



MODERNIZATION OF THE NATIONAL PAYMENT SYSTEM

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I. CONCEPTUAL ASPECTS ABOUT PAYMENT SYSTEMS:

1. The payment system is the group of institutions, norms, regulations, standards, instruments and processes through which the economic transactions that are carried out within a country or among countries are settled. In general, it helps the economic agents to transfer funds from one place to another, among people or financial institutions.

The importance of the payment system is due to the fact that it facilitates the economic transactions and funds movement, as well as to become a determining factor for the good operation of the economy. It also helps the effectiveness of the monetary policy and the development of the goods market. In addition to the importance that it has in the financial sector, the payment systems have a great impact in real activity, because they constitute the means through which the public's confidence in national currency is strengthened and facilitates the whole productive activity.

The payment systems can be classified according to the security of the operation (retail and large-security), settlement form (gross and net) and, to the settlement frequency (real time and deferred). In that sense, the retail payment systems are those, generally, in which large amount of retail transactions are carried; therefore, the same are settled in a net¹ or deferred² way. On the other hand, the large-security payment systems are those through which small amounts of transactions are carried out, but their individual amounts are significant; therefore, the same are settled in a gross³ form and in real time⁴. These systems

¹ The settlement can be bilateral or multilateral; either way, a consolidation of the operations is made in favor and against each institution that participates in the process. Said consolidated balance is debited or accredited in the accounts of the settlement agent.

² It indicates that the settlement is not carried out immediately when the operation is entered to the system for its settlement.

³ It indicates that each payment instructions are channeled from the payer bank or participating entity to the recipient bank or participating entity, carrying out said registry individually per transaction.

⁴ It refers to the individual instruction processing when received, instead of doing so afterwards.

usually operate directly in the central banks and interconnected with the participants.

2. The risks inherent to the payment systems can be classified as financial, operational, technological, of exchange settlement and legal risks. Within the financial risks are the credit, liquidity and systemic risks. The credit risk is that a party will not settle an obligation or does not deliver a security when due or at any time afterwards. The liquidity risk is generated when a participant in the system cannot cash an asset to fulfill its settlement obligation when due; while the systemic risk refers to the default from one or more participants that causes other participants to be unable to meet their obligations when due.

With regard to the operational risk, this is originated from errors in the information system, administration or organization, while the technological risk emerges from the modernization and technification of the payment systems. On the other hand, the exchange operations settlement risk is produced by an exchange gap in the cross-border operations. The legal risk arises when the legal decisions (laws, regulations, particular normative of a system or regulations from relevant authorities) do not support the payment instruments, systems and the corresponding administrative procedures.

3. The Bank of International Settlements (BIS), jointly with other international organisms, establishes ten core principles of general observance, which should be considered in the design, implementation and operation of the systemically important payment systems, in conjunction with the approval of the mentioned principles, which is described in the annex attached to this document. The *Banco de Guatemala* within the Modernization of the National Payment System project incorporates said principles and responsibilities in order to achieve efficient and secure settlement mechanisms of the payment instruments.

4. At a general rate, there are several components that integrate a modern payment system, which, mainly, depends on the development rate of each

economy. Five subsystems linked through a large-security payment system can be identified, which are described below:

a) Real Time Gross Settlement System -LBTR-

The LBTR system is a payment system through which the processing and settlement of financial operations is made in a continuous way in real time (individual processing of the instruction when received, instead of processing it afterwards) and in a gross way (in other words, operation per operation), which is considered the most important component of a modern payment system. When the LBTR system supports the inter-bank market settlement operations, it becomes the fundamental payment subsystem of the country's economy. The security and efficient operation of the money and capital market are mainly due to the good operation of said subsystem. In effect, the LBTR system allows supporting the development of the different subsystems that integrate a modern payment system, which are used for the settlement of operations that are carried out within the securities market, the check clearing processes and automated clearing houses, as well as the financial operations abroad.

b) Banking clearing house

Though the growing trend of electronic payments in several countries like ours, the check is still the main payment instrument for the large and retail-security transactions; therefore, within a modern payment system the check clearing houses must be included as another important subsystem in the payment system.

