality and/or to protect the system's participants. Two of these countries have already presented projects to Congress in this regard.

As stated before, there are also significant shortfalls concerning the powers of the central bank as regulator and/or overseer of the NPS. Thus, many central banks limit themselves to establishing "good will" guidelines or moral suasion.

Regarding the legal validation of electronic signatures, data messages and electronic registers, more than half of the participating countries do not have a law covering these issues as yet.

Finally, there are several other legal issues that only recently are being given some attention throughout the region, including the regulation of competition among payment system participants, consumer protection, and the fair and equitable access to payment systems.

3.2 CP II: Clear understanding of risks

Almost all participating central banks consider that their regulations regarding payment clearing and settlement are clear and complete, and that these rules enable participants to identify potential financial risks that they may incur through participation in the system as well as to prevent such risks. The majority of central banks provide timely information, even on line, with respect to current account balances, recent payment flows, historical data, etc.

On the other hand, a significant group of participants recognize there are still significant shortfalls regarding rules and procedures to manage contingency situations (even operational problems) and defaults (see also CP VII).

3.3 CP III: Procedures for management of credit risk and liquidity risk

3.3.1 DNS Systems

Those countries in which DNS is the prevailing settlement mechanism for the SIPS (cheque clearinghouses in all cases but one in which the central bank processes large-value electronic payment orders), rely on high reserve requirements as the basic mechanism to assure sufficient liquidity in the payments system and to give additional certainty about the proper closing of the settlement cycle. However, as it is well known, relying on high reserve requirements has other undesirable effects on the efficiency and international competitiveness of financial intermediaries.

As stated in the discussion of CP I, some central banks feel themselves under pressure to act as lenders of last resort to ensure the proper closing of their SIPS, thereby creating moral hazard in the system. In practice, such actions would take the form of repos or even unsecured loans to defaulting participants in the cheque clearinghouse. An alternative that was pointed out by one central bank is to require its participating commercial banks to grant standby credit lines to each other. Such credit lines would be triggered in case one or more participants are unable to fulfill their obligations at the cheque clearinghouse.

Unwinding the final balances at the cheque clearinghouse is another option considered in most countries, despite its potential to produce systemic risk effects. Furthermore, two central banks considered that unwinding clearinghouse balances is a step forward when compared to the situation prevailing in the past, where the central bank was forced to assure settlement finality.

In medium and big size economies,[6] the central bank credits the accounts of banks with a net credit position only once, at the end of the clearinghouse session. In one case the latter occurs in T + 2, in another in T + 0 (but only for large-value cheques) and in all others countries in T + 1. In all of the four countries classified here as small size economies, where the settlement cycle is longer (*i.e.* two, seven and even fifteen days in one case), the central bank credits the accounts of banks with a net credit position right after the first clearing session, where cheques are presented for collection. The latter situation reflects a conflict between efficiency and risk. These central banks seem to give priority to having a shorter settlement cycle despite the potential risks of unforeseen changes to the final balances due to rejected items (which for the most part are adjusted bilaterally among counterparties). In the same line of increasing efficiency, these four central banks have established arrangements to clear large-value cheques in T + 0 in a session separate from that of retail cheques in order to give priority to the large-value items, although both sessions are subject to the same procedures. One country classified here as a medium-size economy has a similar arrangement (this was also the case of another country until three years ago).

Only three countries have constituted a guarantee fund for the DNS system. One of these funds operates under the “survivors pay” method, another under the “defaulter pays” method, and the last one is similar to the latter, although it is based on excess reserve requirements and not precisely

[6] See Section 5 for the details of which countries are considered under each of these categories.

on contributions to a specialized guarantee fund. Another central bank that operates an automated system for large-value payments orders introduced bilateral and multilateral exposure limits and some other risk management tools.

3.3.2 RTGS Systems

To overcome the problems of cheque-based systems, eight out of fifteen central banks are now operating RTGS systems, while four others are in the process of implementing such a system. The decision of adopting RTGS aims at preventing credit risk and systemic risk (and also legal risk as described in Section 3.1). In the LAC region, however, in many cases liquidity risk has not been given sufficient consideration. Only in three of the countries, the central banks operating RTGS systems have implemented intraday liquidity facilities for system participants. Since this provision of liquidity takes the form of secured loans and/or repos, countries in this group have developed interconnections of their RTGS system with the securities settlement system (SSS) in order to back such transactions with tradable securities.

