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FINANCIAL INFRASTRUCTURE SERIES
PAYMENT SYSTEMS POLICY AND RESEARCH

MEASURING PAYMENT SYSTEM DEVELOPMENT

Working Paper

Massimo Cirasino and Jose Antonio Garcia



THE WORLD BANK

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THE WORLD BANK

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Book cover and interior design by Michele de la Menardiere.

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ACKNOWLEDGEMENTS

The ideas presented in this Working Paper are those of the authors and do not necessarily represent the World Bank's position, or the position of any institution that participated in the World Bank's Global Payment Systems Survey 2008.

The authors wish to thank the following colleagues for their comments and suggestions to this draft: Thorsten Beck (Independent Senior Consultant), Joaquin Bernal (Banco de la República, Colombia), Simeon Djankov (World Bank), Mario Guadamillas (World Bank), Jennifer Isern (CGAP), Robert Keppler (World Bank), Michael Klein (World Bank), Nataliya Mylenko (IFC), Peer Stein (IFC), and Bruce Summers (Independent Senior Consultant). The authors are also thankful to Maria Teresa Chimienti and Marco Nicoli (all World Bank) for valuable research assistance.

Finally, the authors are especially grateful to each and every central bank that participated in the World Bank Global Payment Systems Survey 2008.

FOREWORD

How do financial institutions process payments, check a potential borrower's past experiences with credit or evaluate the suitability of a security interest to be used for a loan? For many consumers in the financial marketplace, the answers to these questions are taken for granted, just part of the "black box" of tools and technologies used by lenders as they transfer funds between institutions or decide on credit applications. In this "black box" are the different elements of a country's *financial infrastructure*.

The World Bank Group is focusing on financial infrastructure development in emerging markets, including payment systems and remittances, credit reporting and secured lending. Moreover, the Bank is intensifying its commitment to promote and disseminate the policy and research debate on these and other topics within the scope of financial infrastructure, including corporate governance, auditing and accounting standards and practices, and financial literacy.

For this purpose, the Financial Infrastructure Series was launched in mid-2008 to host original contributions in the form of policy notes, studies, and essays led by World Bank Group experts, as well as initiatives carried out in cooperation with or by other experts and relevant institutions in the various fields of financial infrastructure.

The second document appearing in this Series is "*Measuring Payment System Development*", and has been prepared by Massimo Cirasino and Jose Antonio Garcia of the Bank's Payment Systems Development Group (PSDG). Over the last 12 years, the Bank, through the PSDG of the Financial and Private Sector Development Vice Presidency, has been active in over 100 countries, through a variety of instruments, such as: 1) Supporting comprehensive reform programs in individual countries; 2) Undertaking initial diagnostics and developing reform strategies; 3) Providing specific technical advice on a broad range of topics; and, 4) Coordinating and managing multi-country and regional initiatives that position the Bank at the center of a network of 150+ relevant institutions in the field of payment systems. In addition, the Bank has been active in launching cooperative arrangements, organizing training activities, supporting the joint World Bank-International Monetary Fund Financial Sector Assessment Program (FSAP), participating actively in task forces of the Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO), and conducting research.

"*Measuring Payment Systems Development*" introduces a first attempt by the PSDG to measure payment system development levels across countries. Based on the World Bank's Global Payment Systems Survey 2008, the document presents a measurement methodology and related outcomes for four areas of the national payments system: i) Legal and Regulatory Framework; ii) Large-Value Funds Transfer Systems; iii) Retail Payment Systems; and, iv) Payment System Oversight Function and Cooperation.

Michael Klein
Vice President
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ABBREVIATIONS AND ACRONYMS

ACH	Automated Clearinghouse	EU-NM	European Union Newer Members
AFR	Africa Region, excluding northern Africa	FIFO	First in, First out
ATM	Automated Teller Machine	FX	Foreign Exchange
BCEAO	Central Bank of Western Africa States	FSAP	Financial Sector Assessment Program
BCP	Business Continuity Plan	IMF	International Monetary Fund
BIS	Bank for International Settlements	LAC	Latin America and the Caribbean
BRIC	Brazil, Russia, India and China	LVPS	Large Value Payments System
CCP	Central Counterparty	MNA	Middle East and North Africa
CIS	Commonwealth of Independent States	MOU	Memorandum of Understanding
CLS	Continuous Linked Settlement	MTO	Money Transfer Operator
CP	Core Principles	NPC	National Payments Council
CPSIPS	Core Principles for Systemically Important Payment Systems	ODC	Other Developed Countries
CPSS	Committee on Payment and Settlement Systems	OTC	Over-the-Counter
CSD	Central Securities Depository	POS	Point of Sale
DNS	Deferred Net Settlement	PSDG	Payment Systems Development Group (World Bank)
DvP	Delivery versus Payment	PvP	Payment versus Payment
EAP	East Asia Pacific	RTGS	Real Time Gross Settlement
ECA	Europe and Central Asia	SA	South Asia
ECCU	Eastern Caribbean Currency Union	SIPS	Systemically Important Payment System
EFTPOS	Electronic Funds Transfer at the Point of Sale	SML	Securities Market Law
EU-15	European Union 15	SSS	Securities Settlement System
		STP	Straight-through Processing
		SWIFT	Society for Worldwide Interbank Financial Telecommunication



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INTRODUCTION

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

For all these reasons, for more than 12 years the World Bank has been paying increasing attention to payment system development as a key component of the financial infrastructure of a country, and has provided various forms of assistance to over 100 countries.

Following international trends which encourage the measurement of a country's performance or level of development in various economic and social areas, the World Bank's Payment Systems Development Group

(PSDG) has made a first attempt to measure payment system development levels across countries.

This exercise is based on the data obtained from 142 country responses to the Global Payment Systems Survey carried out by the PSDG in 2007 and 2008. Country-by-country answers to each of the questions included in the Survey have been published as an appendix to the World Bank publication "*Payment Systems Worldwide: a Snapshot. Outcomes of the Global Payment Systems Survey 2008*"¹

This work, prepared by experts within the PSDG, is the first of a series of products and research papers drawn out of the Global Payment Systems Survey 2008 and is being published as part of the Financial Infrastructure Series.

OVERVIEW OF THE MEASUREMENT METHODOLOGY

The measurement exercise aims at providing a broad picture of the level of development of each *country* with regard to payment systems. For the cases of the Central

¹ World Bank, "*Payment Systems Worldwide: A Snapshot. Outcomes of the Global Payment Systems Survey 2008*". Washington DC, June 2008.

Bank of Western Africa States (BCEAO) and the Eastern Caribbean Central Bank (ECCB), each of which represents 8 different countries and that provided a single answer to the Global Survey, member countries are not classified individually.²

In essence, this measurement exercise intends to synthesize a complex set of qualitative and quantitative payment system characteristics into categories reflecting various levels of development. In turn, the categories reflect a range of scores for each component of a national payments system that is measured. Specific scores are given to individual payment system features, and a total score is then calculated for each area subject to measurement.

Also, the exercise intends to provide central banks, in particular in developing countries, with a tool to monitor developments in their payments systems and to compare them with other countries - a need expressed to the PSDG on many occasions.

At the outset, it is important to mention that the Global Survey was not intended originally for the purpose of obtaining indicators to measure relative levels of payment system development. Due to the design of the survey questionnaire, some important elements and components of a national payments system were less prone to measurement and, hence, have been excluded in the calculations. Moreover, in several areas there is still no wide international consensus on what the best practices ought to be.

As a result, this exercise focuses exclusively on four components of the national payments system, as follows: i) legal and regulatory framework; ii) large-value payment systems; iii) retail payment systems; and, iv)

payment system oversight. Other important elements of a national payments system such as securities settlement systems and foreign exchange settlement systems, among others, have not been included.

Each of the four components of the national payments system mentioned in the previous paragraph is measured independently. For all the components, and where applicable also for the relevant subcomponents, countries are classified into four different categories reflecting a certain level of development: i) *high*; ii) *medium-high*; iii) *medium-low*; and, iv) *low*.

Countries that according to the PSDG's methodology fall in each of these categories are then listed in strict alphabetical order.

As mentioned earlier, each of the four different categories of payment system development comprises a range of possible scores. Therefore, two countries with relatively different levels of payments system development (i.e. one closer to the cutoff defined for the superior category and the other closer to the cutoff for the inferior category) may actually be shown in this exercise as belonging to the same category. Future exercises of this kind may be presented in a different form, including the possibility of presenting individual country rankings.

The methodology described in Chapter I was developed, to the extent possible, on the basis of international standards and well-established practices. The PSDG is therefore confident on the overall soundness of the individual payment system features being scored and the relative scores used thereto. This view has been reinforced by the positive comments received from peer reviewers.

Nevertheless, there are at least two important elements that readers should bear in mind while interpreting the results obtained as part of this measurement exercise.

² The BCEAO represents Benin, Burkina Fasso, Guinea Bissau, Ivory Coast, Mali, Niger, Senegal, and Togo. The ECCB represents Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and The Grenadines.

These are:

- Despite the fact that international consensus has been reached in several areas as to what the features of some types of payment systems should look like, the actual conditions that influence payment system design and outcomes are not always constant across countries. These include differences due to local environmental conditions, for example, physical, social, and cultural factors.³ Such country-specific conditions are not reflected in the outcomes presented in this document.
- The inputs feeding the methodology are based solely on the answers provided by each central bank and not on an independent assessment of the various issues and topics. Moreover, the Global Survey was carried out through electronic means rather than through bilateral person-to-person interviews. As a result, each country's interpretation of the questions included in the Global Survey was not necessarily uniform.

³ These factors are discussed in the CPSS document "General Guidance for National Payment System Development" (BIS, January 2006). In addition to environmental factors, this Report identifies three other broad factors that influence payment system development: economic factors, financial factors, and public policy factors.

ORGANIZATION OF THIS DOCUMENT

Chapter 1 contains the detailed methodology developed by the PSDG and that has been used in this payment system development measurement exercise.

Chapters 2 through 5 contain the actual outcomes of the measurement exercise for each of the areas subject to measurement, i.e. legal and regulatory framework, large-value payment systems, retail payment systems, and payment system oversight. In each of these chapters, the outcomes are preceded by a brief background note on the importance of each area subject to measurement, as well as a section containing some of the relevant outcomes of the World Bank's Global Payment System Survey 2008.⁴

Annex I shows the relevant sections of the Global Survey questionnaire used in this exercise. Annex II shows each country's date of response to the Global Survey.

⁴ The detailed outcomes of the Global Survey can be found in the World Bank publication "*Payment Systems Worldwide: A Snapshot. Outcomes of the Global Payment Systems Survey 2008*".

CHAPTER I

PAYMENT SYSTEMS

INDICATORS

METHODOLOGY



Following international trends which encourage the measurement of a country's performance or level of development in various economic and social areas, the World Bank's Payment Systems Development Group (PSDG) has made a first attempt to measure payment system development levels across countries. This exercise is based on the data obtained from 142 country responses to the World Bank's Global Payment Systems Survey 2008.

Four components of the national payments system are measured as part of this exercise: i) legal and regulatory framework; ii) large-value payment systems; iii) retail payment systems; and, iv) the enabling environment for the payment system oversight function.

For each of these components a brief explanation is provided on the concepts and issues the measurement methodology intends to capture, followed by the specific scoring method developed by the PSDG.

I.1 LEGAL AND REGULATORY

This component is based on the assessment of two aspects: i) the specific payment system concepts covered by existing laws and regulations as defined in question I.2 of the questionnaire; and, ii) the legal powers of the Central Bank to oversee payment systems as depicted

in question I.5 of the Global Survey questionnaire (see Annex I). The specific concepts deemed desirable in a country's legal framework are those identified in the Core Principles for Systemically Important Payment Systems (CPSIPS) Report issued by the Committee on Payment and Settlement Systems (CPSS) of the Bank for International Settlements (BIS), and in the International Monetary Fund-World Bank Guidance Note for the Assessment of SIPS as part of the Financial Sector Assessment Program (FSAP).

The detailed scores for each of these aspects are described on the next page.

I.2 LARGE VALUE PAYMENT SYSTEMS

The scoring for large-value systems is based on two sub-components: i) system design and key policy decisions that affect the safety, soundness and efficiency of the system; and, ii) the actual usage of the large-value system in terms of the share of the settlement throughput that flows through the system being rated versus other systems that process large-value payments. Each of these components is described in detail below.

The combination of these two sub-components provides a broader view of the way large-value systems work

LEGAL FRAMEWORK INDICATOR SCORING

1 Key legal concepts covered by the existing legal framework

Question 1.2 of Global Survey:

- a. Clarity of timing of final settlement
- b. Legal recognition of (bilateral and multilateral) netting arrangements
- c. Recognition of electronic processing of payments
- d. Non-existence of any zero hour or similar rules
- e. Enforceability of security interests provided under collateral/repo arrangements
- f. Protection from third-party claims of collateral pledged in a payment system

If all of the above *then give an 8*

If all of the above except one *then give a 6, as long as answer a) was included*

If between 2 and 4 *then give a 4, as long as answer a) was included*

If only a) *then give a 2*

*If b) and c) **and** e) or f)* *then give a 2*

Otherwise *then give a 0*

2 Central Bank Legal Powers to Oversee Payment Systems

Question 1.5 of Global Survey:

- a. The Central Bank has no formal powers to perform payment system oversight
- b. Oversight powers are to be found in the Central Bank Law
- c. Oversight powers are to be found in the Payment System Law
- d. Oversight powers are to be found in other laws
- e. Empowerment is general, in the context of “ensuring the adequate and safe functioning of payments in the country”
- f. Empowerment is explicit, granting it powers to operate, regulate, and oversee payment systems

If answer f) *then give a 4*

*If answer b), c), d) **or** e)* *Section VII of Global Survey gives further guidance on evidence of regulation/policy on this matter*

If yes, then give a 2

If only answer a) *then give a 0*

LEGAL AND REGULATORY INDICATOR: SCORE RANGES AND CATEGORIES

Actual Score	Level of Development
>10-12	High
>7-10	Medium High
>3-7	Medium Low
0-3	Low

Notes: Maximum Score: 12 points; minimum score: 0 points.

in practice in terms of their overall safety and efficiency. However, this measurement exercise has not attempted to add the results from the two sub-components into a single indicator.

The large-value payment systems indicator is based on the relevant international standards, i.e. the CPSS Core Principles for Systemically Important Payment Systems (CPSIPS). As described below, out of the 10 CPSIPS the scoring methodology used for Sub-component 1 for large-value payment systems covers Core Principles III (appropriate management of credit and liquidity risks), IV (prompt final settlement on the day of value), V (ensuring timely completion of daily settlements for netting systems), VI (settlement asset), VII (security and operational reliability), IX (system access criteria) and X (system governance). Moreover, Core Principle VIII (system efficiency) is covered partially under Sub-component 1 and then also under Sub-component 2.

With regard to the remaining Core Principles, Core Principle I (sound legal framework) and to a lesser extent Core Principle II (clear rules and procedures) were already considered under the “Legal and Regulatory” Indicator above and do not add or subtract points to/from the Large-Value Systems Indicator. One important reason for having considered the legal and regulatory framework separately is that the latter affects not only large-value payment systems but also retail payment systems as well as securities settlement systems, among others. However, readers may wish to combine the Legal and Regulatory Framework Indicator with that for Large-Value Payment Systems to have a fuller view of the latter type of systems in terms of the 10 CPSIPS.

1.2.1 Sub-Component 1: System Design and Key Policy Decisions that Affect the Safety, Soundness and Efficiency of the System

The first sub-component is based on giving an explicit score to the observance of several of the 10 CPSS CPSIPS

on the basis of the information available from the Global Survey and taking as guidance the CPSIPS Report and in the IMF-World Bank Guidance Note for the Assessment of Systemically Important Payment Systems.

For RTGS systems, the Core Principles that are scored in explicit form are CP III, CP VII, CP VIII,⁵ CP IX and CP X. All RTGS systems reported in the Global Survey fulfill CP IV (final settlement on the day of value), and CP VI (settlement in central bank money), while CP V (ensuring timely completion of settlement in systems in which multilateral netting takes place) is not applicable to them.

A separate scoring method is applied for countries that do not have an RTGS system but which have developed a special procedure for the processing of large-value cheques.⁶ The score for such special procedures for large-value cheques yields a maximum of 1/3 of what could be obtained, as a maximum, with RTGS systems, reflecting the fact that cheque systems face special difficulties to comply with the CPSS CPSIPS.