c) Automated Clearing Houses -ACHs-

The ACH process the clearing and settlement of inter-bank operations derived from retail payments. Nevertheless, the financial institutions can establish their own systems to operate and settle transactions derived from other payment instruments, such as: credit cards, debit cards, automated teller machines, among others. The ACH infrastructure guarantees the client a wide acceptance of the payment service, because it facilitates, for example, the use of universal reader networks of credit and debit cards, as well as automated teller machines.

d) Cross-border payments

A modern payment system must have a channel that facilitates carrying out payments from and toward the foreign, element that guarantees the insertion of the country in the economy and global markets.

e) Securities settlement system

This subsystem essentially channels large-security payments derived from the negotiation process of securities (titles, assets, bonds, term deposits and others) which are carried out through stock exchange or directly with the central bank, in its different markets, primary and secondary.

II. ADVANCES OF THE MODERNIZATION OF THE NATIONAL PAYMENT SYSTEM:

1. The *Banco de Guatemala* started the modernization of the payment system in the year 2000 with the approval, from the Monetary Board, of the Strengthening Program Matrix of the National Financial System, in which, among other aspects, it was considered the Strategy for the Modernization of the National Payment System.

At the end of 2004, the *Banco de Guatemala* prepared the document denominated “The Payment System of Guatemala: Evaluation and Modernization Proposal” with the main purpose of presenting a general evaluation of the payment system of Guatemala and to propose the integral strategy of modernization of said system. In that sense, the Monetary Board in resolution JM-140-2004 dated November 17, 2004 approved the Matrix of Modernization of the Payment System which includes the plan of activities that tend to; strengthen the payment system, implement a payment system that counts on modern technological tools to improve the efficiency in the operations settlement, applying international standards, and to the institutional cooperation that said modernization requires.

2. In order to implement the modern payment system, according to the international trends based on the Core Principles of the Systemically Important Payment Systems, the advances of the *Banco de Guatemala* in the execution of

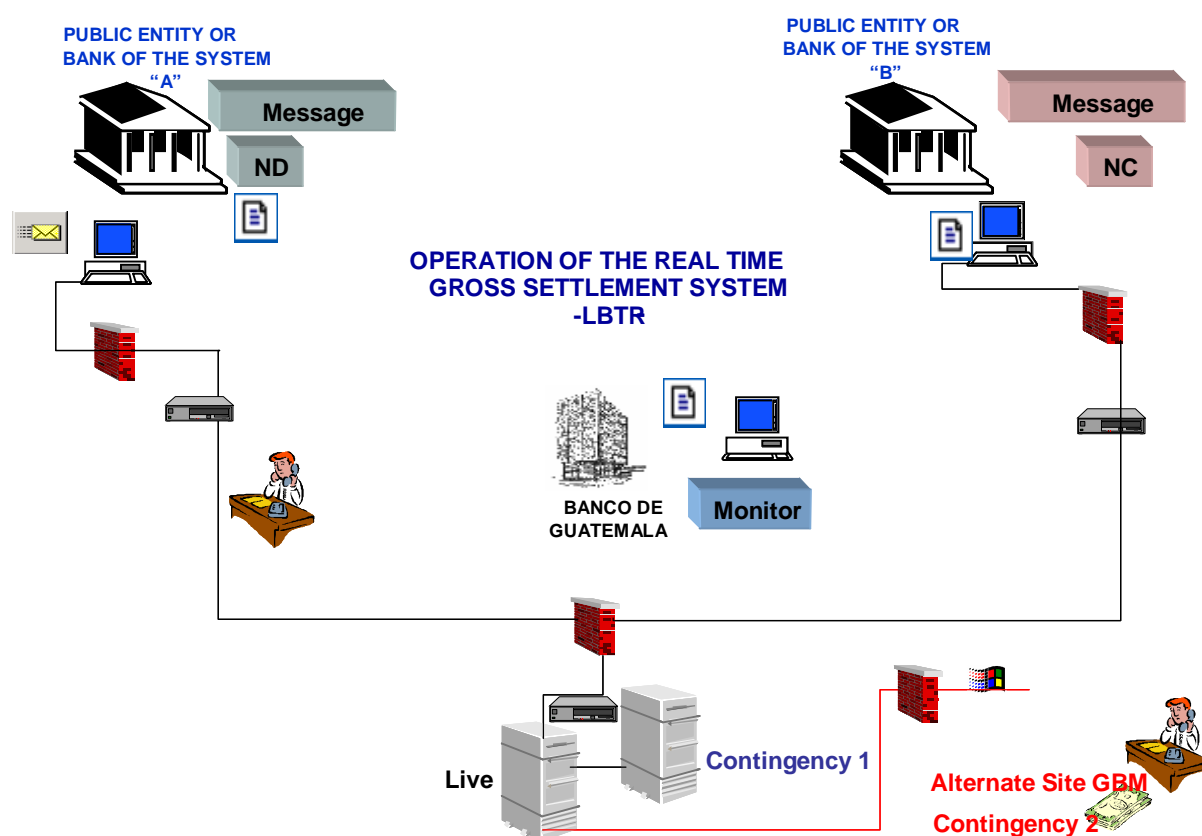
the modernization project of the payment system includes the approval of the regulation of the Banking Clearing House; the contracting of the Banking Association of Guatemala as private administrator for the administration of the check clearing process; and, the acquisition of a Real Time Gross Settlement System.