Thus, at present most RTGS systems in the region are characterized by a high concentration of payment transactions at the end of the processing day and high liquidity risks, even of a systemic proportion. Such features definitely affect the efficiency and practicality of the system, and in many cases this is regarded as one of the major reasons for the still intensive use of cheques for large-value transactions.

To face these problems, some central banks have opted for maintaining high reserve requirements. In one of the larger countries, the central bank even authorizes overdrafts to the current accounts held by participating institutions, which are backed by generally illiquid securities. Three other countries deem their intraday liquidity facilities to be efficient. Finally, two countries indicate that they have instituted the automatic conversion of intraday repos into overnight repos.

As per operational and technological features, RTGS systems in the region show significant differences and stages of development. In six countries, RTGS systems are automated for the most part, while two other central banks operate their RTGS with a significant component of manual procedures. It should be noted, however, that even in this last group there have been developments to facilitate account management, such as real time balance consultations via telephone. Finally, it is worth mentioning that two central banks already have implemented payment queues to improve liquidity. One of them has developed an offset queuing mechanism for liquidity optimization.

Finally, four countries have already introduced price incentives or rules (*e.g.*, pay-in schedules) with the purpose of achieving a smoother flow of payments' presentation and settlement throughout the processing day.

3.4 CP IV: Settlement on day of value

The majority of countries state that payments are final on the day of value. However, it should be noted that for cheque-based systems the day of value ranges from T+1 (being "T" the day of presentment of the cheque by the beneficiary to the collecting bank) to T+n, being "n" the date in which the exchange of cheques is completed. In medium and larger size economies, the most common situation is T+1, although two medium size countries still use T+2. For the smaller economies, the day of value ranges from T+2, T+7, and even to T+15 in one exceptional case, except for large-value cheques, which are cleared and settled in T+0. This is also the case for a medium-size country.

However, many countries report their major concern to be not the prompt settlement itself, but rather the fact that payments may be revoked even after they have been accepted for settlement by the system. As stated in the description of CP I, this is mainly due to the uncertain legal underpinning of settlement finality, netting and, in some cases, to the existence of zero hour rules.

3.5 CP V: Ensuring settlement in DNS systems

Only three countries report they have constituted a settlement fund for the DNS systems to ensure the timely completion of daily settlements in the event of an inability to settle by one participant. As mentioned before, one of these funds operates under a "survivors pay" scheme, another under a "defaulter pays" scheme method, and the last one also under a "defaulter pays" framework but based on excess reserve requirements. However, it is worth mentioning that none of these settlement funds have been tested in the event of an inability to settle by the participant with the largest settlement obligation.

In all other cases, in the event of a default, positions stemming from the clearing session are unwound. In one case, the central bank is explicitly obliged to cover any shortfalls there might be for the completion of the settlement session, even if the defaulting bank is declared in bankruptcy. Other central banks feel that, although not explicitly stated in their laws, a similar situation could also be applicable in their own cases and this is also the perception of the participants of the clearinghouse.

As stated before, this is also a major reason for a number of participating central banks migrating large-value payments to RTGS systems.

3.6 CP VI: Settlement in central bank money

All participating countries report that final obligations at their corresponding SIPS are settled through the current accounts that participating commercial banks and other authorized participants hold at the central bank.

3.7 CP VII: Security and operational reliability

Heterogeneity is particularly evident with regard to the degree of technological development of the various SIPS in the LAC Region. In countries where cheque systems prevail as SIPS, only two central banks have already implemented magnetic ink recognition code (MICR) technology to increase the efficiency of cheque processing. Other five countries are planning to implement this technology in the near future.

Among those countries with RTGS systems, two may be classified as having a relatively "basic" degree of technological sophistication. The central banks of these countries receive payment information off-line, via telephone, fax or even paper letters. Postings on the corresponding current accounts are entered manually or semi-manually. Only four countries have already issued laws covering electronic signatures and messages.

Approximately two thirds of the participating central banks admit their security levels to be low. In these countries there are no back-up systems, alternate processing sites or business continuity plans. Nevertheless, efforts in this direction are already underway. Many central banks also recognize that further work is needed in areas such as system auditing and documentation of contingency plans and procedures.

3.8 CP VIII: Efficiency and practicality

To a lesser or greater extent, all of the participating countries have been upgrading their systems in order to increase their efficiency and practicality. In many cases, however, the real needs of the system's participants, their constraints and the private and social costs of alternative payment system designs have not been thoroughly considered in such attempts.