Other types of gross settlement systems and deferred net settlement systems were not covered in detail in the Global Survey and are therefore not rated as part of this exercise.

The detailed scores for each of these aspects are shown on the next page.⁷

⁵ As mentioned earlier, Core Principle VIII is also measured under Sub-component 2.

⁶ These are countries that answered only option b) in question II.1 of the Global Survey questionnaire. These countries do not add points for the first six items in the scoring methodology for Sub-Component 1.

⁷ This sub-component does not measure any cross-border elements of large-value payment systems. One possibility that merits further research could be to associate the cross-border elements of a large-value payments system and its associated currency to their inclusion in CLS Bank given the comprehensive set of functional and technical requirements that must have been fulfilled prior to such an event.

1.2.2 Sub-Component 2: Actual Usage of the System being rated versus other Systems that process Large-Value Payments

This second sub-component considers two elements: i) whether cheque systems are used commonly for large-value payments despite the availability of an RTGS sys-

tem; and ii) the share of the total settlement throughput that flows through the RTGS system compared to that of cheque systems.⁸

⁸ As mentioned earlier, the Global Survey did not cover in detail other types of large-value systems. For this reason, only the settlement throughputs of RTGS systems and cheque systems are compared.

LARGE-VALUE PAYMENT SYSTEMS INDICATOR SCORING FOR SUB-COMPONENT 1

1. LIQUIDITY RISKS

1.1 Sources of liquidity during the day

Question II.7 of Global Survey:

- a. Opening balances and funds received from other participants during the day
- b. Participants can use a part of their reserve requirements during the day
- c. Participants can use all their reserve requirements balance during the day
- d. Lines of credit between banks
- e. The RTGS operator allows current account overdrafts
- f. The RTGS operator grants credit, either in the form of a loan or a repo

If answers "b" or "c", and "e" or "f",

then give a 3

If answers b) or c) only, or e) or f) only

then give a 1.5

If answer d) combined with either b, c, e, or f

then give a 1.5

Otherwise

then give a 0

1.2. Mechanism(s) that applies in case a participant does not have enough balance/credit in its current account with the RTGS operator to process new payments

Question II.10 of Global Survey:

- a. The payment order is rejected immediately
- b. The payment order goes into a queue for later processing

If answer b),

then give a 1.5

Otherwise,

then give a 0

1.3. Use of the pricing policy to incentivize the smooth flow of payments through the system during the day

Question II.12 of G. Survey: Yes or No

If YES

then give a 1.5

If NO ,

then give a 0

Maximum score for liquidity: 6 points

2. CREDIT RISKS FOR OPERATOR/INTRADAY LIQUIDITY PROVIDER

2.1. RTGS operator's management of credit risks that may arise as a result of it granting credit/allowing current account overdrafts in the RTGS system

Question II.8 of Global Survey:

- a. High quality collateral is required in all cases
- b. Collateral is required in all cases, but collateral does not always have suitable quality
- c. Current account overdrafts/credit is limited, but no collateralization is required
- d. There are no limits or collateralization requirements for account overdrafts/ credit

Note: this is necessarily linked to item 1.1 under Liquidity Risks (answers e) and f)). Therefore, scoring system here uses subtraction mechanism, and combination of 1.1 and 2.1 cannot be negative.

<i>If answer a),</i>	<i>then give a 0</i>
<i>If answer b) or c),</i>	<i>then give a -1.5 (subtract)</i>
<i>If answer d),</i>	<i>then give a -3 (subtract)</i>

Maximum score for Core Principle III altogether: 6 points (cannot be negative).

3. RESILIENCE AND BUSINESS CONTINUITY

3.1 Resilience and Business Continuity

Question II.13 of Global Survey:

- a. Routine procedures are in place for periodical data back-ups
- b. Tapes and other storage media are kept in sites other than the main processing site
- c. Back-up servers have been deployed at the main processing site
- d. A fully equipped alternate processing site exists
- e. The RTGS operator has documented a formal business continuity plan
- f. Business continuity arrangements include procedures for crisis management and information dissemination
- g. Business continuity arrangements are regularly tested

<i>If all of the above, or all except c)</i>	<i>then give a 6</i>
<i>If answers d) through g)</i>	<i>then give a 6</i>
<i>If all of the above except d)</i>	<i>then give a 4</i>
<i>If answers a) through e), even if without c)</i>	<i>then give a 4</i>
<i>If answers a) through c) and e)</i>	<i>then give a 3</i>
<i>If answers d) and e)</i>	<i>then give a 3</i>
<i>If answers a) through c)</i>	<i>then give a 2</i>
<i>If only a) and b) or none</i>	<i>then give a 0</i>

6. SYSTEM GOVERNANCE

6.1 A specific RTGS Users' Group is in place

Question II.17 of Global Survey: Yes or No

If Yes, and score for this sub-component so far is 14 or more then give a 2

If Yes, and score for this sub-component so far is less than 14 then give a 1

If No, and score for this sub-component so far is more than 14 then give a 1

If No then give a 0

Maximum score for Core Principles IX and X altogether: 6 points

* SPECIAL PROCEDURE FOR LARGE-VALUE CHEQUES

(only to be applied when no points were added for items 1 through 6 of this section)

Question III.3 of Global Survey:

- As part of this procedure, large-value cheques can be settled with same-day value
- As part of this procedure, large-value cheques are processed on a gross-basis
- As part of this procedure, net balances are calculated and settled more than once a day
- There is a settlement guarantee fund for large-value cheques processed under the special procedure (on a net basis)

If answers a) and b), or a) and d) then give a 6

If answer a), or b), or d) then give a 3

Otherwise then give a 0

LARGE-VALUE PAYMENT SYSTEMS – SUB-COMPONENT 1 FOR SYSTEM DESIGN AND KEY POLICY DECISIONS: SCORE RANGES AND CATEGORIES

Actual Score	Level of Development
>16-20	High
>11-16	Medium High
>5-11	Medium Low
0-5	Low

Note: Maximum score: 20 points

Maximum score when only a Cheque system is used: 6 points

Minimum score: 0 points.

To a certain extent, the share of payments that flow through a safer system such as an RTGS system can be influenced through policies and/or regulations. For instance, the actual usage of an RTGS system may reflect the overall efficiency of the system. In this sense, the latter may be seen as a measure of the degree of observance of CP VIII.

It is recognized, however, that other factors beyond the immediate control of policy makers may also have an influence in this outcome (e.g. legacy systems or the quality and reliability of telecommunications in the country, among others). This is the main reason why this characteristic of large-value payment systems is measured separately.

No specific score is assigned to this component. Countries are classified into four categories on the basis of specific thresholds of total settlement throughput processed by the RTGS system. Additionally, countries where cheque systems are not used to process large-value payments are placed in a higher category.

I.3 RETAIL PAYMENT SYSTEMS

The scoring of retail payment systems is also based on two sub-components: i) the deployment of infrastructure to process retail payment instruments and key policy decisions that have an impact on the safety, soundness and efficiency of the services provided; and, ii) the extensiveness of the usage of cashless payment instruments typically used for retail transactions, and the share of transactions made with electronic versus paper-based payment instruments.

Each of these components is described in detail on the next page.

I.3.1 Sub-Component 1: Deployment of Infrastructure to process Retail Payment Instruments and Key Policy Decisions that Affect the Safety, Soundness and Efficiency of the Services Provided

This sub-component captures first the availability of infrastructures to process retail payment instruments, giving a higher score to those that process paperless payment instruments. Then, it also captures the degree to which the payment system oversight function covers retail payment systems.

The detailed scores for each of these aspects are shown on the next page.

I.3.2 Sub-Component 2: Efficiency of payment instruments used, and extensiveness of usage of cashless payment instruments

The second sub-component measures: i) the extensiveness of usage of non-cash payment instruments; and ii) the share of cheques in the total number of retail payment transactions (non-cash). Higher scores are given to countries with a more extensive use of non-cash payment instruments, and to those with a lower usage of paper-based instruments.

The specific concepts and scores used for this sub-component are described below.

RETAIL PAYMENT SYSTEMS INDICATOR SCORING FOR SUB-COMPONENT 1

1. Deployment of ACH infrastructure and Cheque Clearinghouse Features

Question III.5 of Global Survey:

An ACH for electronic credit transfers exists in the country: Yes or No

Question III.2 of Global Survey

- a. Cheque clearinghouse is operated by the Central Bank
- b. Cheques are standardized
- c. Processing of cheques is automated, but physical exchange is required
- d. Processing of cheques is automated, and cheque truncation is used

*If an ACH exists, or extensive evidence of electronic retail direct credits
and/or debits through other arrangements (e.g. RTGS) then give a 4*

If an ACH does not exist, and d) from above then give a 2

If an ACH does not exist and c) from above then give a 1

If an ACH does not exist and neither c) nor d) then give a 0

2. Deployment of POS infrastructure

Refer to question III.1 of Global Survey for data on infrastructure, volume and value of retail payments.¹

If POS terminals > 15,000² then give a 4

If POS terminals > 7,000 but < 15,000 then give a 3

If POS terminals > 2,500 but < 7,000 then give a 2

If POS terminals > 1,000 but < 2,500 then give a 1

If POS terminals < 1,000 then give a 0

Notes: Reference figures for this item are on the basis of per 1 million habitants. The year of reference for POS infrastructure data is 2006.

3. Interoperability of Infrastructure

Question III.8 of Global Survey

- b. Interoperability of POS terminals in the country (score of 1 (high), 2 (partial), 3 (low))

If "1" was given in b) then give a 0

If "2" was given in b) then give a -1 (subtract)

If "3" was given in b) then give a -2 (subtract)

NOTE: minimum score for 2 and 3 altogether is 0 points (cannot be negative).

¹ Figures for all countries that participated in the Global Survey can be found in Section III of the Appendix of the World Bank publication "Payment Systems Worldwide: A Snapshot".

² The references of 15,000 and 7,000 are taken from CPSS countries. In 2005, for all CPSS countries number of POS terminals per 1 million inhabitants was 15,000 (simple average).

4. Scope of Payment System Oversight

Question VII.3 of Global Survey

- Payment system oversight is performed over central bank-operated systems only
- Payment system oversight is performed over all systemically important funds transfer systems
- Payment system oversight is performed over all systemically important payment systems, including securities settlement systems and settlement of FX transactions
- Payment system oversight is performed over all relevant payment systems in the country as long as such systems are operated by commercial banks
- Payment system oversight is performed over all relevant payment systems in the country regardless of whom the operator of such systems is

Also refer to question III.1 of Global Survey for collection of data on infrastructure, volume and value of retail payments, as follows:

*If d) **and/or** e) from above and extensive collection of data¹ then give a 4*

*If d) **and/or** e) from above and partial collection of data then give a 2*

*If neither d) **nor** e) from above and extensive collection of data then give a 2*

*If neither d) **nor** e) from above and partial collection of data then give a 1*

*If neither d) **nor** e) from above and no collection of data then give a 0*

¹ In all cases, "collection of data" refers to collection of the data indicated in question III.1 of the Global Survey, i.e. data on number of ATMs, POS terminals, debit and credit cards. With regard to volume and value figures, given the multiple possibilities of systems being operated by the central bank or other entities or the information being of an interbank or intrabank nature, the volume and value figures for payments with debit and credit cards are used as the single proxy to assess the degree in which the overseer collects data on the retail payments sector.

RETAIL PAYMENT SYSTEMS – SUB-COMPONENT 1 FOR INFRASTRUCTURE AND KEY POLICY DECISIONS: SCORE RANGES AND CATEGORIES

Actual Score	Level of Development
>10-12	High
>7-10	Medium High
>3-7	Medium Low
0-3	Low

NOTE: Maximum score: 12 points ; Minimum score: 0 points.

RETAIL PAYMENT SYSTEMS INDICATOR SCORING FOR SUB-COMPONENT 2

1. Extensiveness of usage of cashless instruments

Refer to question III.1 of Global Survey for collection of data on infrastructure, volume and value of retail payments.

<i>If total cashless transactions per capita per year > 100¹</i>	<i>then give a 4</i>
<i>If total cashless transactions per capita per year > 25, but < 100</i>	<i>then give a 3</i>
<i>If total cashless transactions per capita per year > 10, but < 25</i>	<i>then give a 2</i>
<i>If total cashless transactions per capita per year >5, but < 10</i>	<i>then give a 1</i>

2. Efficiency of payment instruments used

Refer to question III.1 of Global Survey for collection of data on infrastructure, volume and value of retail payments.

<i>If cheques < 10%² of total number of retail cashless payments</i>	<i>then give a 4</i>
<i>If cheques > 10%, but < 25% of total number</i>	<i>then give a 3</i>
<i>If cheques > 25%, but < 50% of total number</i>	<i>then give a 2</i>
<i>If cheques > 50%, but < 75% of total number</i>	<i>then give a 1</i>
<i>If cheques > 75% of total number of retail cashless payments</i>	<i>then give a 0</i>
<i>If total cashless transactions per capita per year < 5</i>	<i>then give a 0</i>

¹ Average for CPSS countries in 2005 was 207. All individual countries except Italy have more than 100.

² The references of 10% and 25% are taken from CPSS countries. In 2005, for all CPSS countries cheques represented 10.9% of all payment instruments (simple average) and 25.6% (weighted average).

RETAIL PAYMENT SYSTEMS – SUB-COMPONENT 2 FOR EFFICIENCY OF INSTRUMENTS USED AND USAGE OF CASHLESS PAYMENT INSTRUMENTS: SCORE RANGES AND CATEGORIES

Actual Score	Level of Development
>6-8	High
>4-6	Medium-High
>2-4	Medium-Low
0-2	Low

NOTE: Maximum score: 8 points ; Minimum score: 0 points.

I.4 PAYMENT SYSTEM OVERSIGHT

This component is based on giving a score to four aspects: i) organizational arrangements for the oversight function; ii) clarity and formality in the objectives of payment system oversight; iii) cooperation with other authorities; iv) cooperation with other stakeholders.

This indicator thereby focuses on the *enabling environment to perform the payment system oversight function*; no attempt is made to judge the *quality* of an oversight program that is said to exist in any given country.

The detailed scores for each of these aspects are shown below.

PAYMENT SYSTEM OVERSIGHT SCORING

1. Organizational Arrangements for Payment System Oversight

Question VII.1 of Global Survey

- a. The Central Bank's payment system oversight function has been established and this is performed regularly and in an on-going basis
- b. There is a specific unit or department within the Central Bank responsible for payment system oversight
- c. The payment system oversight function is segregated from payment system operational tasks either through organizational means or via independent reporting lines

If all of the above *then give a 6*

If a) and b), or a) and c) *then give a 4*

If only a) *then give a 2*

If b) and c) *then give a 2*

Otherwise *then give a 0*

2. Objectives of Payment System Oversight

Question VII.2 of Global Survey

- a. The Central Bank has set down its objectives in carrying out the payment system oversight function in a regulation or policy document

If YES *then give a 2*

If NO *then give a 0*

Maximum score for Oversight: 8 points

3. Cooperation with other relevant Authorities

Question VII.5 of Global Survey

- There is no significant cooperation with other relevant authorities in the context of payment system oversight activities
- Cooperation with other relevant authorities occurs mostly in an informal/ad-hoc basis
- Cooperation with other relevant authorities is ensured through a formal mechanism, such as a Memorandum of Understanding (MOU) or is required by law
- Cooperation involves mostly regular meetings and exchange of opinions and views
- Besides regular meetings and exchange of opinions and views, cooperation also involves regular information exchanges, prior notice of regulatory action, joint inspections

If c), d) and e), or c) and e) then give a 2

If c) and d) or only c) then give a 1

If only a) or b) or no answer then give a 0

4. Cooperation with other stakeholders

Question VII.6 of Global Survey

- A formal National Payments Council is in place
- Although not formalized, the Central Bank holds regular meetings with stakeholders senior levels to discuss strategic issues for the payment system
- The Central Bank consults stakeholders on particular operational issues. Sometimes this includes the creation of an ad-hoc task force or working group
- The Central Bank consults stakeholders sporadically and/or mostly on a bilateral basis
- The Central Bank consults almost exclusively with the bankers' association

If a) or b) then give a 2

If c) then give a 1

If only d) or e), or only both, or no answer then give a 0

Maximum score for Cooperation for Oversight: 4 points

PAYMENT SYSTEM OVERSIGHT INDICATOR: SCORE RANGES AND CATEGORIES

Actual Score	Level of Development
>10-12	High
>7-10	Medium-High
>3-7	Medium-Low
0-3	Low

NOTE: Maximum score: 12 points ; Minimum score: 0 points.

