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PAYMENT SYSTEMS POLICY AND RESEARCH

DEVELOPING A COMPREHENSIVE NATIONAL RETAIL PAYMENTS STRATEGY

October 2012



THE WORLD BANK

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FOREWORD AND ACKNOWLEDGEMENTS

Retail payment systems play an important role in the smooth functioning of any economy and inefficiencies in the retail payments market can have cascading effects throughout the economy. The World Bank Global Payment Systems Survey 2010 has shown that inefficiencies persist in many middle-income and low-income countries, with cash still being the most widely used payment instrument for small-value payments. There are a number of issues that are responsible for this, and the lack of a coherent, holistic strategy for the development of retail payment systems is among the most common.

The lessons learned in over a decade of technical assistance, and research outputs of other international and national agencies have been merged into a comprehensive “package” for the development and reform of the national retail payments system:

1. “Developing a comprehensive national retail payments strategy” intends to provide public authorities and market players with detailed guidance on how to develop and implement a comprehensive, strategic retail payments reform.
2. “A practical guide for retail payments stocktaking” identifies a methodology for undertaking a detailed stocktaking of a country’s retail payments landscape.
3. “From remittances to m-payments: understanding ‘alternative’ means of payment within the common framework of retail payments system regulation” discusses the development of a normative framework to underpin an efficient retail payments industry, including the so-called innovative payment mechanisms.
4. “Innovations in retail payments worldwide: a snapshot. Outcomes of the global survey on innovations in retail payment instruments and methods 2010” presents the results of the first World Bank survey among central banks that collected information on innovative retail payment products and schemes.

This paper has been developed by the Financial Infrastructure Service Line (World’s Bank Financial Inclusion Global Practice) led by Massimo Cirasino. Lead author is Harish Natarajan (World Bank), under the overall guidance of Massimo Cirasino and Jose Antonio Garcia (World Bank). The core drafting team for this report included Hemant Bajjal (formerly World Bank) and Robert Keppler (World Bank). Alice Zanza, Maria Teresa Chimienti, Ceu Pereira, and Sean O’ Connor (all World Bank) also contributed immensely to the development of this report.

This paper has benefited from the comments of a number of World Bank Group colleagues, national central banks and other national and international institutions, as well as private sector entities.

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TABLE OF CONTENTS

List of Acronyms	VII
Executive Summary	IX
I. Introduction	1
I.1 Payment System Modernization Efforts and the Growing Interest in Retail Payment Systems, 1	
I.2 Previous Work on Retail Payments by the World Bank and Other International Organizations, 2	
I.3 Purpose of the Report, 4	
I.4 New Terminology and Definitions Used throughout the Report, 5	
II. Overview of Retail Payments	7
II.1 Retail Payment Instruments, 7	
II.2 The Evolution of Retail Payment Instruments and Services, 8	
II.3 Factors Influencing the Adoption of Specific Retail Payment Instruments, 13	
II.4 Clearing and Settlement Processes in Retail Payment Systems, 17	
II.5 Different Roles within Retail Payment Systems, 21	
II.6 Concluding Remarks on the Observed Trends in Retail Payments, 24	
III. Public Policy Objectives in Retail Payments	27
III.1 Overall Safety and Efficiency, 27	
III.2 Affordability and Ease of Access to Payment Instruments and Services, 28	
III.3 Availability of an Efficient Infrastructure to Process Payment Instruments, 31	
III.4 Availability of a Socially Optimal Mix of Payment Instruments, 31	
IV. Guidelines for Developing a Comprehensive Strategy for Reforming Retail Payments	33
IV.1 General Framework Underlying the Guidelines, 33	
GUIDELINE I: The market for retail payments should be transparent, have adequate protection of payers and payees' interests, and be cost-effective, 34	
GUIDELINE II: Retail payments require reliable underlying financial, communications and other types of infrastructure, 41	

GUIDELINE III: Retail payments should be supported by a sound, predictable, non-discriminatory, and proportionate legal and regulatory framework, 43

GUIDELINE IV: Competitive market conditions should be fostered in the retail payments industry, with an appropriate balance between cooperation and competition, 45

GUIDELINE V: Retail payments should be supported by appropriate governance and risk management practices, 56

GUIDELINE VI: Public authorities should exercise effective oversight over the retail payments market and consider direct interventions where appropriate, 60