In smaller economies in the LAC Region, cheques are the prevailing means of payment both for large-value and retail transactions. This arrangement seems to fulfill the needs of their domestic stakeholders. It is worth mentioning, however, that given that prompt final settlement does not generally occur in these countries, the efficiency of the system is undermined. By the same token, a cheque-based system can be regarded as unsatisfactory in terms of efficiency for the majority of medium size economies. In order to increase efficiency in countries where cheques still prevail, central banks have opted for processing large-value payments in advance of the low-value ones. Some other countries are introducing "basic" RTGS systems, which entail a significant set of manual or semi-manual procedures. Considering the current stage of development of financial markets, with a relatively modest volume of transactions, this solution may be regarded as satisfactory, in terms of efficiency, for the most part.

This is clearly not the case for larger size economies whose financial markets are deeper and the volume of transactions is much more significant. In this case, less efficient payment systems could become a major hurdle for further developments in the wider financial system.

As for the central banks that have already implemented a RTGS system, one of the main concerns for efficiency is intraday liquidity management. Appropriate management of intraday liquidity can have a significant effect on the overall efficiency of the system and help reduce systemic risk. On the other hand, poor liquidity management is revealed in relatively frequent delays in the settlement of transactions, concentration of payment transactions at the end of the processing day, or gridlock situations of systemic proportion. Some useful steps to enhance liquidity management are to improve the knowledge of the scale of large-value transactions in the country, improving the smoothness of payment flows throughout the days through price incentives, a better identification of liquidity sources, coordination with monetary policy operational procedures, and the upgrade of the SSS, including a high interoperability with the RTGS system to facilitate collateral postings.

Three central banks have already established an efficient intraday repo facility, while some others are planning to introduce such a facility as part of their reform efforts. Two central banks have implemented liquidity optimization mechanisms through queue management systems.

Regarding tariffs and fees, seven central banks have established their pricing scheme based on the principle of total or partial recovery of operational costs and to fund further developments of the payments system. Four of these have established pricing incentives for payments to be channeled early in the processing day. All other central banks fully subsidize the payment systems they operate.

3.9 CP IX: Access criteria

All participating central banks deem their policies for access to SIPS to be adequate. The criteria for access are considered broad, objective and fair, and they are publicly disclosed in the relevant regulations. Usually, access to SIPS is limited to commercial banks, although some countries give access also to securities firms, institutional investors and other types of financial institutions. Also, technological requirements are an important component of access criteria in most countries.

Despite fair and open access criteria, the liquidity facilities (intraday and overnight) that the central banks provide are limited to commercial banks in the vast majority of cases. This issue is currently under debate not only in the LAC region but also elsewhere. Even in countries with highly developed financial markets, it is not totally clear money markets function efficiently enough when liquidity is concentrated in a limited number of participants, since the latter may hinder fair competition amongst financial intermediaries.

Exit rules and procedures are typically stated in the general banking law(s). Despite the fact that SIPS usually offer early warning signals, in the LAC region decisions regarding the exclusion of one participant from the system are not generally taken by the system operator or overseer, but by the Government through the banking supervisory agency (which in some countries is the central bank itself).

3.10 CP X: Governance

It is difficult to ascertain *a priori* what constitutes “best practices for system governance”. In most countries, central banks have fostered the creation of committees and fora for consultation, strategic planning, solution of controversies, etc. Usually, system participants are extensively represented in these organizations.

A solid legal framework allows effective accountability. It is also the means through which central banks are empowered to enforce the relevant rules over system participants and other providers of payment services. Only a few countries in the LAC region have such a legal underpinning for payment system oversight activities. The oversight function is, for the most part, underdeveloped, and usually oversight is not separated from the operational role of the central bank. In none of the participating countries are there rules giving legal protection to central bank officers charged with payment system responsibilities.

There is also a need to further improve transparency, to publicly disclose payment systems assessments, the vision guiding the reforms, objectives and strategies. And also to publish systematic statistical information regularly.

Finally, it is worth mentioning that the degree to which all other nine CPs are non-observed, greatly determines compliance with CP X.

3.11 CENTRAL BANK RESPONSIBILITIES

Given the importance that central banks in the LAC region have as payment system operators, what was previously noted for CP X is also applicable for Central Bank Responsibilities. Growing awareness on this issue has motivated several central banks to submit payment systems laws to Congress. In five cases, the central bank appears to have explicit regulatory and oversight powers over other payment services providers. In two other countries, there are currently bills in Congress to define who is the corresponding authority in this regard. All central banks without explicit powers limit themselves to moral suasion or have created regulations and perform some oversight functions based on interpretations of their Central Bank Law (refer to the discussion on CP I for more details).