CHAPTER II

LEGAL AND REGULATORY FRAMEWORK



II.1 BACKGROUND

A sound and appropriate legal framework is generally considered the basis for a sound and efficient payments system. A sound legal environment includes: (i) laws and regulations of broad applicability that address issues such as insolvency and contractual relations between parties; (ii) laws and regulations that have specific applicability to payment systems (such as legislation on electronic signature and settlement finality, and the responsibilities of the central bank or other regulatory bodies, such as the oversight of payment systems) and consumer protection; and (iii) the rules, standards, and procedures agreed by the participants of a payment system. Other relevant pieces of legislation that have impact on the soundness of the legal framework on the payments system include laws on transparency and security of payment instruments, terms, and conditions; antitrust legislation for the supply of payment services, and legislation on privacy.

While laws are normally the appropriate means to enforce a general objective in the payments field, in some cases regulation by the overseers might be an efficient way to react to a rapidly changing environment. In other cases, specific agreements among participants might be adequate; in this case, an appropriate professional assessment of the enforceability of these arrangements is usually required.

II.2 MAIN OUTCOMES OF THE GLOBAL PAYMENT SYSTEMS SURVEY 2008

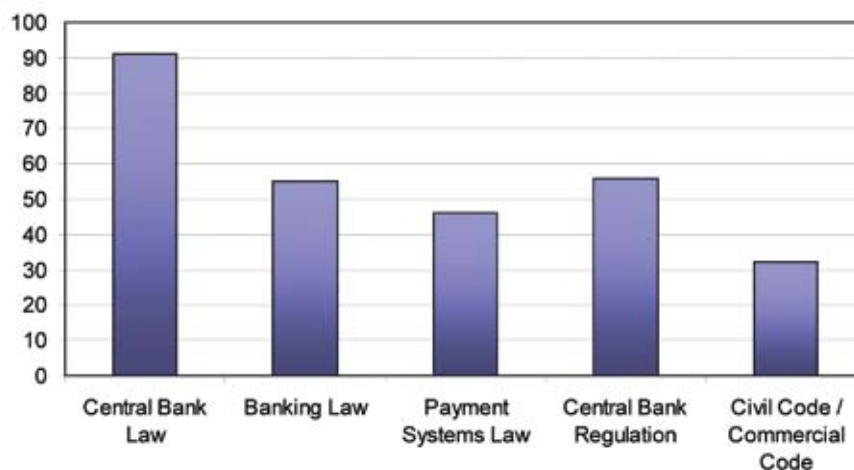
At a worldwide level, the Central Bank law is the basic legal reference for payment and settlement issues, as indicated by 91% of the 142 countries participating in the survey, followed by central bank regulations (56%) and the banking law (55%). Laws made specifically for payment systems are however a growing phenomenon. Despite their novelty, a total of 65 countries (46%) indicated that they have a Payment Systems Law in place.⁹ This trend is more noticeable in low income countries, or from a regional perspective in the South Asia (SA) and Sub-Saharan Africa (AFR) regions.

Global Survey results show that significant improvements are being made worldwide with regard to the legal and regulatory framework that underpins payment and settlement systems. More than 70% of countries indicate that their legal framework covers key issues such as settlement finality, netting, and electronic payment processing. In most cases (61%), this legal framework underpins all the payment systems in the country and not just those that are systemically important or that are operated by the central bank.

⁹ This number includes the 16 countries represented by the BCEAO and the ECCB, meaning that there are actually 51 rather than 65 Payment System laws in place.

CHART 1: PIECES OF LEGISLATION WITH EXPLICIT REFERENCES TO PAYMENT SYSTEMS

(% of countries that answered positively to each item)



These results, however, based on self-ratings, seem a bit too optimistic when compared to numbers obtained through World Bank country assessments as part of Regional Initiative programs and through the IMF-World Bank Financial Sector Assessment Program (FSAP).¹⁰ For instance, FSAP global data show that out of the 10 Core Principles for Systemically Important Payment Systems, individual country observance of Principle I, which deals with the soundness of the legal framework, is one of the lowest.

With regard to the legal basis of the payment system oversight function, only 12 countries or 8% of the total indicate that the Central Bank has no formal legal powers to perform the payment system oversight func-

tion. Of the 12 Central Banks lacking oversight powers, 8 are in the Latin American and Caribbean (LAC) region. Moreover, at a global level, 71 countries indicate that the payment system oversight powers are explicitly stated in the law, while 68 mentioned such powers are only implicit.

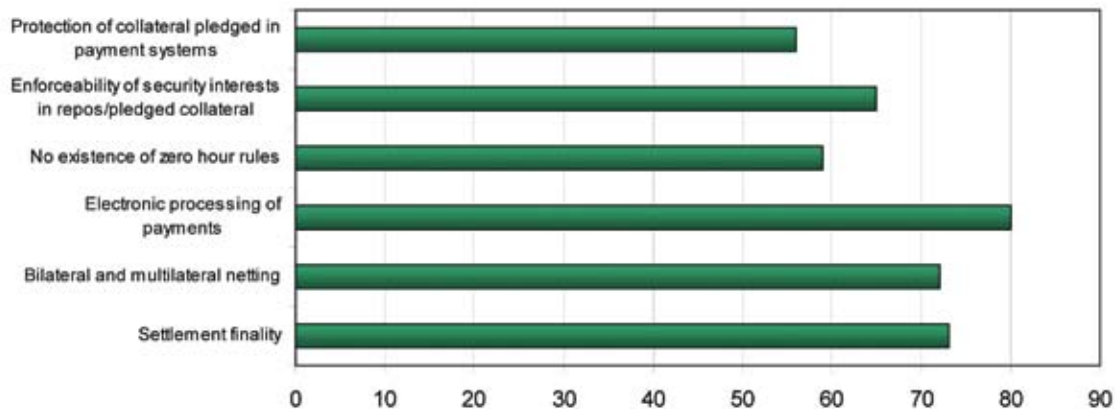
Payment system oversight powers are to be found mainly in Central Bank laws (60%), followed by Payment Systems laws (35%), and other laws (25%).

As to Central Bank licensing powers over non-banking institutions providing payment services, license requirements are common for non-bank financial institutions, and less so for other, more-specialized entities provid-

¹⁰ The World Bank's PSDG has gained detailed knowledge of many countries through Regional Initiatives on Payment and Securities Settlement Systems. Currently, there are active programs of this kind in ECA, (Commonwealth of Independent States Payment and Securities Settlement Initiative – CISPI, see www.cis-pi.org), LAC (Western Hemisphere Payments and Securities Settlement Forum – WHF, see www.whpaymentsforum.org), and MNA (Arab Payments and Securities Settlement Initiative). New programs of this kind are currently being launched for the AFR and SA regions.

CHART 2: KEY PAYMENT SYSTEMS CONCEPTS COVERED IN THE LEGAL FRAMEWORK

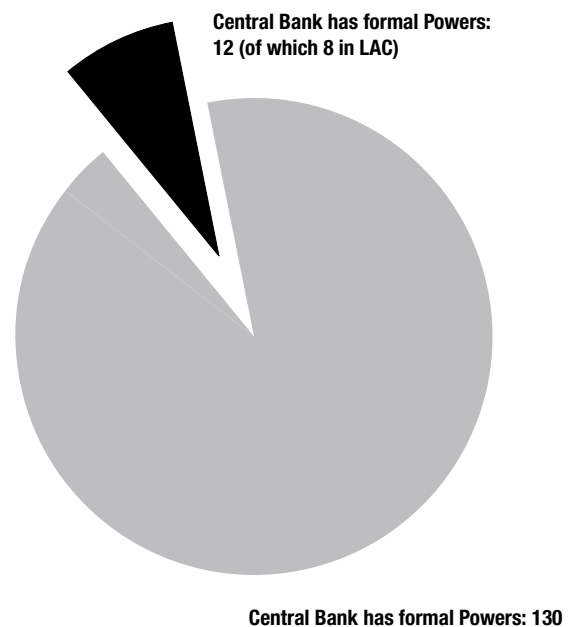
(% of countries that answered positively to each item)



ing payment services such as payments clearinghouses or central securities depositories. In general, high income countries and wealthier regions tend to rely less on licensing requirements for non-banks that provide payment services.¹¹ At the other end, licensing requirements for the various non-banks that provide payment services are most common in the AFR region.

Non-bank money transfer operators (MTOs) are required to be licensed in 87 countries, or 61% of the total. These numbers are much higher than they used to be only a few years ago.¹² Still, currently, non-bank MTOs operate without licensing requirements in a large number of countries, in particular in the Europe and Central Asia (ECA) region and in developed countries

CHART 3: CENTRAL BANK PAYMENT SYSTEM OVERSIGHT POWERS



¹¹ This situation may change soon, however, as the EU Directive 2007/64/EC of 13 November 2007 on payment services creates a new category of financial institutions, “payment institutions”, with specific regulatory framework and licensing requirements.

¹² The PSDG began analyzing remittances and MTOs and their relations and interconnections to payment systems in the late 1990s. At that time the overall interest being given to these types of firms was very low.

outside the European Union (hereinafter “other developed countries” or ODCs).

Payment card processing companies are among the least regulated entities in the market place. Consistent with World Bank experience, obtaining information, even basic statistics, from these companies usually proves very difficult for many central banks. A development that might change this trend in the future is an increasing number of central banks adopting a broad scope and broader objectives for payment system oversight.

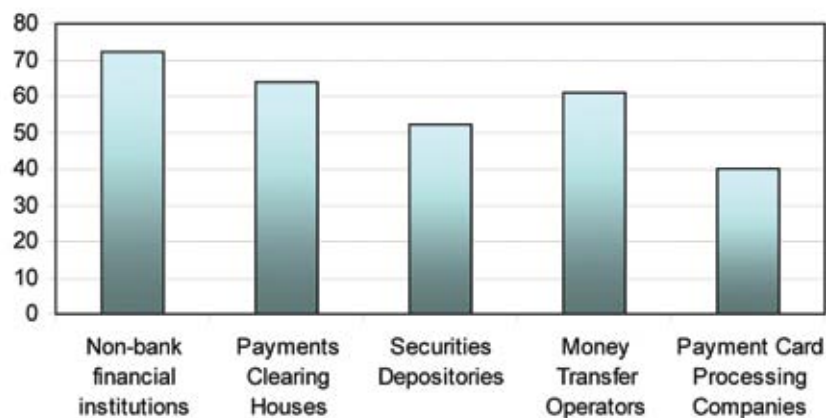
II.3 MEASURING DEVELOPMENT LEVELS IN THE LEGAL AND REGULATORY FRAMEWORK FOR PAYMENT SYSTEMS

The measurement of this component of the national payments system is based on the assessment of two sets of aspects: i) the specific payment system concepts covered by existing laws and regulations as defined in question I.2 of the Global Survey questionnaire; and, ii) the legal powers of the Central Bank to oversee payment systems as depicted in question I.5 of the Global Survey questionnaire.

Countries falling in each of the four categories reflecting the level of development are shown in the tables below in alphabetical order.

CHART 4: NON-BANK PAYMENT SERVICE PROVIDERS THAT REQUIRE A LICENSE

(% of total number of countries that answered positively to each category)



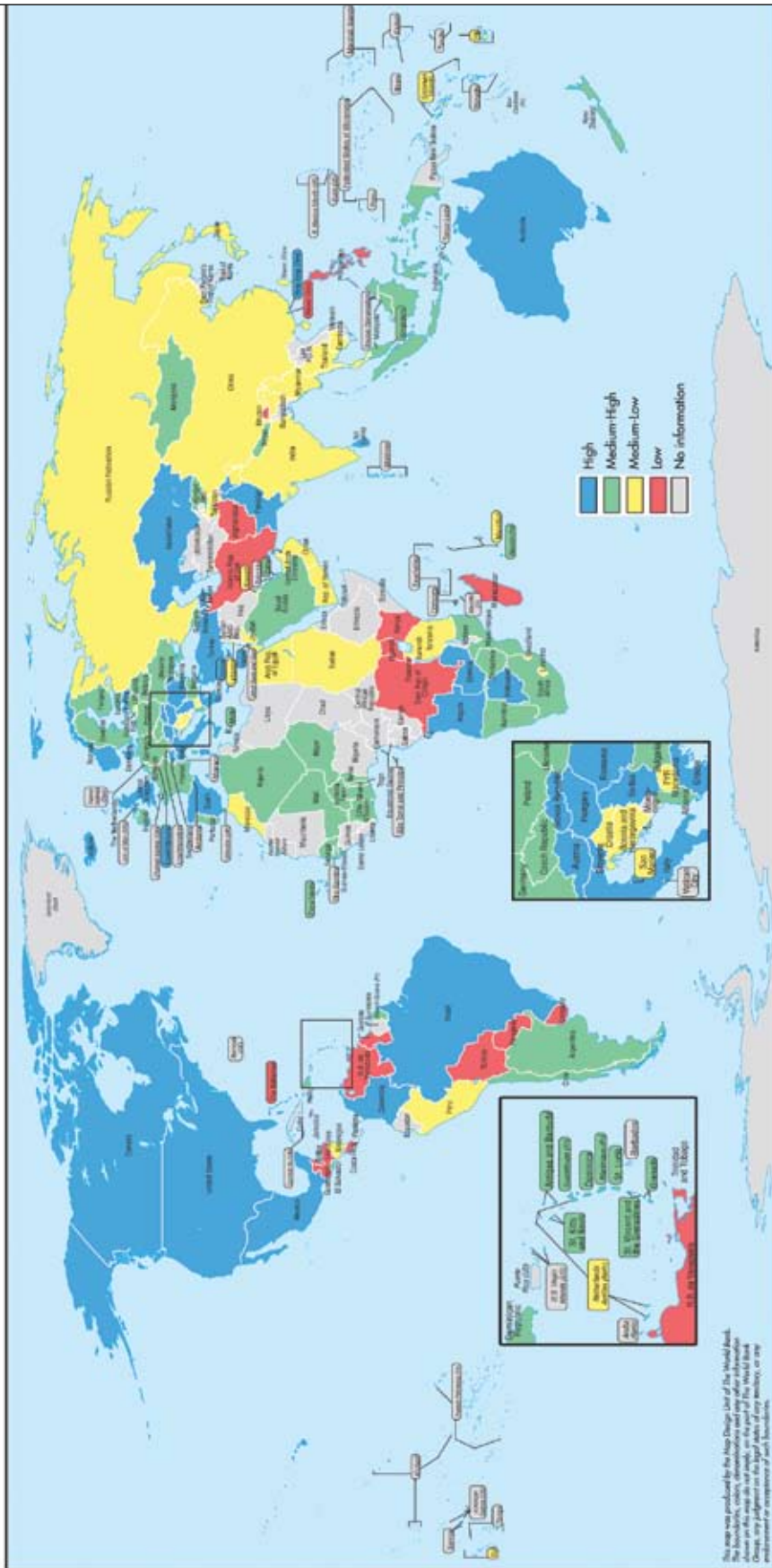
Legal and Regulatory Component: HIGH Level of Development			
Angola	Cyprus	Latvia	Slovenia
Armenia	Denmark	Luxembourg	Spain
Australia	Greece	Mexico	Sri Lanka
Austria	Hong Kong SAR	Moldova	Switzerland
Azerbaijan	Hungary	Norway	Turkey
Botswana	Iceland	Pakistan	United Kingdom
Brazil	Israel	Romania	United States
Canada	Italy	Serbia	Zambia
Colombia	Kazakhstan	Slovak Republic	

Legal and Regulatory Component: MEDIUM-HIGH Level of Development			
Albania	ECCU	Lithuania	Qatar
Algeria	El Salvador	Malaysia	Saudi Arabia
Argentina	Estonia	Malta	Singapore
BCEAO	Finland	Mongolia	South Africa
Belarus	France	Mozambique	Sweden
Belgium	Georgia	Namibia	Ukraine
Bulgaria	Germany	Nepal	Zimbabwe
Cape Verde	Ghana	Netherlands	
Chile	Indonesia	New Zealand	
Czech Republic	Ireland	Poland	
Dominican Republic	Kyrgyz Republic	Portugal	

Legal and Regulatory Component: MEDIUM-LOW Level of Development			
Bosnia - Herzegovina	Jordan	Netherlands Antilles	Swaziland
Cambodia	Kuwait	Nicaragua	Taiwan
China	Lebanon	Oman	Tajikistan
Croatia	Lesotho	Peru	Tanzania
Egypt	Macedonia	Russia	Thailand
Fiji	Mauritius	San Marino	United Arab Emirates
India	Morocco	Solomon Islands	Yemen
Japan	Myanmar	Sudan	

Legal and Regulatory Component: LOW Level of Development			
Afghanistan	DR of Congo	Kenya	Trinidad and Tobago
Bahamas	Guatemala	Macao SAR	Uganda
Belize	Guyana	Madagascar	Uruguay
Bhutan	Honduras	Paraguay	Venezuela
Bolivia	Iran	Philippines	
Costa Rica	Jamaica	Rwanda	

LEGAL AND REGULATORY FRAMEWORK



LARGE VALUE PAYMENT SYSTEMS



III.1 BACKGROUND

Large-value systems are the most significant component of the national payments system. Until not very long ago the concept of large-value systems was related almost exclusively to the value of the individual payments that are channeled through it. More recently, large-value systems are also related to the processing of time-critical payments. While in general the average value of each individual payment that is processed by these systems is high when compared to other systems (e.g. payment cards and other clearinghouses), many so-called large-value systems now also process payments of relatively low value.