The Monetary Board in resolution JM-166-2005 dated November 30, 2005, approved the Regulation of the Real Time Gross Settlement System -LBTR-, in order to provide the automated mechanisms that, through transparent, efficient and secure processes, allow the participants to electronically settle, in a gross manner and in real time, the operations in national currency and in dollars of the United States of America.

With the modernization of the payment system the following benefits are obtained:

- **Acceleration:** The processing time of the operations registry and payment settlement among the economic agents (participants) is reduced, helping the beneficiaries to dispose of the financial resources immediately;
- **Security:** The electronic payment settlement, with sophisticated mechanisms of computer applications security and with a well-established legal base, increases the security of the operations that are registered in the payment system, due to the fact that, while reducing the physical transfer of the payment instruments, the loss risk is reduced or, in some cases, the possibility of fraud;
- **Efficiency:** Regarding the appropriate use of the electronic means, which tend to reduce certain costs that some additional economies can reach in benefit of the participants of said system; and,
- **Risk reduction:** the modernization of the payment system reduces the systemic risk and allows the central bank to act opportunely before a potential failure situation in the payment settlement within the system.

3. The real time gross settlement system of Guatemala started its operations on January 27, 2006. Through the referred system, the banking and public entities that have deposit accounts in the Central Bank, as well as other entities expressly authorized by the *Banco de Guatemala* that constitute a special settlement account, can carry out online and real time financial transactions. Besides, the participating entities of said system that are beneficiaries of the transaction will observe the credit made in their account online and in real time. The above-mentioned cooperates in the better treasury management, additionally to the advantages of acceleration, security, efficiency and reduction of the above-mentioned risks. In the following diagram the operation of the LBTR system is shown.



As it is observed in the diagram, in the LBTR system a participating (private or public) entity (origin) can start transfer or payment instruction toward another

participating entity (destination) in the referred system. The transaction is entered by a person denominated “system’s operator”, using messages with standard and structured formats. In order to complete the transaction, the intervention of a second person that revises and approves the corresponding transaction is indispensable. For security measures, the transaction is operated in the LBTR system until a third person sends the transaction through electronic means. At the time when the operation is received by the LBTR system, it settles the operation affecting (debit) the account of the participating entity that started the transaction. The message is transferred online through a private communication network to be processed in the central computer (Server) of the *Banco de Guatemala* in order to credit the deposit account of the destination entity. The benefited institution (that receives the credit) can verify online and the funds are accredited in the deposit account in real time. On the other hand, a participating entity can through this system carry out the funds transfer among its own accounts constituted in different banks of the system.

It is important to indicate that the *Banco de Guatemala* has a central computer (Server) for the LBTR system denominated “active or in production”, in which all the data base information is stored. Besides, the Central Bank within its contingency plans has a contingent Server that covers the operational risk, which is located in the Central Bank’s offices and a third server installed in an alternate site, located at about 7 kilometers; the above in order to keep the business continuation.

4. The implementation of the LBTR system contemplates two phases. The first refers to the initiation of electronic operations of said system that involves all the national financial system’s institutions; while the second phase; that will be carried out during the first semester of 2006, will incorporate the stock exchanges, the public sector entities, ACH and other participants that request their incorporation in the *Banco de Guatemala*. It is important to mention that to March 2006, 25 banking institutions, 2 financial societies and the Banking Clearing House have been incorporated to the LBTR system.