With a few exceptions, the objectives and responsibilities of central banks regarding payment systems have not been clearly defined nor publicly disclosed. There is also a lack of information in relatively simpler issues such as the collection and public disclosure of statistics and other information that could give a better idea of the scope, participants, risks, etc. of all payment systems in the country, including those operated by private sector entities (*e.g.*, credit and debit card networks, e-money, ATMs, etc.). It is clear that most central banks need to make bigger efforts in this regard.[7]

Almost all central banks state that they have established mechanisms for cooperation with other authorities, particularly with the banking supervisory agency. Nevertheless, for the most part such mechanisms are very limited, since they have been created for *ad hoc* junctures. There are no references of any formal cooperation mechanism with foreign authorities regarding payment systems activity. It should be noted, however, that the initiative of the WGPS-LAC that lead to this document constitutes clear evidence of growing cooperation at the international level and the support given by LAC central banks to the activities of the WHI.

[7] It is worth noting that the publication of descriptive reports on payments and securities settlement systems in many LAC countries in the context of the WHI (known as “Yellow Books”) is a great step forward towards the right direction in this matter.

4 GENERAL ASSESSMENT OF THE CURRENT SITUATION OF SIPS IN THE LAC REGION AND OF REFORM PROCESSES CURRENTLY UNDERWAY

The self-assessment exercises delivered by participating central banks show a high degree of heterogeneity regarding payment system development. Although there are many variables that can affect the decisions regarding alternate system design and technologies, probably the most relevant one is country size, or, more specifically, the size of the economy. Thus, for analytical purposes the 15 participating countries have been classified as follows:

- 4 countries with a relatively smaller size: Belize, Guyana, Organization of Eastern Caribbean Sates and Trinidad & Tobago.

- 8 medium-size economies: Bolivia, Colombia, Costa Rica, Chile, Ecuador, El Salvador, Peru and Venezuela.

- 3 larger-size economies: Argentina, Brazil and Mexico.

Those economies with a relatively smaller size are characterized by a small volume of interbank transactions, and this could be the reason why their SIPS are still cheque-based. To increase efficiency, all these countries have implemented two sessions for cheque clearing: one for large-value with prompt settlement in the same day and another one for retail cheques. None has adopted any of the Lamfalussy recommendations for multilateral netting schemes[8] or the CPs (in particular CP V) to prevent systemic risk. Instead, these central banks rely on high reserve requirements and on banking supervision and central bank oversight.

To face the emerging need for a more efficient interbank settlement, one of these countries is already implementing a RTGS system, while another one is planning to do so shortly.

Even more diversity and contrasts can be found in payment arrangements within medium-sized economies. These countries are characterized by relatively deeper financial markets as well as a higher volume and value of payment transactions. Accordingly, their central banks must act proactively to reduce the settlement cycle for interbank transactions. Thus, the majority (but not all) of countries in this group already operate RTGS systems, although there are significant differences from one country to another. The spectrum goes from semi-manual systems in which there is a delay of up to two hours from the moment of reception of a payment order to the final settlement of a payment transaction, to automated RTGS systems with no intraday liquidity facilities, to automated RTGS systems that, for intraday liquidity purposes, have established a real-time on line link with a SSS in order to facilitate the provision of intraday liquidity through intraday repos.

[8] "Report of the Committee on interbank netting schemes of the Central Banks of the Group of Ten Countries", Bank for International Settlements, Basle, Switzerland, November 1990.

However, in the majority of the countries of this group, cheques still represent a significant portion of large-value interbank payments, thereby maintaining a "systemically important" status. As a matter of fact, in the smaller economies within this group cheques are predominant or even the only system that is available to channel interbank payment transactions. The high cost, in terms of liquidity, of operating in the RTGS environment could be by and large the main reason for them to opt for DNS systems based in cheques. Thus, although midsize countries show preference for RTGS to reduce credit and systemic risks, such systems are generally costly and not sufficiently practical for participants due to inefficiencies derived from intraday liquidity management.

Finally, as for the larger-size countries, a common feature is that all of them entered into reform processes only recently. Not so long ago, their central banks were exposed to significant moral hazard due to their obligation to grant credit to assure the final closure of the large-value session. The reforms initiated by countries in this group are also the most comprehensive. Significant legal and institutional reforms have been made to ensure compliance with the CPSS CPs. In particular, RTGS systems in these countries are accompanied with intraday liquidity provisioning mechanisms and/or queuing mechanisms with algorithms for liquidity optimization. Also, for DNS systems loss sharing agreements have been constituted.