Large-value systems may generate and transmit disturbances of a systemic nature to the financial sector. The development of real time gross settlement (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 funds transfers on a continuous basis during the processing day. In addition, an RTGS system can contribute to the reduction of settlement risk in securities and foreign exchange transactions by facilitating the delivery versus payment (DVP) and payment versus payment mechanisms.

Moreover, the RTGS system and its linkages with other relevant settlement systems (e.g. securities settlement) are key elements to foster financial stability. They facilitate, among other things: i) the development of organized and collateralized interbank markets and central bank facilities for the smooth provision of liquidity through payment and securities settlement systems; and ii) settlement of securities transactions on a true delivery-versus-payment basis.

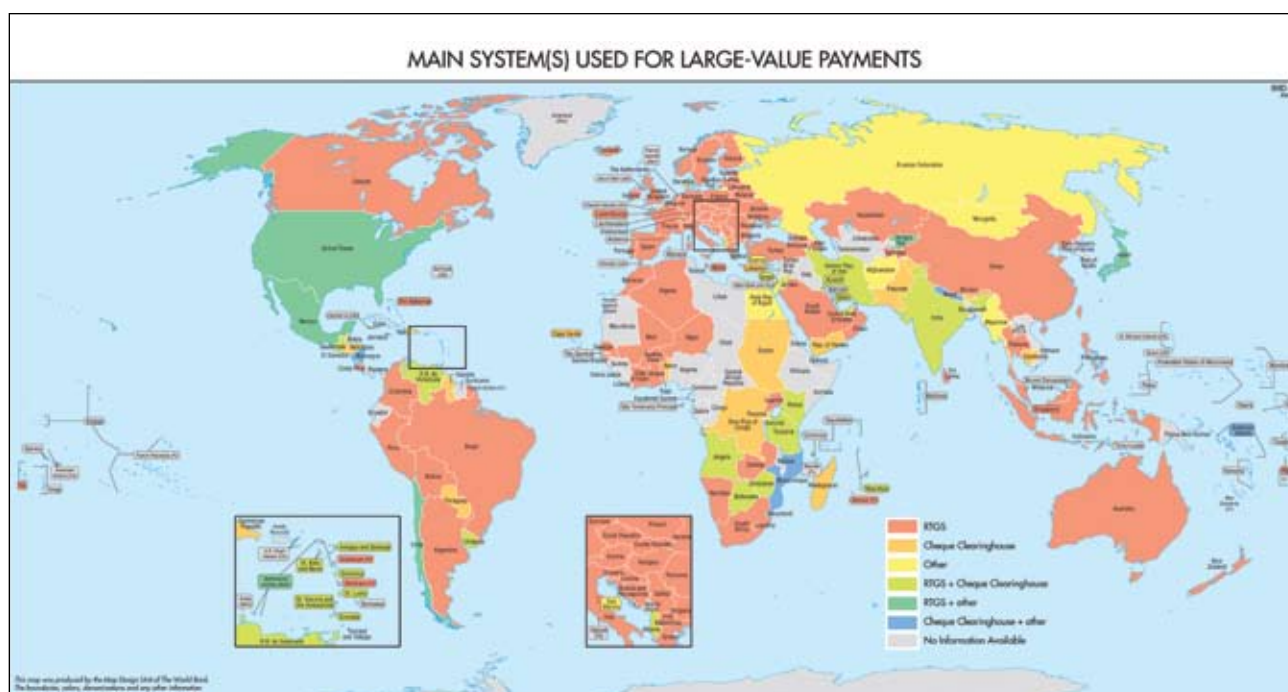
III.2 MAIN OUTCOMES OF THE GLOBAL PAYMENT SYSTEMS SURVEY 2008

A total of 98 central banks report having a real time gross settlement (RTGS) system in place. These RTGS systems serve a total of 112 countries, allowing for a significant reduction of systemic risk in such countries when compared to previous arrangements to process large-value payments, such as cheque systems.

Overwhelmingly, central banks play the key role as both operators and settlement agents for RTGS systems (see Table I).

TABLE I: RTGS SYSTEMS WORLDWIDE

Number of Countries using an RTGS system	Number of countries where the Central Bank is the Operator of the RTGS system	Number of countries where the Central Bank is Settlement Agent for the RTGS	Number of systems that also process transactions in foreign currency	Countries reporting more than one RTGS system
112 countries	108 countries. Exceptions: Canada, Hong Kong, Iceland, Switzerland.	112 countries	15 systems	Brazil, Hong Kong, Philippines, Poland and Uruguay



However, a relatively high number of countries still indicate that large-value payments are being processed, exclusively or in parallel to the RTGS system, through the cheque clearing system (43 countries or 34% of the total) or other central bank systems (24 countries or 17%).¹³ Settlement of large-value payments through cheque systems is especially common in lower-middle and low income countries, in particular in the AFR, LAC, MNA and SA regions.

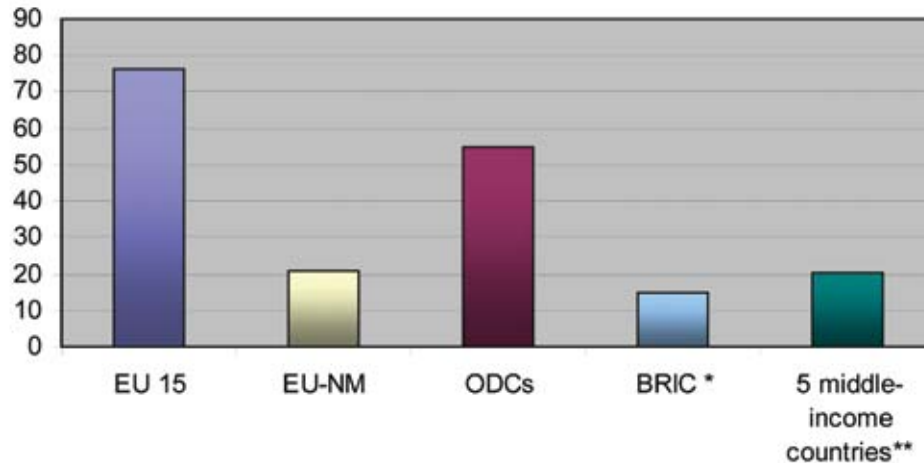
¹³ It is well-known that cheque systems have special difficulties for complying with the relevant international standards (i.e. the CPSS Core Principles for Systemically Important Payment Systems).

Most of the RTGS systems in place are secure and have been designed around international standards and best practices. For example, central bank liquidity facilities are available to manage payment flows smoothly within the operating day (in about 89% of cases) with high quality collateral being required in 93% of cases of this subset. Optimization tools such as queuing mechanisms are available in 85% of cases.

Global survey outcomes also show that RTGS operators are also placing operational risk management and business continuity practices and procedures at the top

CHART 5: GDP TURNOVER RATIO OF RTGS SYSTEMS

(number of times per annum that the RTGS system settles an amount equivalent to the GDP, for year 2006)



NOTES: Simple averages for each region/group.

* Russia is not included here under BRIC as it did not provide data on its RTGS system for the Survey.

** Colombia, Indonesia, Mexico, South Africa and Turkey.

of their list of priorities. World Bank experience shows, however, that much work is still needed in this latter area for systems to meet best international practices.

Total settlement throughput in RTGS systems is expanding at a fast pace in almost every country. Indeed, in U.S. dollar terms, in the two-year period of 2004-2006 total settlement throughput increased by an average of slightly more than 100%,¹⁴ with a median value of 44%.

When viewed in terms of the GDP, most high income/developed countries settle an amount equivalent to their GDP every week through their RTGS systems; some even more than that. Some middle income countries also show impressive figures in this regard which, when viewed in conjunction with growth trends, stress the increasingly systemic importance of RTGS systems all over the world.

¹⁴ Simple average. Calculated for 78 countries for which the necessary information was available.

With regard to other types of designated large-value payment systems, a total of 27 central banks representing 34 countries indicated that they have instituted a special procedure for the clearance and settlement of large value cheques in what is usually an attempt to by-pass the limitations of cheque systems as safe and efficient means to settle payments.¹⁵ LAC is the region in which more procedures of this kind have been established (7 central banks out of a total of 27). Special procedures for large-value cheques are also especially relevant in countries with a small population (14 cases).

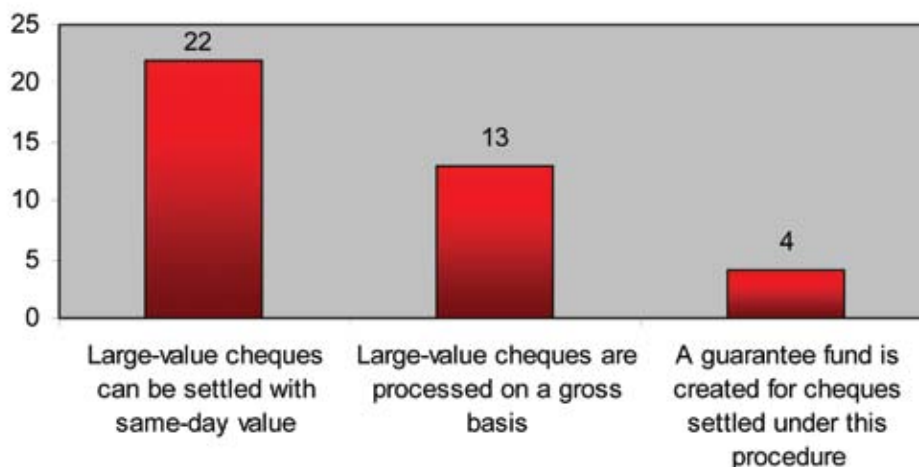
III.3 MEASURING DEVELOPMENT LEVELS IN LARGE VALUE PAYMENT SYSTEMS

The scoring for large-value systems is based on two sub-components: i) system design and key policy decisions that affect the safety, soundness and efficiency

¹⁵ This number includes the 8 countries represented by the Eastern Caribbean Central Bank.

CHART 6: PURPOSES OF SPECIAL PROCEDURES FOR LARGE-VALUE CHEQUES

(number of systems, out of a total of 27)



of the system(s); and, ii) the actual usage of the large-value system(s) in terms of the share of the settlement throughput that flows through the system being rated versus other systems that process large-value payments.

This component does not measure any cross-border elements of large-value payment systems. On the one hand, information on such elements from the survey is limited for measurement purposes. Moreover, there is no explicit, internationally accepted, guidance on what the most desirable aspects of such cross-border elements ought to be. One possibility that merits further research could be to associate the cross-border elements of a large-value payments system and its associated currency to their inclusion in CLS Bank given the comprehensive set of functional and technical requirements that must have been fulfilled prior to such an event.

III.3.1 Sub-Component 1: System Design and Key Policy Decisions that Affect the Safety, Soundness and Efficiency of the System

The first sub-component is based on giving an explicit score to the observance of several of the 10 CPSS

CPSIPS on the basis of the information available from the survey and taking as guidance the CPSIPS Report and the IMF-World Bank Guidance Note for the Assessment of SIPS.

A separate scoring method is applied for countries that do not have an RTGS system but which have developed a special procedure for the processing of large-value cheques.¹⁶

Other types of gross settlement systems and deferred net settlement systems different from cheque systems were not covered in detail in the Global Survey and are therefore not rated as part of this exercise.

Countries falling in each of the four categories reflecting the level of development are shown below in alphabetical order. Limitations inherent to the structure of the questionnaire and of the measurement methodology do not allow classifying the following 8 countries: Afghani-

¹⁶ These countries are those that answered only option b) in Question II.1 of the Global Survey.

Large-Value Payment Systems Sub-Component 1: HIGH Level of Development			
Algeria	Finland	Poland	South Africa
Austria	France	Portugal	Spain
Belarus	Germany	Romania	Sri Lanka
Belgium	Guatemala	Saudi Arabia	Switzerland
Bosnia - Herzegovina	Indonesia	Serbia	Taiwan
Brazil	Ireland	Singapore	Thailand
Canada	Moldova	Slovak Republic	
Colombia	Netherlands	Slovenia	

Large-Value Payment Systems Sub-Component 1: MEDIUM HIGH Level of Development			
Albania	Ghana	Latvia	Philippines
Angola	Greece	Lesotho	Russia
Australia	Hong Kong	Lithuania	Sweden
Azerbaijan	Hungary	Luxembourg	Tanzania
Bahamas	Iceland	Malaysia	Trinidad and Tobago
BCEAO	India	Malta	Turkey
Botswana	Israel	Mauritius	Uganda
Bulgaria	Italy	Mexico	Ukraine
Chile	Japan	Morocco	United Kingdom
China	Jordan	Namibia	United States
Croatia	Kazakhstan	New Zealand	Venezuela
Czech Republic	Kenya	Norway	Zambia
Denmark	Kuwait	Oman	Zimbabwe
Estonia	Kyrgyz Republic	Peru	

Large-Value Payment Systems Sub-Component 1: MEDIUM LOW Level of Development			
Argentina	Georgia	Pakistan	Uruguay
Armenia	Iran	Qatar	
Bolivia	Lebanon	Rwanda	
Costa Rica	Macedonia	Solomon Islands	
ECCU	Netherlands Antilles	United Arab Emirates	

Large-Value Payment Systems Sub-Component 1: LOW Level of Development			
Belize	Dominican Republic	Honduras	Sudan
Bhutan	Egypt	Jamaica	Swaziland
Cambodia	El Salvador	Madagascar	Tajikistan
Cape Verde	Fiji	Nicaragua	Yemen
DR of Congo	Guyana	Paraguay	

Large Value Payment Systems Sub-Component 2: i) Cheque Systems are not used commonly for large-value payments ii) RTGS system processes > 90% of total value settled through RTGS system + Cheque System			
Armenia	Finland	Luxembourg	Slovak Republic
Australia	France	Macedonia	Slovenia
Austria	Georgia	Malaysia	South Africa
Azerbaijan	Germany	Mexico	Spain
Belarus	Greece	Moldova	Sweden
Belgium	Hong Kong	Netherlands	Switzerland
Bosnia - Herzegovina	Hungary	New Zealand	Taiwan
Brazil	Iceland	Norway	Tajikistan
Bulgaria	Indonesia	Oman	Turkey
Canada	Ireland	Poland	Ukraine
Colombia	Italy	Portugal	United Kingdom
Croatia	Japan	Romania	United States
Czech Republic	Kazakhstan	Saudi Arabia	
Denmark	Latvia	Serbia	
Estonia	Lithuania	Singapore	

Large Value Payment Systems Sub-Component 2: i) Cheque Systems are used commonly for large-value payments ii) RTGS system processes > 75% of total value settled through RTGS system + Cheque System			
Albania	Costa Rica	Malta	Thailand
Angola	Egypt	Morocco	Trinidad and Tobago
Argentina	Ghana	Namibia	Uganda
Bahamas	Iran	Netherlands Antilles	United Arab Emirates
BCEAO	Jordan	Peru	Uruguay
Bolivia	Kenya	Philippines	Zambia
Botswana	Kuwait	Qatar	Zimbabwe
Chile	Kyrgyz Republic	Sri Lanka	
China	Lesotho	Tanzania	

Large Value Payment Systems Sub-Component 2: i) Cheque Systems are used commonly for large-value payments ii) RTGS system processes < 75% of total value settled through RTGS system + Cheque System			
ECCU	India	Mauritius	Russia
Guatemala	Israel	Nicaragua	Venezuela

Large Value Payment Systems Sub-Component 2: i) Cheque Systems are used for large-value payments, and no RTGS system			
Belize	Dominican Republic	Lebanon	Solomon Islands
Bhutan	El Salvador	Madagascar	Sudan
Cambodia	Fiji	Pakistan	Swaziland
Cape Verde	Guyana	Paraguay	Yemen
DR of Congo	Honduras	Rwanda	

stan, Cyprus, Macao SAR, Mongolia, Mozambique, Myanmar, Nepal, and San Marino.