The participants in the LBTR system can be used, in national currency and in US dollars, in the following operations: funds transfer, payment instructions (for example: payment to providers, payment of salaries, payment of taxes, among others), investment in security titles issued by the Government of the Republic and Term Deposits constituted in the *Banco de Guatemala*, instructions for cash withdrawal, settlement of bilateral and multilateral clearing results, operations settlement under the modalities of delivery versus payment and payment versus payment, payments due to commissions of the *Banco de Guatemala* for services rendered in the system, consultations and generation of files, preparation and generation of reports and statistical information, and, others authorized by the *Banco de Guatemala*. Besides, the participants can consult the transaction of their operations during the day online and in real time, the daily balances of their accounts and the daily balances of the closing of operations, as well as the historical transactions in their accounts.

Finally, it is important to highlight that the LBTR system is also designed for the participation of the public sector entities, which can perform operations such as: payment to providers, payment of salaries, tax fund-raising and fundstransfers among public and private entities, funds transfer among their own accounts constituted in different private banks, among others. For that reason, the institutions that are interested in participating in the LBTR system must send a written request addressed to the General Director of the *Banco de Guatemala*, attaching the forms designed for said purpose, which are identified with numbers SP-LBTR-SP-001 and SP-LBTR-SP-003. It is important to indicate that it is necessary that the entity that desires to participate in the referred system, has the basic hardware, software and connection with the Bancared network, to guarantee the communication with the LBTR system. Additionally, derived from the security measures of the LBTR system, the entities that participate in said system must have Smart Cards⁵, in which digital certificates issued by the *Banco de Guatemala* are stored and the Card Reader⁶ where said certificates are verified.

⁵ Circuit card integrated with a microprocessor that is capable of calculating.

⁶ Reading device for smart cards that are connected to the USB port of the personal computer that the participant uses to transfer their operations electronically.

The information of the Modernization of the Payment System project, regulation and manuals of norms and procedures of the LBTR system, can be found on the *Banco de Guatemala's* web site: www.banguat.gob.gt. Besides any other consultation regarding the Modernization of the National Payment System can be made in the Payment System Section, Accounting Department of the *Banco de Guatemala* by calling: Tel. 2429-6000 and 2485-6000, extensions 4361 and 4362.

ANNEX

CORE PRINCIPLES FOR THE SYSTEMICALLY IMPORTANT PAYMENT SYSTEM	
I.	Existence of a solid legal base in all the pertinent jurisdictions.
II.	The norms and procedures must allow the participants to clearly understand the impact on the system of each of the financial risks in which they incur.
III.	Procedures clearly defined on the administration of credit and liquidity risks that specify the corresponding responsibilities of the system's operator and participants and that stimulate the management and risk control.
IV.	Fast final settlement in the day of value, preferably during the day and as a minimum at the end of the work day.
V.	The multilateral net settlement systems must be capable, as a minimum, to ensure the punctual finalization of the daily settlements, even in the extreme case that the participant does not fulfill the major settlement obligations.
VI.	The financial assets used for the settlement should constitute a deposit in the central bank. In case other assets are used, the credit or liquidity risk must be null or minimum.
VII.	Existence of high security and operational reliability and contingency plans in order to punctually complete the daily processing of the operations.
VIII.	Use of payment means that are practical for the user and efficient for the economy.
IX.	Objective and transparent admission criteria that allow fair and open access.
X.	Establishment of effective, responsible and transparent mechanisms for the good management of the system.
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Source: Bank of International Settlements.	

RESPONSABILITIES OF THE CENTRAL BANKS	
1.	The bank must clearly define its objective in matters of payment system and promote its role and its most important policies regarding the systemically important payment system.
2.	The central bank must be sure that the systems that it operates fulfill the Core Principles.
3.	The central bank must supervise the fulfillment of the Core Principles for the systems that it does not operate; it must be authorized to carry out said oversight.
4.	The central bank, while promoting the security and efficiency of the payment systems through the Core Principles, must cooperate with other central banks and with any other national or foreign authority.