In an attempt to show a simplified picture of the relative positions of national SIPS throughout the Region, Table 1 presents a general classification of payment systems in a risk *versus* efficiency matrix.[9] Obviously, in this matrix the desired stages are those characterized by increased efficiency and diminished risk. Thus, SIPS would aim at moving down and to the right, up to the bottom right corner, which represents a hypothetical optimal stage in which full compliance with the CPSS CPs would be achieved.

Then, the number of countries whose SIPS(s) would fall under each risk-efficiency category is plotted on Chart 1.

It must be stressed that because of heterogeneity in the interpretation of the CPs, together with the fact that several participating central banks did not allot "grades" to their degree of observance of the CPs, the classifications in Table 1 and Chart 1 necessarily involve the personal views of the authors. Furthermore, making this classification in a two-dimension space of risk and efficiency also involves allocating relative weights to the many aspects included in the ten CPs. In this regard, two or more national SIPS falling under the same risk-efficiency category does not necessarily represent that these systems share many similarities, but rather that the overall combination of such features, according to the relative weights given by the authors, produces a similar result.

In Chart 1, countries whose SIPS are located in the upper left hand side are generally those in which DNS systems based on cheques are predominant. As stated in the discussion of CP VIII, such systems may be fulfilling at present the majority of needs in smaller economies. Nevertheless, these systems posses significant shortcomings, including the lack of appropriate mechanisms to ensure the timely completion of daily settlements in the event of an inability to settle by one or more participants and lengthy settlement cycles (one and even two weeks in some cases).

[9] In this context "risk" refers to credit risks being faced by the Central Bank.

Table 1: Selected features of SIPS in terms of Efficiency *versus* Risk

RISK	EFFICIENCY: *Low*	*Medium*	*Medium/Low*	*High*
High			DNS and RTGS in large value. Credit Risk. Central Bank assures settlement finality. Doubts persist in case of insolvencies. Weak collateral arrangements.	
Medium	Cheques are predominant. DNS or gross bilateral settlement. Weak legal framework. High reserve requirements. In large value, netting with no risk management tools being used. Zero hour rule. Long settlement cycles (t + d). Central Bank assures settlement finality.	Cheques. Finality in T + 1. Multilateral and bilateral netting. Large value separated from retail. Unwinding procedures in case of default. High reserve requirements. Central Bank assures settlement finality.	Cheques are predominant. T + 0 settlement for large value cheques only (T + 1 for low value). Electronic Cheque Presentment. On-line information on balances. Relatively high reserve requirements. Central Bank assures settlement finality. The regulatory framework is sound but there are some weaknesses in the law.	
Medium/ Low	Semi-manual RTGS system. Banks constituted a settlement fund at the Central Bank for liquidity emergencies. No intraday repos. NPS oversight and the overall legal basis are weak.	Fully automated RTGS. No intraday repos, but high reserve requirements. Cheque clearinghouse has a settlement fund with partial coverage. NPS oversight, settlement finality and netting arrangements are weak.	Fully automated RTGS, interoperable with the SSS for intraday repos. High reserve requirements. DNS system has a settlement fund. NPS oversight, settlement finality and netting arrangements are weak.	
Low			Fully automated RTGS, interoperable and coordinated with the SSS for intraday repos. Algorithms to optimize intraday liquidity. DNS in large value with strong legal support. Solid legal framework containing provisions for settlement finality and explicit broad powers for the Central Bank over the NPS.	*Hipothetical: Hybrid systems, highly interoperable and coordinated with the SSS. Efficient money markets. Solid institutional and legal framework. Settlement finality protected, even for DNS. Price incentives. Effective oversight by the central bank.*

Chart 1: Current topography of SIPS in the LAC region

(number of countries)

RISK \ EFFICIENCY	*Low*	*Medium*	*Medium/High*	*High*
High			**1**	
Medium	**4**	**3**	**1**	
Medium/Low	**1**	**1**	**3**	
Low			**1**	

Countries whose SIPS are more in the center of the spectrum (*i.e.*, less risk and more efficiency) have made greater efforts to increase efficiency, by, for example, implementing an early session for large-value cheques, but most importantly, by introducing RTGS systems for time critical, large-value payment transactions. This is particularly true for medium-sized economies. In this context, their relative position would move to the right (*i.e.* more efficiency) as they develop efficient intraday liquidity facilities secured with liquid collaterals.