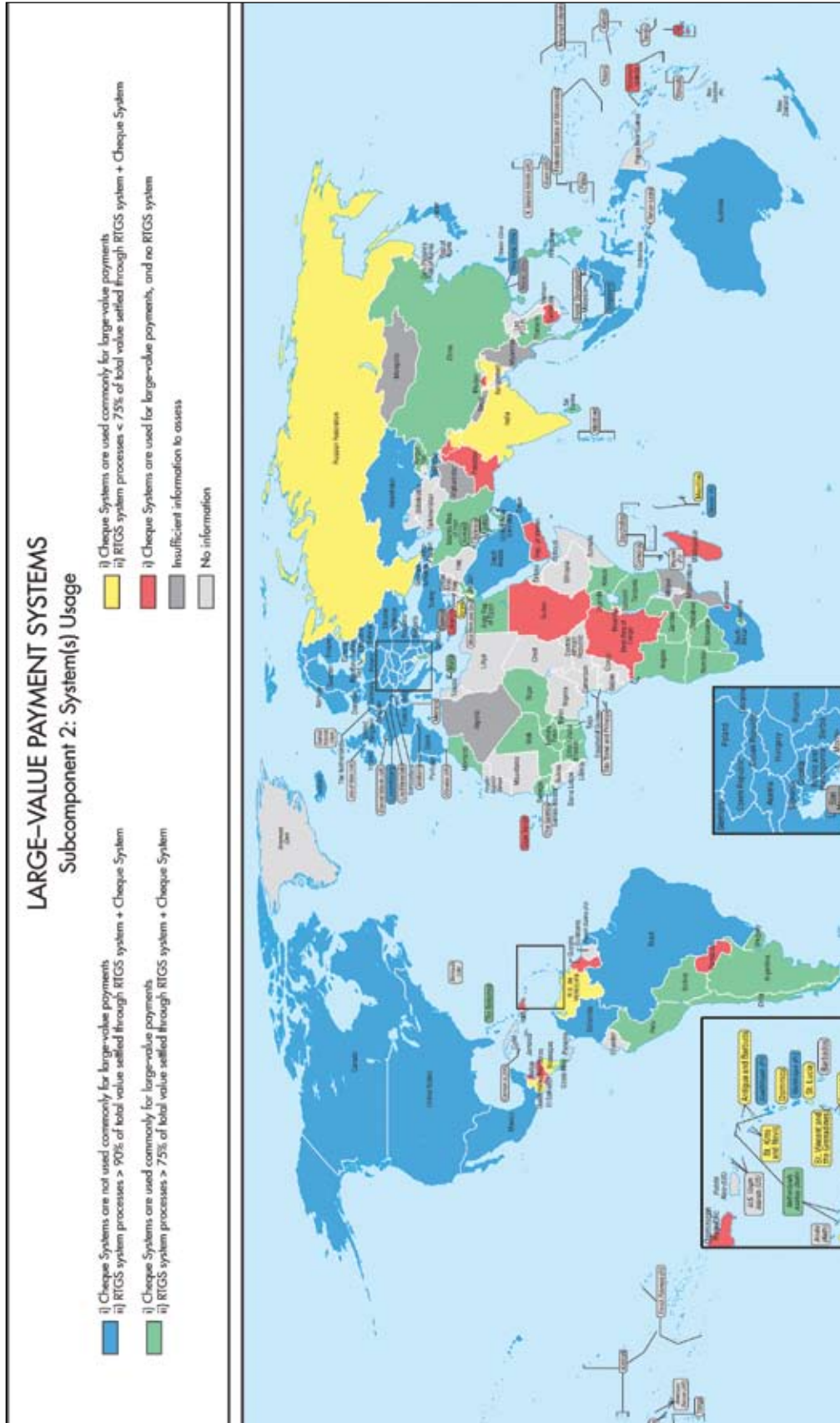
III.3.2 Sub-Component 2: Usage of the Large-Value System

This second sub-component considers two elements: i) whether cheque systems are used commonly for large-value payments despite the availability of an RTGS system; and ii) the share of the total settlement throughput that flows through the RTGS system compared to that of cheque systems.¹⁷

No specific score is assigned to this component. Countries are classified into four categories on the basis of specific thresholds of total settlement throughput processed by the RTGS system. Additionally, countries where cheque systems are not used to process large-value payments are placed in a higher category.

Countries falling in each of the four categories defined for this specific sub-component shown below in alphabetical order. Unavailability of data and/or the limitations inherent to the structure of the questionnaire and of the measurement methodology do not allow classifying the following 10 countries: Afghanistan, Algeria, Cyprus, Jamaica, Macao SAR, Mongolia, Mozambique, Myanmar, Nepal, and San Marino.

¹⁷ As mentioned earlier, the Global Survey did not cover in detail other types of large-value systems. For this reason, only the settlement throughputs of RTGS systems and cheque systems are compared.



CHAPTER IV

RETAIL PAYMENT SYSTEMS



IV.1 BACKGROUND

The existence of a wide range of payment instruments is essential to support customers' needs in a market economy. A less than optimal use of these instruments may ultimately have a negative impact on economic development and growth. Moreover, 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.

The use of retail payment instruments differs among countries due to a variety of factors, including cultural, historical, economic, and legal reasons. However, the supply of different payment instruments to customers depends, to a significant extent, on the existence at the interbank level of specific circuits and systems for the exchange of relevant information and for the settlement of payment transactions. Thus, efforts to significantly and successfully expand the range of available payment instruments rely on the existence of efficient, convenient and safe payment systems and circuits.

Setting up such circuits does not just require efforts to improve technology and networks; it implies also that banks and payment service providers, who are competitors in the end-user market, agree on the features of a shared infrastructure and on basic common rules to exchange and settle the payment transactions, overcoming

possible coordination problems. Cooperation problems may be especially important when considering inter-bank clearing and settlement systems. Most recently, the emergence of new types of non-bank intermediaries acting as payment service providers has strengthened the need for a comprehensive level of cooperation in the payments system.

IV.2 MAIN OUTCOMES OF THE GLOBAL PAYMENT SYSTEMS SURVEY 2008

The vast majority of countries indicate they are already operating one or more cashless payment systems, mainly cheque systems, payment cards systems, and automated clearinghouses (ACH) that process retail electronic credit transfers and, in some cases, direct debits. Global survey results indicate there are 102 cheque systems in place serving 116 countries, and 83 ACHs for retail electronic payments serving 97 countries.

While cheque systems exist in practically every country around the world regardless of income levels and re-

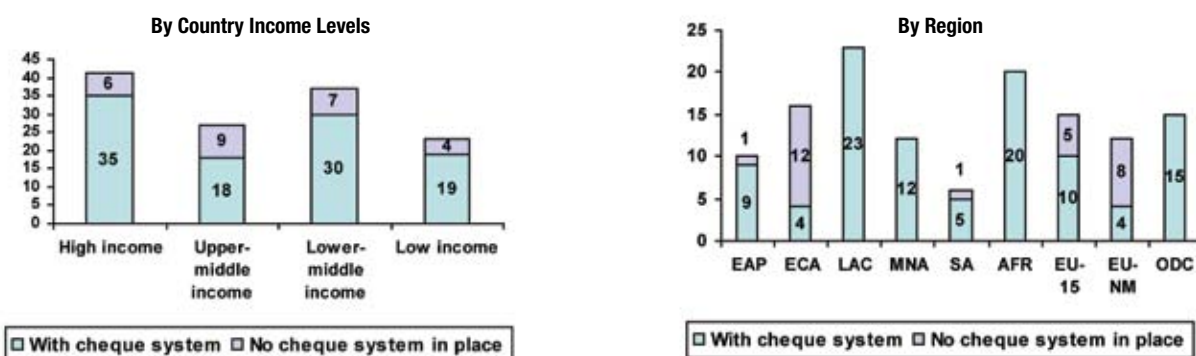
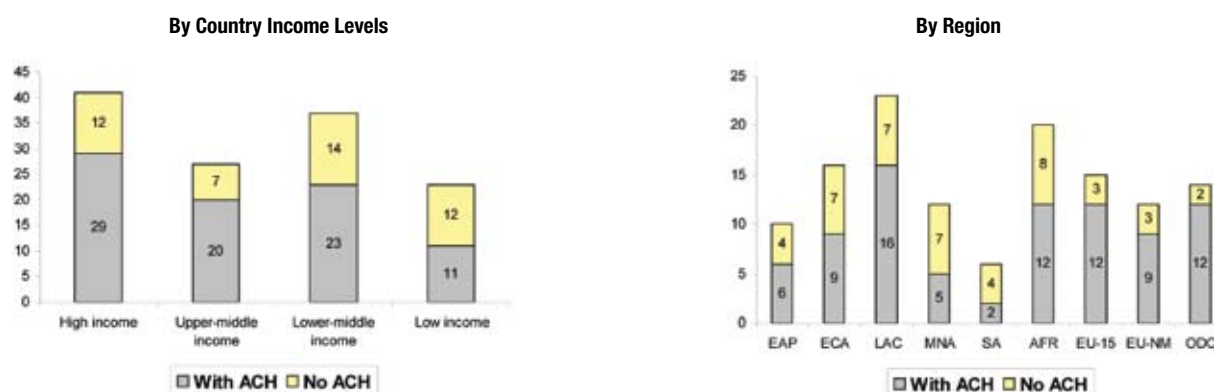
CHART 7: DISTRIBUTION OF CHEQUE CLEARINGHOUSES¹

CHART 8: DISTRIBUTION OF ACHS



¹ Throughout this document, categories for country income levels such as "High income", "Upper-middle income", "Lower-middle income", and "Low income" follow the World Bank's official classifications.

regions, ACH systems are less common in lower-middle and lower income countries.¹⁸

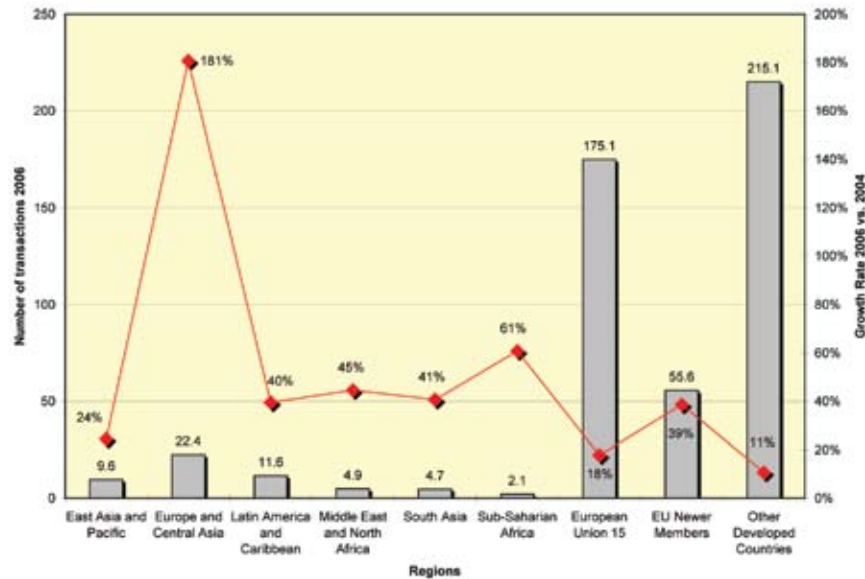
Overall, risk management in cheque systems is generally weak, and even weaker in the case of ACH systems. This seems consistent with the notion that systems that are not, or are no longer, systemically important do not warrant risk management techniques similar to those intended for a system processing larger shares of the total settlement throughput in a country. There is, howev-

er, a growing consensus that core retail payment systems are, if not systemically important, of so-called "system-wide" importance, as they facilitate commercial as well as person-to-person payment transactions, and as such have a significant impact in the overall economy. This calls for a substantial improvement of risk management methods and tools in such systems.

With regard to payment card systems and circuits, with few exceptions (Brazil, Croatia, Malaysia, Serbia, South Africa or Turkey), availability of ATMs and POS terminals is clearly higher in high income countries. However, ATMs and POS terminals are growing at a very fast pace in many lower-middle economies (four-digit growth in

¹⁸ Some countries historically have not used cheques extensively, or have not used them at all. These are typically countries in Eastern Europe, the three Baltic Republics, and the CIS region. Other countries have eliminated cheques, such as Austria, Luxembourg, and the Netherlands.

CHART 9: CASHLESS RETAIL PAYMENT TRANSACTIONS PER CAPITA
(simple average for each region, information for 2006)



some cases, over a four year period), particularly in the ECA region. Growth in upper-middle income economies is more stable, with growth rates of two or in some cases low three digits (equivalent to between 10 and 30% per annum). Growth rates are lowest in high income countries and also in low income ones. In most high income economies, POS terminals are growing at a faster rate than ATMs; the opposite is true for low-income countries.

In practically all high income countries there is one payment card or more per every inhabitant (credit card, debit card and other non-prepaid cards). While figures for upper and lower-middle countries are indeed lower, the relative differences between countries based on income levels are much smaller than those for ATMs and POS terminals. For example, the typical ratio of cards per inhabitant in high income countries compared to middle income countries is 2-3 to 1; this same ratio for POS terminals is 8-10 to 1.

One interesting result from this, evident also in the case of cheque systems and ACHs, is that the availability of

payment instruments is necessary but not sufficient for those payment instruments to be used extensively. Indeed, differences in volumes per capita handled through these systems are extremely large when comparing developed countries/regions to developing ones. While, for example, in the EU and ODC regions any single individual performs on average 150 or more non-cash payment transactions per year, this same indicator is around 15-20 for LAC, 5-10 for EAP and ECA, and less than 1 for the AFR region (after excluding South Africa).

According to PSDG experience, key constraints that inhibit the faster development of non-cash payments in developing economies include limited interoperability of the various sub-systems,¹⁹ limited competition and innovation in the banking industry which typically result in higher costs and limited coverage of these services, limited access to bank accounts by individuals, and lack of knowledge and trust in the benefits attaching to

¹⁹ Overall, slightly more than half of central banks participating in the survey indicate that both ATMs and POS terminals are fully interoperable, while approximately 25% indicate these are partially interoperable.

the use of payment cards and other electronic payment systems and instruments by the average person.

Another relevant point arising from the survey results is that many central banks lack basic information on retail payment systems. This includes even simple data relating to the number and value of transactions made using different retail payment instruments or data relating to the specifics of the infrastructure available to initiate and process retail payment instrument based transactions. This suggests that central banks are still paying insufficient attention to this area, and/or lack formal authority to intervene in an appropriate remedial manner.

IV.3 MEASURING DEVELOPMENT LEVELS IN RETAIL PAYMENT SYSTEMS

The scoring of retail payment systems is also based on two sub-components: i) the deployment of infrastructure to process retail payment instruments and key policy decisions that have an impact on the safety, soundness and efficiency of the services provided; and, ii) the extensiveness of the usage of cashless payment instruments typically used for retail transactions, and the share of transactions made with electronic versus paper-based payment instruments.

IV.3.1 Sub-component 1: Infrastructure and Policy

This sub-component captures first the availability of infrastructures to process retail payment instruments, giving a higher score to those that process paperless payment instruments. Then, it also captures the degree to which the payment system oversight function covers retail payment systems.

Macao SAR, Myanmar, and Qatar cannot be classified given that they did not provide information on two or more of the variables scored as part of this sub-component.

Another small group of countries lacked information only on the number of POS terminals deployed, which is one of the variables scored as part of this sub-component. These countries were classified in the tables below on the following basis:

- In principle each of these countries are classified under the category that corresponds to the total points obtained, without adding any points for POS terminals.
- Then, the best case scenario (i.e. maximum score) is assumed for POS terminals. Under this assumption, countries indicated with a “+” would migrate to the next (upper) category of development in the event the best case scenario were verified. Countries indicated with a “*” are those that even with the maximum score for POS terminals would remain in the same category as shown.