The group of the larger countries shows a significant heterogeneity. In one case the system may well be considered efficient, but it is characterized by high moral hazard and credit risk for the central bank as it is compelled to assure settlement finality by authorizing current account overdrafts. Within this group there is also the case of a DNS system considered safe, due to the existence of sound loss sharing guarantees. Finally, there is the case of a remarkably safe and very efficient system, which, in the authors' opinion, may even be seen as a reference point for payment systems worldwide.

4.1 Reform processes currently underway

Along with their self-assessment exercises, the majority of the participating central banks, recognizing the existence of shortcomings in their SIPS and their effort towards achieving compliance with the CP-SIPS, provided information on reforms currently underway regarding their SIPS.

Table 2: Reform processes underway in the LAC region

		EFFICIENCY			
		Low	*Medium*	*Medium/Low*	*High*
	High			Payment systems law. Elimination of credit risk for the central bank. Oversight function is enhanced. DNS system complying with CPs	
	Medium	Upcoming RTGS (or overhaul of cheque clearinghouse). Reform is incomplete: legal risks persist in case of insolvencies and no clarity on oversight powers. Settlement cycle is reduced to T + 1.	Overhaul of the cheque clearinghouse. Efforts to increase certainty on settlement finality. Reforms to the oversight function. Moving towards a "basic" RTGS.	Upcoming RTGS and protected large-value DNS (net debit caps, guarantee fund, etc). Legal reform aimed at guarantying settlement finality and regulation of private DNS systems.	
RISK	*Medium/ Low*	RTGS and DNS systems for large value. Large value to be integrated with the SSS for intraday repos. Still no clear strategy regarding oversight and legal framework.	Reforms to the legal framework to include settlement finality, protection against insolvency procedures, payment system oversight. Eventually, introduction of intraday repos.	Mechanisms to optimize intraday liquidity. Price incentives to foster payments to be entered early in the processing day. Legal risks persist (*e.g.*, finality, netting, oversight). Enhanced facilities for indirect participants. One of these countries plans to reform the bankruptcy law to assure settlement finality.	
	Low			Learning curve process and adjustments thereof will increase efficiency.	

The most salient features of these reform processes are summarized in Table 2. In order for readers to be able to track the transformations being made to current SIPS, the proposed changes are plotted here in the same risk-efficiency combinations that were identified in Table 1. Then, the relative positions of national SIPS once these reforms are completed are reassessed on Chart 2.

In general, the most relevant aspects of the reforms being proposed throughout the LAC region are the following:

- Enhanced operational efficiency.
- Technological upgrades.
- Improved legal framework, including: i) further clarification of the regulatory and oversight roles of the central bank; ii) assurance of settlement finality; and, iii) in fewer cases, the protection of netting arrangements.

Therefore, those countries that at present are highly dependent on cheques for large-value interbank payment transactions are moving towards increasing the operational efficiency of the cheque clearinghouse. For this purpose, some are introducing MICR technology to enable the electronic transmission of data that will facilitate the interbank exchange. Some countries are also introducing tools to enable participants to have better control over their balances at the central bank (*e.g.* real time balances provided over the telephone). Some others are introducing "basic", low cost (including semi-manual) RTGS systems.

Nevertheless, it must be stressed that some inefficiencies and risks will persist even after the reforms for the countries located in the upper left section of the matrix. No major changes are being considered so far in aspects such as high reserve requirements and continued risk exposure of the central bank as lender of last resort who is supposed to guarantee the finality of the cheque clearing arrangements.

Also, some of these countries have migrated to RTGS systems but their reform processes appear incomplete due to the fact that they do not seem to have given sufficient consideration to the need for an efficient liquidity provisioning mechanism for such systems, which in turn requires an efficient interface with the SSS.

Countries at the center of the risk-efficiency spectrum are mainly focusing their efforts in the following aspects:

- Countries in which DNS is the prevailing SIPS are focusing on improving the soundness of their legal framework, including the clarification of the regulatory and oversight roles of the central bank.
- Countries that already have implemented RTGS systems with no intraday liquidity facilities are focusing on the upgrade of their SSSs, in order to achieve effective interoperability between the two and reduce liquidity risks and costs.
- Countries that already have RTGS systems with intraday liquidity facilities are paying more attention to increasing the efficiency of their SIPS through, for example, the implementation of algorithms for liquidity optimization (*e.g.*, offsetting queues, to produce an effect similar to that of hybrid systems), or in providing price incentives to the system's participants to reduce risks and to have the system functioning more smoothly.