Countries falling in each of the four categories reflecting the level of development are shown above in alphabetical order.

IV.3.2 Sub-Component 2: Extensiveness and Inherent Efficiency of Retail Payment Instruments Used

The second sub-component measures: i) the extensiveness of the usage of non-cash payment instruments; and ii) the share of cheques in the total number of retail payment transactions (non-cash).

Limitations on data availability for the variables used for this sub-component do not allow classifying the following countries: Algeria, Argentina, Bahamas, Belize, Bhutan, Costa Rica, Fiji, Honduras, Jordan, Macao SAR, Mongolia, Namibia, Nepal, Netherlands Antilles,

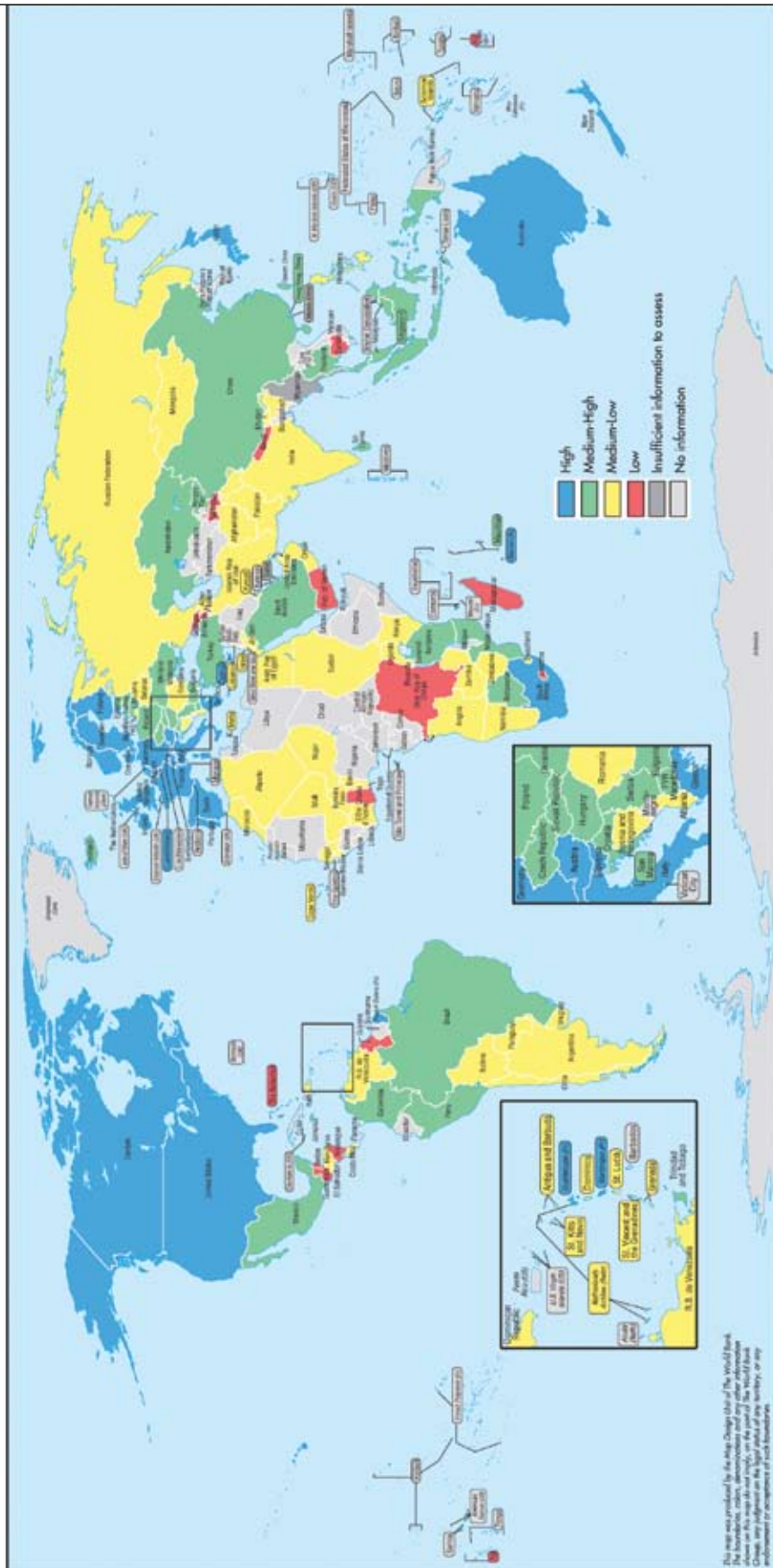
Retail Payment Systems Sub-Component 1: HIGH Level of Development			
Australia	France	Netherlands	Sweden
Austria	Germany	New Zealand	Switzerland
Belgium	Greece	Norway	United Kingdom
Canada	Ireland	Portugal	United States
Cyprus	Italy	Slovenia	
Denmark	Japan	South Africa	
Finland	Luxembourg	Spain	

Retail Payment Systems Sub-Component 1: MEDIUM HIGH Level of Development			
Botswana	Hungary	Malaysia	Singapore
Brazil	Iceland+	Mauritius	Slovak Republic
Bulgaria	Indonesia	Mexico	Sri Lanka
China	Jamaica	Mozambique	Taiwan
Colombia	Kazakhstan	Peru*	Tanzania
Croatia	Kyrgyz Republic	Poland	Thailand
Czech Republic	Latvia	San Marino	Trinidad and Tobago
Estonia	Lithuania	Saudi Arabia	Turkey
Hong Kong	Macedonia	Serbia	Ukraine

Retail Payment Systems Sub-Component 1: MEDIUM LOW Level of Development			
Afghanistan	Chile*	Kuwait	Romania
Albania	Costa Rica *	Lebanon	Russia
Algeria+	Dominican Republic	Malta	Rwanda
Angola	ECCU	Moldova	Solomon Islands
Argentina+	Egypt	Mongolia	Sudan
Azerbaijan	El Salvador	Morocco	Swaziland+
BCEAO	Honduras*	Namibia	Uganda
Belarus	India	Netherlands Antilles	United Arab Emirates*
Bhutan	Iran	Oman *	Uruguay
Bolivia	Israel	Pakistan	Venezuela
Bosnia - Herzegovina	Jordan	Paraguay	Zambia
Cape Verde	Kenya	Philippines	Zimbabwe

Retail Payment Systems Sub-Component 1: LOW Level of Development			
Armenia	Fiji	Lesotho	Yemen
Bahamas	Georgia	Madagascar	
Belize	Ghana	Nepal *	
Cambodia*	Guatemala	Nicaragua +	
D.R. of Congo	Guyana	Tajikistan	

RETAIL PAYMENT SYSTEMS
Subcomponent 1: Infrastructure and Policy



Retail Payment Systems Sub-Component 2: HIGH Level of Development			
Australia	Finland	Lithuania	Singapore
Austria	Germany	Luxembourg	Slovak Republic
Belgium	Hong Kong	Netherlands	Slovenia
Canada	Iceland	New Zealand	Spain
Croatia	Ireland	Norway	Sweden
Czech Republic	Japan	Poland	Switzerland
Denmark	Kuwait	Portugal	United Kingdom
Estonia	Latvia	Serbia	

Retail Payment Systems Sub-Component 2: MEDIUM HIGH Level of Development			
Belarus	France	Kazakhstan	South Africa
Brazil	Greece	Macedonia	Taiwan
Bulgaria	Hungary	Malaysia	Turkey
China	Israel	Romania	Ukraine
Cyprus	Italy	San Marino	United States

Retail Payment Systems Sub-Component 2: MEDIUM LOW Level of Development			
Albania	ECCU	Mauritius	Tajikistan
Armenia	Georgia	Mexico	Thailand
Azerbaijan	Indonesia	Moldova	Trinidad and Tobago
Bosnia - Herzegovina	Jamaica	Mozambique	Uruguay
Cape Verde	Kyrgyz Republic	Peru	Yemen
Chile	Lebanon	Russia	Zimbabwe
Colombia	Malta	Saudi Arabia	

Retail Payment Systems Sub-Component 2: LOW Level of Development			
Afghanistan	Egypt	Lesotho	Rwanda
Angola	El Salvador	Madagascar	Sri Lanka
BCEAO	Ghana	Morocco	Sudan
Bolivia	Guatemala	Myanmar	Tanzania
Botswana	Guyana	Nicaragua	Uganda
Cambodia	India	Pakistan	Zambia
D. R. of Congo	Iran	Paraguay	
Dominican Republic	Kenya	Philippines	

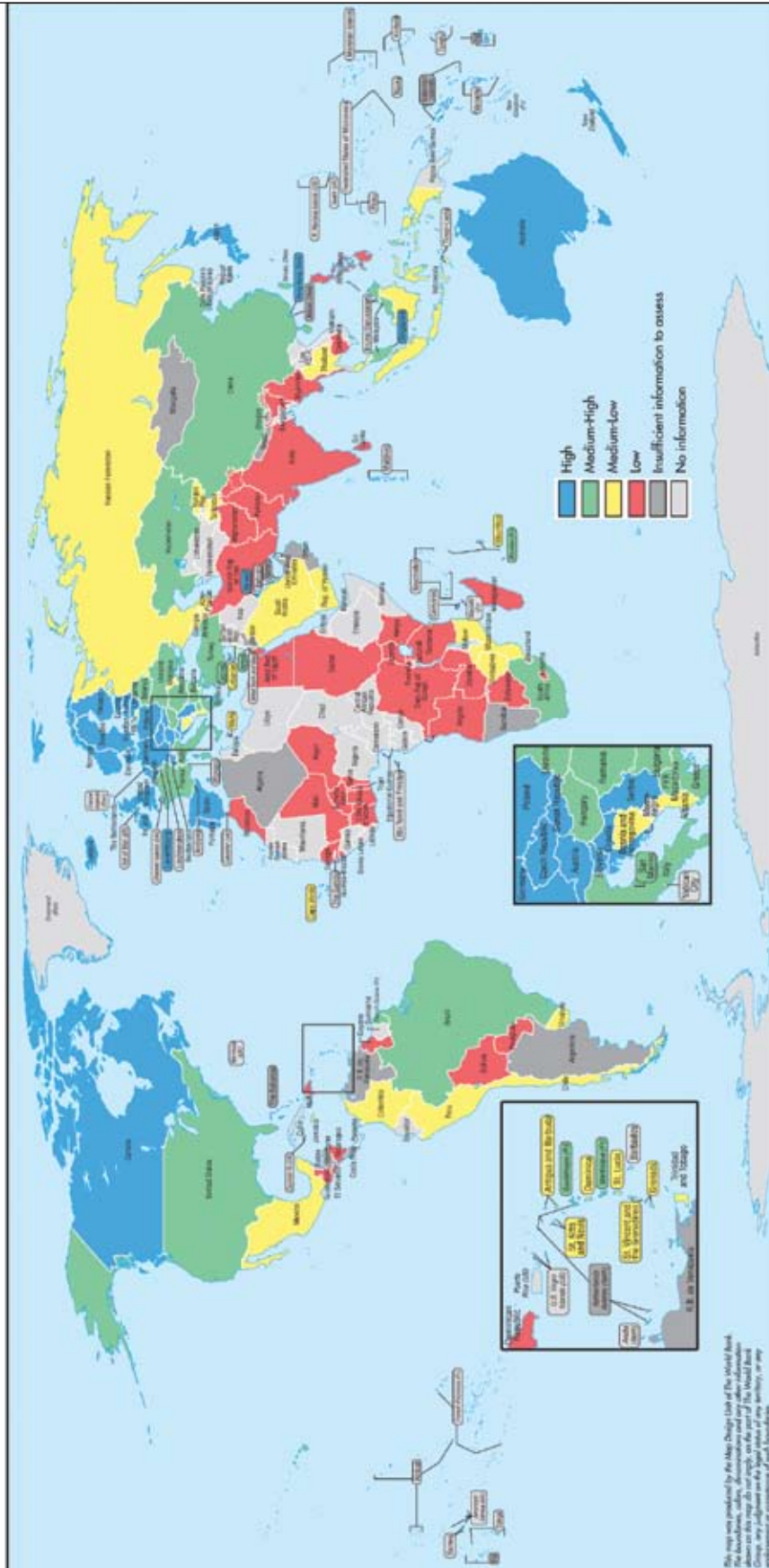
Oman, Qatar, Solomon Islands, Swaziland, United Arab Emirates and Venezuela.

For another small set of countries that did not provide all the data required,²⁰ but that according to available data from the Global Survey have a very small density of

payment cards (no more than 50 cards per 1,000 inhabitants although in all but two cases this same number is 5 or less), it was assumed, with reasonable certainty, that the number of transactions with payment cards *per inhabitant* was negligible compared to that of cheques.

²⁰ BCEAO, Cambodia, Egypt, Kenya, Lesotho, Madagascar, Myanmar, Nicaragua, Paraguay and Uganda.

RETAIL PAYMENT SYSTEMS
 Subcomponent 2: Extensiveness and Inherent Efficiency of Retail Payment Instruments Used



ries reflecting
 in alphabeti-

CHAPTER V

THE ENABLING ENVIRONMENT FOR THE PAYMENT SYSTEM OVERSIGHT FUNCTION



V.1 BACKGROUND

The oversight role of the central bank is currently at the heart of international debate, and this function is emerging as key in central bank activity to ensure proper monitoring of the reliability and efficiency of domestic payment systems on an on-going basis.

The deployment of an effective payment system oversight function calls for a careful consideration of at least three key issues. First, it is necessary to evaluate the adequacy of the legal powers of the central bank in this area. Second, the internal organization of the central bank with respect to payment system activities may also be worth evaluating. Third, effective cooperation must be in place between the overseer and market players, and among domestic regulators and increasingly among international overseers.

With regard to the scope of the oversight function, there is consensus at the international level on the fact that systems posing systemic risks should fall under the direct control of the overseer. Increasing attention is being given to securities clearance and settlement systems as well as to foreign exchange settlement systems as relevant components of the overall payments system. In some countries, retail (low value) systems also are included in the scope of the oversight function because of their importance in the overall efficiency of the pay-

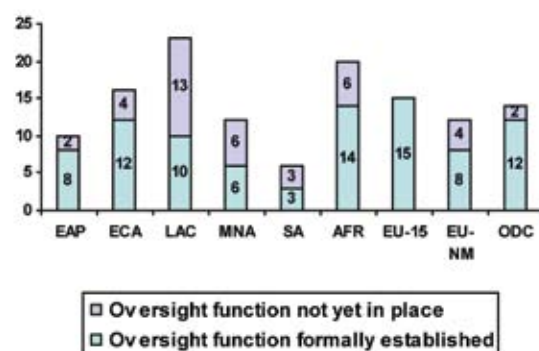
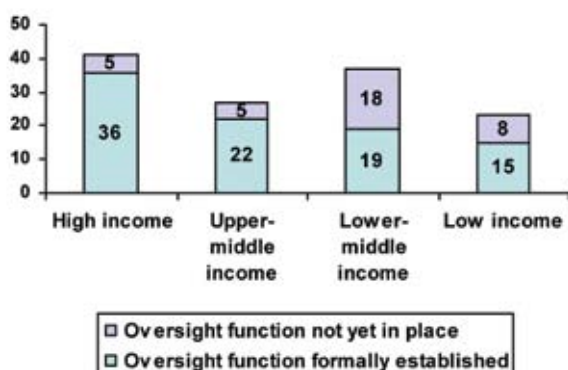
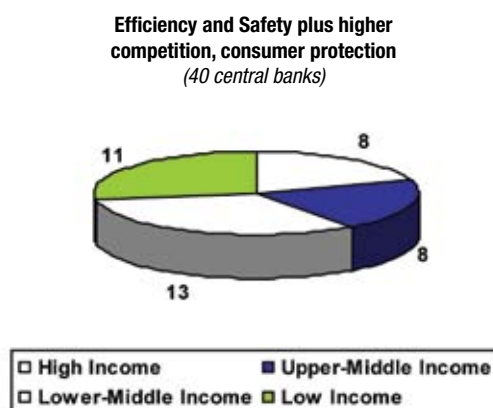
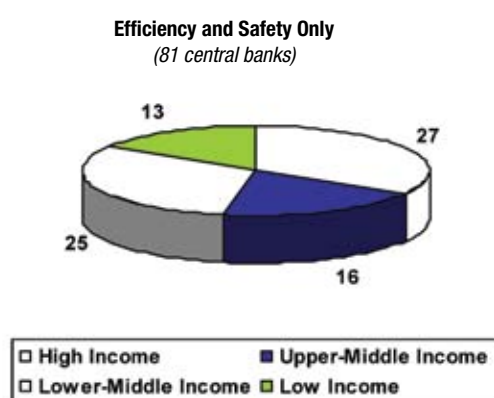
ments system, their potential impact on the public trust of money, and for their relevance to influence and sustain the ultimate objective of economic growth.