Finally, larger countries are focusing their efforts on the approval of a payments system law that, among other features, would give certainty to settlement finality, protect netting arrangements, protect obligations in SIPS from insolvency procedures, clarify the regulatory and oversight powers of the central bank regarding payment systems, and allow for a better allocation of risks among the system's participants and operator(s). The authors believe that from the information that was received, these countries will be the first to arrive to the preferred risk-efficiency scenarios.

Chart 2 below shows the new relative positions given by the authors to participating countries, having considered the expected outcomes of the reforms in a time period of two years or less. The authors believe that, although some legal risks and other risks for the central bank will persist, the reforms underway will greatly improve the observance with the CPs for most SIPS in the LAC region. Nevertheless, according to the information available, there are reasons to conclude that most of the countries will still face shortcomings in their legal framework and that much more has to be done to improve the risk balance for cheque based SIPS.

Chart 2: Possible risk-efficiency topography after completion of reforms

(number of countries)

RISK \ EFFICIENCY	*Low*	*Medium*	*Medium/High*	*High*
High				
Medium	**1**		**3**	
Medium/Low		**4**	**2**	**1**
Low			**3**	**1**

5 COMPARISON OF THE OUTCOMES OF THE SELF-ASSESSMENT EXERCISE WITH THOSE OF THE FSAP MISSIONS TO DEVELOPING COUNTRIES

As stated before, it is evident from the self-assessment exercises that such an effort is an ongoing learning process, and that more work needs to be done to ensure a consistent interpretation of the CPs and better assessment techniques.

Table 3 summarizes the grades given by participating central banks regarding the degree of their compliance with the 10 CPs and the 4 Central Bank Responsibilities. It should be noted that out of a total of 29 payment systems identified as SIPS, in 9 of them the corresponding central banks did not assign a specific grade, either because such systems are currently being reformed or because these central banks simply abstained from providing such grades.

Table 3: Observance of the CPs in the LAC region according to the self-assessment exercise

	Observance of Each Core Principle and Central Bank Responsibility													
Level of observance	*I*	*II*	*III*	*IV*	*V*	*VI*	*VII*	*VIII*	*IX*	*X*	*A*	*B*	*C*	*D*
Observed	25%	55%	35%	60%	35%	85%	60%	42%	70%	42%	50%	50%	8%	75%
Broadly observed	35%	10%	20%	35%	5%	15%	30%	37%	15%	26%	14%	14%	17%	8%
Partially observed	40%	35%	30%	5%	20%	0%	10%	21%	15%	32%	36%	36%	42%	17%
Not observed	0%	0%	15%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Not applicable	0%	0%	0%	0%	30%	0%	0%	0%	0%	0%	0%	0%	33%	0%
Total	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**19**	**20**	**19**	**14**	**14**	**12**	**12**

Source: WGPS-LAC member central banks self-assessment reports.

At a first glance, grades assigned by self-assessors tend to be high. In most cases countries report either an "observed" or "broadly observed" grade. Nevertheless, participating central banks recognize deficiencies particularly as regards to CPs I, II and X, as well as in Responsibilities A, B and C.

These grades do not fully coincide neither with the opinions of the authors in Charts 1 and 2 above nor with some shortcomings expressed by the own self-assessors.

Additionally, when these grades are compared to those obtained from FSAP missions to developing countries worldwide (see Table 4), which include LAC as well as other regions, it may be concluded that grades assigned by self-assessors tend to be more optimistic than those assigned by the international experts comprising the FSAP team.

This divergence may be explained by a variety of variables, among which the authors believe one of the most important is that the understanding of the CPSS CPs is still an ongoing learning process for many central bankers in the LAC region. Nevertheless, carrying out a self-assessment exercise is a step forward in the right direction.

Table 4: Observance of the CPs in developing countries according to FSAP missions

	Observance of Each Core Principle and Central Bank Responsibility													
Level of observance	*I*	*II*	*III*	*IV*	*V*	*VI*	*VII*	*VIII*	*IX*	*X*	*A*	*B*	*C*	*D*
Observed	20%	36%	20%	28%	16%	80%	28%	5%	36%	28%	30%	30%	30%	40%
Broadly observed	16%	20%	8%	28%	4%	12%	44%	45%	16%	20%	20%	20%	20%	30%
Partially observed	52%	28%	36%	8%	12%	4%	16%	36%	8%	40%	30%	30%	0%	20 %
Not observed	12%	16%	36%	36%	28%	4%	12%	14%	0%	12%	20%	20%	40%	10%
Not applicable	0%	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%	0%	10%	0%
Total	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**22**	**25**	**25**	**10**	**10**	**10**	**10**

Source: "Financial Sector Assessment Program-Experience with the Assessment of Systemically Important Payment Systems." WB, FMI. March, 2002.