V.2 MAIN OUTCOMES OF THE GLOBAL PAYMENT SYSTEMS SURVEY 2008

Developing the payment system oversight function has been one of the key features of recent payment system reforms. The Global Survey shows that in 92 central banks (72%) this function has been established formally and is performed on an on-going basis. In a similar number of central banks there is already a specific unit responsible for the task.

As shown in Chart 9, progress in establishing the payment system oversight function has been faster in higher income countries.

With regard to the objectives of the payment system oversight function, approximately two-thirds of the central banks participating in the survey indicate their objective is centered on enhancing the safety and efficiency of the relevant payment system(s), while one-third indicate that, in addition to this, they pursue additional

CHART 10: ESTABLISHMENT OF THE PAYMENT SYSTEM OVERSIGHT FUNCTION

CHART 11: OBJECTIVES OF THE PAYMENT SYSTEMS OVERSIGHT FUNCTION


objectives such as ensuring there is adequate attention to consumer protection issues, the avoidance of collusive practices and the promotion of competition. Most of the latter are central banks of low income and lower-middle income countries.

The scope of oversight is generally determined by the type of system(s) that are formally covered by the payment system oversight function. Based on Global Survey results, slightly fewer than 60% of central banks

cover all relevant payment systems and not just those that are systemically important. Yet, more than half of lower-middle and low income countries have adopted a more limited approach, targeting central bank-operated systems only. To some extent, the latter may explain some of the shortfalls observed in these countries in areas such as retail payment systems.

With regard to payment system oversight instruments, survey results show that central banks generally prefer

CHART 12: PAYMENT SYSTEM OVERSIGHT FUNCTION PERFORMED OVER ALL PAYMENT SYSTEMS
(as % of the total number of countries in each region)

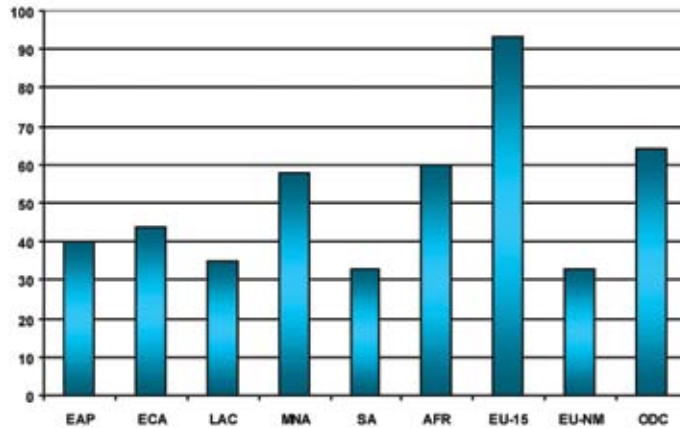


TABLE 2: INSTRUMENTS OF PAYMENT SYSTEM OVERSIGHT
(number of central banks that rated each option with the corresponding rating)

Ranking	Monitoring	Dialogue and moral suasion	Publication of statistics and other Reports	Regulations and Sanctions	On-site Inspections
1 (highest relevance)	83	55	48	43	26
2	12	31	35	27	21
3 (lowest relevance)	6	8	12	24	36

“soft” instruments. Tougher or more formal instruments such as the overseer issuing regulations and sanctions and/or on-site inspections are used by only one-third or less of central banks, mainly in lower income countries.

Cooperation remains an issue, as fewer than half (45%) of the countries surveyed state that the relevant authorities have established structured mechanisms to exchange information and coordinate actions among themselves.

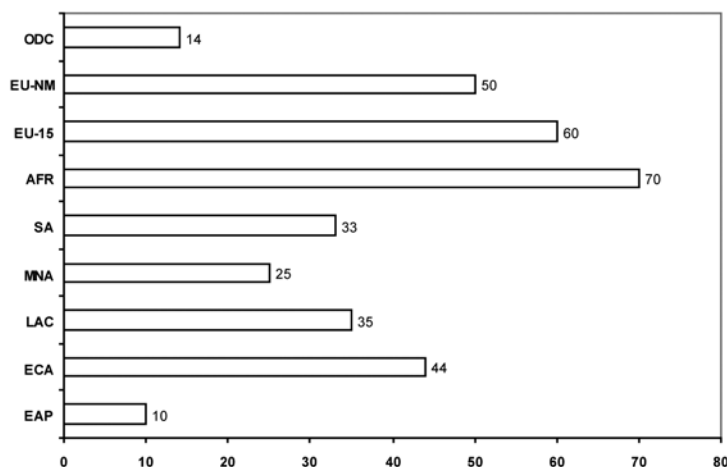
This is true in particular for the ECA, LAC and MNA regions. Nevertheless, 52 formal National Payments Councils (NPC) have been created in order to promote a structured cooperation among relevant stakeholders. The AFR region shows the highest percentage of NPCs in place.

V.3 MEASURING DEVELOPMENT LEVELS IN PAYMENT SYSTEM OVERSIGHT

This component is based on giving a score to four aspects: i) organizational arrangements for the oversight function; ii) clarity and formality in the objectives of payment system oversight; iii) cooperation with other authorities; iv) cooperation with other stakeholders.

This indicator thereby focuses on the enabling environment to perform the payment system oversight function; *no attempt is made to judge the quality of an oversight program that is said to exist in any given country.* Countries falling in each of the four categories reflecting the level of development are shown below in alphabetical order. Limitations inherent to the structure of the questionnaire and of the measurement methodology do not allow classifying Sudan or Uganda.

CHART 12: NATIONAL PAYMENT SYSTEMS COUNCILS
(% of central banks in each region with a formal NPC in place)



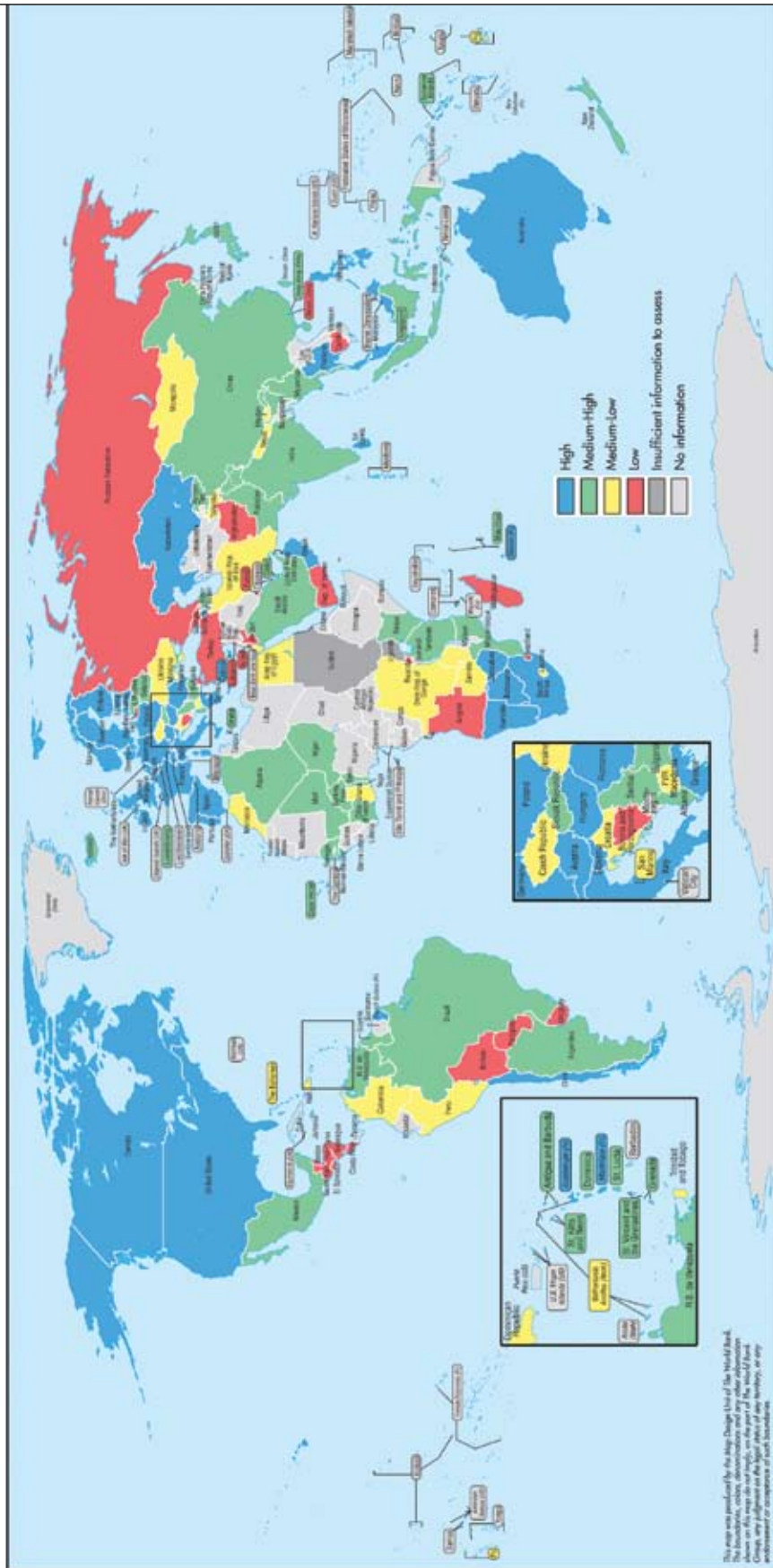
Payment System Oversight: HIGH Level of Development			
Armenia	Finland	Namibia	Spain
Australia	France	Netherlands	Sri Lanka
Austria	Germany	Norway	Sweden
Belgium	Greece	Oman	Switzerland
Botswana	Hungary	Philippines	Thailand
Canada	Ireland	Poland	United Kingdom
Chile	Italy	Portugal	United States
Cyprus	Kazakhstan	Romania	Zimbabwe
Denmark	Latvia	Slovenia	
Estonia	Malaysia	South Africa	

Payment System Oversight: MEDIUM-HIGH Level of Development			
Albania	ECCU	Lithuania	Qatar
Algeria	Guyana	Luxembourg	Saudi Arabia
Argentina	Hong Kong SAR	Malta	Serbia
Azerbaijan	Iceland	Mauritius	Singapore
BCEAO	India	Mexico	Slovak Republic
Belarus	Indonesia	Moldova	Solomon Islands
Brazil	Jamaica	Mozambique	Taiwan
Bulgaria	Japan	Myanmar	Tanzania
Cape Verde	Kenya	New Zealand	United Arab Emirates
China	Kyrgyz Republic	Pakistan	Venezuela

Payment System Oversight: MEDIUM-LOW Level of Development			
Bahamas	Dominican Republic	Macedonia	San Marino
Bhutan	Egypt	Mongolia	Tajikistan
Colombia	Fiji	Morocco	Trinidad and Tobago
Croatia	Ghana	Nepal	Ukraine
Czech Republic	Iran	Netherlands Antilles	Zambia
DR of Congo	Lesotho	Peru	

Payment System Oversight: LOW Level of Development			
Afghanistan	El Salvador	Lebanon	Swaziland
Angola	Georgia	Macao SAR	Turkey
Belize	Guatemala	Madagascar	Uruguay
Bolivia	Honduras	Nicaragua	Yemen
Bosnia - Herzegovina	Israel	Paraguay	
Cambodia	Jordan	Russia	
Costa Rica	Kuwait	Rwanda	

PAYMENT SYSTEM OVERSIGHT
 Enabling Environment to Perform the Payment System Oversight Function



ANNEX I: THE GLOBAL PAYMENT SYSTEMS SURVEY QUESTIONNAIRE²¹

I. LEGAL AND REGULATORY FRAMEWORK

- I.1 What pieces of legislation have direct/explicit references to payment systems in the country? These include, for example, laws defining the powers and obligations of the Central Bank, main public policies in the area of payment and settlement systems, rights and obligations of other payment services providers, etc. (mark with an X all that apply)**
- a. Central Bank Law _____
 - b. Banking Law _____
 - c. Payment Systems Law _____
 - d. Securities Markets Law _____
 - e. Civil Code and/or Commerce Code _____
 - f. Central Bank Regulations having the power of Law _____
 - g. Other _____
- I.2 Do legal provisions cover the following specific issues? (mark with an X all that apply)**
- a. Clarity of timing of final settlement especially when there is an insolvency _____
 - b. Legal recognition of (bilateral and multilateral) netting arrangements _____
 - c. Recognition of electronic processing of payments (for example, can electronic signatures/documents be used as evidence in the court of law) _____
 - d. Non-existence of any zero hour or similar rules _____
 - e. Enforceability of security interests provided under collateral arrangements and of any relevant repo agreements. _____
 - f. Protection from third-party claims of securities and other collateral pledged in a payment system _____
- I.3 Do the provisions in the previous questions (mark with an X all that apply):**
- a. Apply only to payment systems operated by the Central Bank _____
 - b. Apply to all systemically important payment systems _____
 - c. Apply to all payment systems in the country _____

²¹ Only sections I, II, III and VII which deal, respectively, with legal and regulatory framework, large-value payment systems, retail payment systems, and payment system oversight are reproduced here. The full questionnaire can be found in Annex I of the World Bank publication "Payment Systems Worldwide: A Snapshot. Outcomes of the Global Payment Systems Survey 2008".

I.4 Do legal provisions cover the following specific issues related to securities settlement?*(mark with an X all that apply)*

- a. Dematerialization of securities _____
- b. Securities ownership transfers through book entries _____
- c. Finality of settlement (securities and funds transfers) _____
- d. Protection of custody arrangements from third-party claims in the event of the bankruptcy of the custodian (e.g. securities deposit accounts in the CSDs) _____
- e. Securities lending arrangements _____

I.5 Central Bank empowerment to oversee payment systems in the country *(mark with an X all that apply)*

- a. The Central Bank has no formal powers to perform payment system oversight _____
- b. Oversight powers are to be found in the Central Bank Law _____
- c. Oversight powers are to be found in the Payment System Law _____
- d. Oversight powers are to be found in other laws _____
- e. Empowerment is general, in the context of “ensuring the adequate and safe functioning of payments in the country” _____
- f. Empowerment is explicit, granting it powers to operate, regulate, and oversee payment systems _____

I.6 If you wish to provide additional comments to your answer(s) for question I.5, please do so in the space below

I.7 Are non bank payment services providers required to obtain a specific license from the Central Bank or any other relevant authority to provide payment services *(please indicate YES or NO)*

- a. Non-banking financial institutions _____
- b. Clearinghouses _____
- c. Central Counterparties _____
- d. Central Securities Depositories _____
- e. Money Transfer Operators (e.g. Western Union, Money Gram) _____
- f. Payment card processing companies _____
- g. Other (please specify: _____) _____

II. LARGE VALUE PAYMENT SYSTEMS

II.1 What is the main system used in the country for *large-value funds transfers*? (mark with an X). If more than one system could be considered as systemically important,²² please also indicate an approximate share of *large-value payments* that are channeled through each system in terms of value.

- a. Real-Time Gross Settlement (RTGS) system _____
- b. Cheque Clearinghouse _____
- c. Other _____

THE FOLLOWING QUESTIONS REFER TO RTGS SYSTEMS.

If an RTGS system is NOT in place in the country, please proceed to Section III

II.2 Please indicate who is the operator of the RTGS (i.e. Central Bank or other), who acts as settlement agent, and the year in which the RTGS system began operations on a *full scale*. If there is more than one RTGS, please provide the information for each of them.

	Operator	Settlement Agent	Year
a. RTGS 1	_____	_____	_____
b. RTGS 2	_____	_____	_____
c. RTGS 3	_____	_____	_____

II.3 Please provide the following statistical data for 2006, and, if applicable for 2004 and 2002. If there is more than one RTGS, please make a separate table for each of them.

	2006	2004	2002
Total number of transactions/settled payments			
In local currency			
In foreign currency (if applicable)			
Total value settled			
In local currency			
In foreign currency (if applicable)			

²² Following the CPSS Core Principles Report, it is likely that a system is of systemic importance if at least once of the following is true: i) it is the only payment system in a country, or the principal system in terms of the aggregate value of payments; ii) it handles mainly payments of high individual value; iii) it is used for the settlement of financial market transactions or for the settlement of other relevant payment systems.

- II.4 Please indicate the primary means through which direct RTGS participants send their payment orders for processing** (*mark with an X*)
- a. SWIFT International Network _____
 - b. SWIFT closed users' group _____
 - c. Proprietary telecommunications network _____
 - d. Other electronic means (e-mail, etc.) _____
 - e. Other paper means _____
- II.5 Pricing and charges** (*mark with an X*)
- a. The RTGS operator makes no charges for the processing/settlement of payment orders _____
 - b. Charges are applied with no particular relation to cost recovery _____
 - c. The pricing policy aims at *partial recovery* of the *operational cost* of the system _____
 - d. The pricing policy aims at *full recovery* of the *operational cost* of the system _____
 - e. The pricing policy aims at full recovery of the operational cost of the system *plus* partial recovery of the investment costs _____
 - f. The pricing policy aims at recovering all costs (operational+investment) *in full* _____
 - g. The pricing policy aims at recovering all costs in full *plus* profits/opportunity cost _____
- II.6 In case of a positive answer to any of the items e), f), or g) in question II.5, please indicate how many years were considered for:**
- a. the recovery of investment costs _____
 - b. to start generating a profit _____
- II.7 What are the main sources of liquidity during the day?** (*mark with an X all that apply*)
- a. Opening balances and funds received from other participants during the day _____
 - b. Participants can use a part of their reserve requirements during the day _____
 - c. Participants can use all their reserve requirements balance during the day _____
 - d. Lines of credit between banks _____
 - e. The RTGS operator allows current account overdrafts _____
 - f. The RTGS operator grants credit, either in the form of a loan or a repo _____
 - g. Other _____

II.8 How does the RTGS operator manage the credit risk that may arise as a result of applying some of the mechanisms discussed in the previous question? (mark with an X)

- a. High quality collateral²³ is required in all cases _____
- b. Collateral is required in all cases, but collateral does not always have suitable quality _____
- c. Current account overdrafts/credit is limited, but no collateralization is required _____
- d. There are no limits or collateralization requirements for account overdrafts/ credit _____

II.9 How does the RTGS operator deal with intraday liquidity that is not repaid by the end of the system's operating day? (mark with an X):

- a. The RTGS operator seizes the collateral immediately thereafter _____
- b. The RTGS operator transforms the intraday credit into overnight at market rates _____
- c. The RTGS operator transforms the intraday credit into overnight at penalty rates _____
- d. Other (please specify _____) _____

II.10 If a participant does not have enough balance (and/or credit) in its current account with the RTGS operator to process new payments, what mechanism becomes applicable? (mark with an X all that apply)

- a. The payment order is rejected immediately _____
- b. The payment order goes into a queue for later processing (see question II.11) _____
- c. Other _____

II.11 Queuing arrangements and prioritization: (mark with an X all that apply)

If your RTGS system does not have a queuing mechanism, please proceed to question II.12.

- a. A centralized queuing mechanism is used _____
- b. A FIFO resolution algorithm is used _____
- c. Bilateral offsetting is used as resolution algorithm _____
- d. Multilateral offsetting is used as resolution algorithm _____
- e. Both bilateral and multilateral offsetting is used _____
- f. The offsetting mechanism is triggered automatically every certain period of time _____
- g. The offsetting mechanism is triggered automatically by non-time-related parameters _____
- h. The offsetting mechanism can be triggered manually by the RTGS operator _____
- i. Participants can set priorities to their payment orders _____
- j. Participants can change the priorities to their payment orders once these orders are in a queue waiting to be settled _____

²³ In this context, "suitable quality" should be interpreted as the collateral being fully acceptable and liquid, should a default occur, and that the value of such collateral is assessed on daily marks-to-market and haircuts.

- II.12 Is the pricing policy used to incentivate the smooth flow of payments through the system during the day e.g. with differentiated charges based on the time of the day in which payment orders are processed, to promote participants begin sending their orders early in the operational day?** *(indicate YES or NO)* _____
- II.13 Resilience and Business Continuity** *(mark with an X all that apply)*
- a. Routine procedures are in place for periodical data back-ups _____
 - b. Tapes and other storage media are kept in sites other than the main processing site _____
 - c. Back-up servers have been deployed at the main processing site _____
 - d. A fully equipped alternate processing site exists _____
 - e. The RTGS operator has documented a formal business continuity plan _____
 - f. Business continuity arrangements include procedures for crisis management and information dissemination _____
 - g. Business continuity arrangements are regularly tested _____
- II.14 If applicable, what is the targeted performance level for full system recovery** *(indicate in MINUTES. Otherwise, indicate "Not Applicable" or N.A.)* _____
- II.15 RTGS access rules and policies.** *(mark with an X all that apply)*
- a. There is an explicit access/exclusion policy for the RTGS system _____
 - b. Access to the RTGS is granted on the basis of institutional standing (i.e. whether the applicant is a bank, or some other specific type of financial institution) _____
 - c. Access to the RTGS is granted on the basis of the fulfillment of a set of objective criteria to ensure a safe and sound operation of the system (e.g. capital requirements, technological capacity, internal risk controls, appropriate management, etc) _____
 - d. Formal rules or arrangements are in place to allow the RTGS operator to exclude a system participant in a timely fashion _____
- II.16 RTGS participants** *(mark with an X all that apply)*
- a. Participants other than commercial banks have direct access to the RTGS _____
 - b. Participants other than commercial banks can only hold settlement-only accounts with no access to Central Bank credit _____
 - c. Some or all of the non-commercial bank participants in the RTGS have access to Central Bank credit _____
- II.17 Is there a specific RTGS Users' Group in place for the RTGS operator to better address participants' needs?** *(indicate YES or NO)* _____

III. RETAIL PAYMENT SYSTEMS

III.1 Please provide the following statistical data.

	2006	2004	2002
Total number of ATMs in the country			
Total number of POS terminals in the country			
Total number of debit cards			
Total number of credit cards			

For the following table, please include information on both intrabank and interbank transactions. If only interbank transaction information is available, please indicate so at the bottom of the table.

	2006	2004	2002
Total number of transactions			
Cheques			
Direct credits			
Direct debits			
Payments by debit card			
Payments by credit card			
Prepaid, e-money, stored-value cards			
Total value settled (please indicate currency)			
Cheques			
Direct credits			
Direct debits			
Payments by debit card			
Payments by credit card			
Prepaid, e-money, stored-value cards			

III.2 Cheque clearinghouse main features *(mark with an X all that apply)*

- a. Cheque clearinghouse is operated by the Central Bank _____
- b. Cheques are standardized _____
- c. Processing of cheques is automated, but physical exchange is required _____
- d. Processing of cheques is automated, and cheque truncation is used _____
- e. Net balances are calculated and settled once a day _____
- f. Net balances are calculated two or more times each day _____
- g. Multilateral net balances are calculated _____
- h. Final settlement of net positions takes place through an RTGS system _____
- i. Final settlement takes place in Central Bank money, but not through an RTGS _____
- j. Customer accounts are credited no later than T+2 _____

III.3 If a special procedure for large-value cheques has been implemented, please answer the following. Otherwise, proceed to question III.4 *(mark with an X all that apply)*

- a. As part of this procedure, large-value cheques can be settled with same-day value _____
- b. As part of this procedure, large-value cheques are processed on a gross-basis _____
- c. As part of this procedure, net balances are calculated and settled more than once a day _____
- d. There is a settlement guarantee fund for large-value cheques processed under the special procedure (on a net basis) _____

III.4 Cheque clearinghouse risk controls *(mark with an X all that apply)*

- a. No specific risk management mechanism is in place _____
- b. In the event a participant is unable to settle its debit position, an unwinding procedure would be initiated _____
- c. Participants have access to information on their preliminary position in the clearinghouse during the day _____
- d. There are limits in place to protect netting systems from significant exposures _____
- e. There is a specific guarantee fund in place for the system _____
- f. Risk management mechanisms in place ensure completion of the operating day in case of the inability to settle by the largest settlement obligations _____
- g. The central bank or the operator provides ultimately liquidity to the system _____

III.5 ACH for direct credits and/or direct debits main features (mark with an X all that apply):

Note: If there is more than one ACH in the country, please provide separate answers for each of them for questions III.5 and III.6

- a. An ACH for direct credits and/or direct debits is not available in the country (i.e. direct credits and direct debits are only available at the intrabank level) _____
- b. The ACH is operated by the Central Bank _____
- c. The ACH allows the processing of both direct credits and direct debits _____
- d. Non-bank institutions (e.g. National Treasury) can be *direct* participants in the ACH _____
- e. Net balances are calculated and settled *at least* once a day. Final settlement of net positions takes place through an RTGS system _____
- g. Final settlement takes place in Central Bank money, but not through an RTGS _____

III.6 ACH risk controls (mark with an X all that apply):

- a. No specific risk management mechanism is in place. In the event a participant is unable to settle its debit position, an unwinding procedure would be initiated _____
- b. Participants have access to information on their preliminary position in the clearinghouse during the day _____
- c. There are limits in place to protect netting systems from excessive exposures _____
- d. There is a specific guarantee fund in place for the system _____
- e. Risk management mechanisms in place ensure completion of the operating day in case of the inability to settle by the largest settlement obligations _____
- f. The central bank or the operator provides ultimately liquidity to the system _____

III.7 Payment card systems main features (mark with an X all that apply):

Note: If there is more than one card processing centre, please provide separate answers for items e) and f) of this question.

- a. Local brands dominate the marketplace for payment cards _____
- b. International brands (Visa, Mastercard, etc.) dominate the marketplace _____
- c. There is more than one payment card switch _____
- d. There is more than one payment card processing centre/clearinghouse _____
- e. Final settlement of net positions takes place through an RTGS system _____
- f. Final settlement takes place in Central Bank money, but not through an RTGS _____

III.8 Payment card systems: ATMs and POS (please rank from 1 to 3, being 1 the highest grade and 3 the lowest):

- a. Interoperability¹ of ATM systems in the country _____
- b. Interoperability² of POS terminals in the country _____
- c. Payment cards are actually used extensively as payment instruments (and not only for cash withdrawals at ATMs) _____

III.9 If you wish to provide comments or clarifications in relation to any of the items on question III.8, please do so in the space below.

III.10 Please provide your opinion on the accessibility of non-cash payment instruments and services for individuals through the following institutions

(please rank from 1 to 3, being 1 “adequate accessibility” and 3 “low accessibility”):

- a. Commercial banks (private and/or state-owned) _____
- b. Non-bank financial institutions (i.e. cooperatives, savings & loans, consumer credit) _____
- c. Postal system _____
- d. Other (please specify: _____) _____

III.11 If you wish to provide comments or clarifications in relation to any of the items on question III.10, please do so in the space below.

¹ In the context of this survey, “full interoperability of ATMs” means that all payment and cash withdrawal cards can be used seamlessly (though probably at a cost) in all ATMs in the country

² In the context of this survey, “full interoperability of POS terminals” means that all payment cards can be used seamlessly in any POS terminal in the country.

VII. PAYMENT SYSTEM OVERSIGHT AND COOPERATION

VII.1 General *(mark with an X all that apply)*

- a. The Central Bank's payment system oversight function has been established and this is performed regularly and in an on-going basis _____
- b. There is a specific unit or department within the Central Bank responsible for payment system oversight _____
- c. The payment system oversight function is segregated from payment system operational tasks either through organizational means or via independent reporting lines _____

VII.2 Objectives of Payment System Oversight *(mark with an X all that apply)*

- a. The Central Bank has set down its objectives in carrying out the payment system oversight function in a regulation or policy document _____
- b. Objectives only include the safety and efficiency of relevant payment systems _____
- c. Objectives also include the pursuit of a higher level of competitiveness among system participants, avoid collusive practices, consumer protection, and other specific issues _____

VII.3 Scope of Payment System Oversight *(mark with an X all that apply)*

- a. Payment system oversight is performed over central bank-operated systems only _____
- b. Payment system oversight is performed over all systemically important funds transfer systems _____
- c. Payment system oversight is performed over all systemically important payment systems, including securities settlement systems and settlement of FX transactions _____
- d. Payment system oversight is performed over all relevant payment systems in the country as long as such systems are operated by commercial banks _____
- e. Payment system oversight is performed over all relevant payment systems in the country regardless of who the operator of such systems is _____

VII.4 Instruments of Payment System Oversight.

Please rank the relevance of instruments from 1 to 3, 1 being "highly relevant" and 3 "less relevant".

- a. Monitoring _____
- b. Dialogue and moral suasion _____
- c. Production and publication of statistics and other payment system reports _____
- d. Issue of regulations and application of sanctions _____
- e. On-site inspections _____

VII.5 Cooperation with other relevant Authorities *(mark with an X all that apply)*

- a. There is no significant cooperation with other relevant authorities (e.g. bank supervisors, securities regulators) in the context of payment system oversight activities _____
- b. Cooperation with other relevant authorities occurs mostly in an informal/ad-hoc basis _____
- c. Cooperation with other relevant authorities is ensured through a formal mechanism, such as a Memorandum of Understanding (MOU) or is required by law _____
- d. Cooperation involves mostly regular meetings and exchange of opinions and views _____
- e. Besides regular meetings and exchange of opinions and views, cooperation also involves regular information exchanges, prior notice of regulatory action, joint inspections _____

VII.6 Cooperation with other stakeholders *(mark with an X all that apply)*

- a. A formal National Payments Council is in place _____
- b. Although not formalized, the Central Bank holds regular meetings with stakeholders senior levels to discuss strategic issues for the payment system _____
- c. The Central Bank consults stakeholders on particular operational issues. Sometimes this includes the creation of an ad-hoc task force or working group. _____
- d. The Central Bank consults stakeholders sporadically and/or mostly on a bilateral basis _____
- e. The Central Bank consults almost exclusively with the bankers' association _____

ANNEX II: CHRONOLOGICAL LIST OF COUNTRY RESPONSES TO THE GLOBAL PAYMENT SYSTEMS SURVEY

MAY 2007

Albania	Dominican Republic	Malaysia	Slovenia
Angola	El Salvador	Malta	South Africa
Armenia	Fiji	Mexico	Spain
Australia	Finland	Myanmar	Sri Lanka
Azerbaijan (update Feb. 2008)	France	New Zealand	Sudan
BCEAO (update Feb. 2008)	Georgia	Nicaragua	Sweden
Belize	Ghana	Norway	Switzerland
Bolivia	Guatemala	Paraguay	Taiwan
Brazil	Honduras	Peru	Trinidad and Tobago
Bulgaria	Hungary	Philippines	Turkey
Cape Verde	Italy	Poland	Uganda
Colombia	Jamaica	Portugal	Ukraine
Costa Rica	Kazakhstan	San Marino	Yemen
Croatia	Kuwait	Saudi Arabia	
Dem. Rep. of Congo	Lebanon	Singapore	

JUNE 2007

Cyprus	Jordan	Qatar	United Arab Emirates
Denmark	Lesotho	Romania	Venezuela
Estonia	Macao	Russia (update Feb 2008)	Zimbabwe
Hong Kong SAR	Macedonia	Serbia	
Israel (updated March 2008)	Pakistan	Slovak Republic	

JULY 2007

Argentina	Czech Republic	Iran (updated Feb 2008)	Solomon Islands
Bhutan	Guyana	Mauritius	Tajikistan

SEPTEMBER 2007

Egypt	Oman	Tanzania	Zambia
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OCTOBER 2007

Algeria Austria Belarus Bosnia & Herzegovina Cambodia	Chile Germany Greece Kenya Kyrgyz Republic	Latvia Lithuania Luxembourg Moldova Morocco	Mozambique Netherlands Thailand United Kingdom
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NOVEMBER 2007

The Bahamas ECCU	Iceland Ireland	Madagascar Netherlands Antilles	Swaziland
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DECEMBER 2007

Afghanistan Botswana	India Indonesia	Japan	Rwanda
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JANUARY 2008

Belgium		Nepal	
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FEBRUARY 2008

Mongolia	Namibia	United States	Uruguay
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MARCH 2008

Canada		China	
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