6 CONCLUDING REMARKS

The self-assessment exercise that was performed by initiative of WGPS-LAC members has been useful in many aspects. It has highlighted the difficulties in applying the CPSS CPs for SIPS as an assessment tool. Answers provided by the participating central banks show important differences in the interpretation of the CPs and the degree of self-criticism regarding their observance.

CPs I, III, VII and VIII appear to be those principles in which interpretation differences are more heterogeneous. These principles are also those in which major weaknesses were identified.

From another perspective, the exercise has also proved useful to identify risks and weaknesses, as well as strengths, and to disseminate "best practices" among WGPS-LAC member countries. The CPs may be seen by each country as a navigation map, through which those entities responsible for operating, regulating, overseeing and eventually upgrading the national SIPS may establish a path for improvement, based on the desired risk-efficiency combination(s) and on each country's unique circumstances and realities, to adapt to the evolving needs of payment system stakeholders at the national and international levels.

As mentioned by Fry *et. al.* (1999), the design of an "optimal" NPS depends on the specific circumstances of each country or economy, including the legal and institutional frameworks, its culture, its infrastructure and its overall economic situation.

Decisions between alternative payments system design must necessarily make some form of trade-off between efficiency and risk. Many variables have to be considered to arrive to the best possible decision, including the current stage of development of the economy, current and future volume of payment transactions and number of participants, payment media and instruments readily available for economic agents, and the characteristics of the markets which drive the demand for payment services. The latter are closely related to how deep the different financial markets are (*e.g.*, capital markets, public debt market, forex market). It is also necessary to take into consideration the new requirements being imposed by the integration of national markets into a global financial market place. Globalization itself has imposed a series of standards for payment systems, thereby increasing the demands on payment system operators, participants and overseers. Finally, information technology and communications infrastructure are very important components of the payments system. Therefore, the authorities necessarily have to take into account the possibilities and constraints imposed by this infrastructure when considering choices among alternative PS designs.

Another crucial element to take into account for a payment system reform is to have a clear vision and establish clear objectives based on the current and future needs of all stakeholders. In this regard, the highly notorious trends in recent years to adopt RTGS systems for large-value, time critical payments seems to strike the balance in favor of risk considerations rather than efficiency. Thus, at present financial stability seems to be at the forefront of concerns as reform efforts have been focusing on better preventing and containing systemic risk and reducing moral hazard for central banks.

However, efficiency considerations are also relevant and may drive the authorities to adopt a different solution in smaller economies with a relatively low volume of interbank payment transactions or in those that have not developed yet a modern SSS interoperable with SIPS.

In this regard, the participants in the 2003 CPSS Conference on the FSAP process relative to payments and securities settlement systems concluded that in economies where payment practices and arrangements are grossly inefficient, it is an overriding concern to steer towards having in place efficient arrangements to transfer a payment from a payer to a payee, or, from another standpoint, to reduce transaction costs, rather than to focus more on issues of systemic stability and risk management. This last set of concerns appears to be more relevant for industrialized countries when planning for payment system reforms.

In any case, payment system reform should not be seen as an objective on its own, nor should it be driven by considerations aimed at arriving at a state-of-the-art system solely from the technological standpoint. Rather, payment system reform should be seen as a medium to increase overall economic efficiency and financial system stability. The importance of having a holistic approach to the reform process must also be pointed out. In this regard, the authors wish to stress that reforms leading to the adoption of a modern payment systems are incomplete if they are not accompanied by a similar effort for the national SSS.

LIST OF ABBREVIATIONS

BIS	Bank for International Settlements
CEMLA	*Centro de Estudios Monetarios Latinoamericanos* (Centre for Latin American Monetary Studies)
CPSS	Committee on Payment and Settlement Systems
CPs	Core Principles for Systemically Important Payment Systems
DNS	Deferred Net Settlement
FSAP	Financial Sector Assessment Program
IMF	International Monetary Fund
LAC	Latin America and the Caribbean
MICR	Magnetic Ink Character Recognition
NPS	National Payments System
OMOs	Open Market Operations
RTGS	Real Time Gross Settlement
SIPS	Systemically Important Payment Systems
SSS	Securities Settlement System
WB	The World Bank
WHI	Western Hemisphere Payments and Securities Clearance and Settlement Initiative
WGPS-LAC	Working Group on Payment System Issues of Latin America and the Caribbean

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[10] This Report is also known as the "Lamfalussy Report".

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