V. Implementing Reforms for Retail Payments 65

V.1 Stocktaking, 65

V.2 Establish Appropriate Internal Organizational Arrangements, 66

V.3 Develop an Appropriate Coordination Framework with Key Stakeholders, 66

V.4 Developing a Common Vision of the Desired End-state, 67

V.5 Developing an Implementation Plan, 68

V.6 Monitoring and Evaluation, 69

ANNEX 1: Public Policy Goals, Central Bank Minimum Actions, and Range of Possible Additional Actions for Retail Payment Systems (from CPSS “Policy Issues for Central Banks in Retail Payments”), 71

ANNEX 2: Model for National Payments Council -Terms of Reference, 73

ANNEX 3: Financial Inclusion Initiatives in India, 75

ANNEX 4: Credit and Debit Card Reforms in Australia, 78

ANNEX 5: Key Elements of a Strategic National Payment Systems Development Plan (from CPSS “General Guidance for National Payment System Development, January 2006”), 82

ANNEX 6: SADC’s Guide to Developing a Strategic Framework for Payment System Modernization, 83

ANNEX 7: M-PESA in a Nut Shell, 85

ANNEX 8: Glossary, 86

ANNEX 9: References, 93

BOXES, FIGURES, AND TABLES

Box 1: The World Bank Global Payment Systems Survey 2010, 4

Box 2: The Role of Mandates in Direct Debit, 14

Box 3: Enhancements to the ACH to Support Authenticated e-Commerce Transactions, 16

Box 4: Main Results of the World Bank Survey on Innovations in Retail Payments, 26

Box 5: CPSS Public Policy Goals for Maintaining and Promoting Efficiency and Safety in Retail Payments, 28

Box 6: The General Principles for International Remittance Services and Related Roles, 35

Box 7: The World Bank Remittance Prices Worldwide Database, 40

Box 8: Durbin Amendment – The Dodd-Frank Wall Street Reform and Consumer Protection Act, 51

Box 9: The Wellink Report, 52

Box 10: Guidelines from the World Bank Report “Balancing Co-operation and Competition in Retail Payment Systems”, 55

Box 11: The Payment Cards Industry Security Standards Council, 57

Box 12: Guidelines from the report: “A Practical Guide for Retail Payments Stocktaking”, 61

Figure 1: Non-Cash Retail Payment Transactions Per Capita, 2

Figure 2: Generalized Clearing and Settlement Model, 18

Figure 3: Clearing and Settlement for Mobile Money Schemes, 21

Figure 4: Types of Disputes, 38

Figure 5: Dispute Resolution, 39

Figure 6: Protection of Customer Funds in Innovative Payment Products, 59

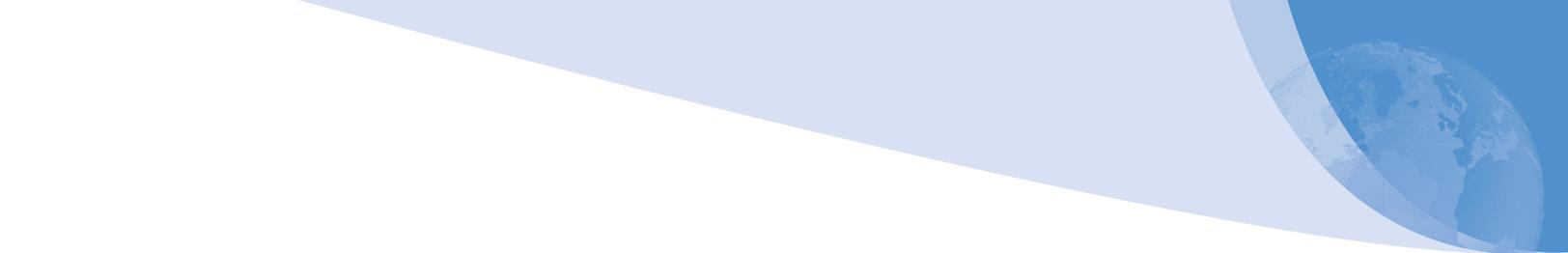
Table 1: Mapping of Payment Instruments to Payment Needs, 15

Table 2: Select Banking Infrastructure and Access Metrics, 29

Table 3: Payment Instruments used for Government Payments, 30

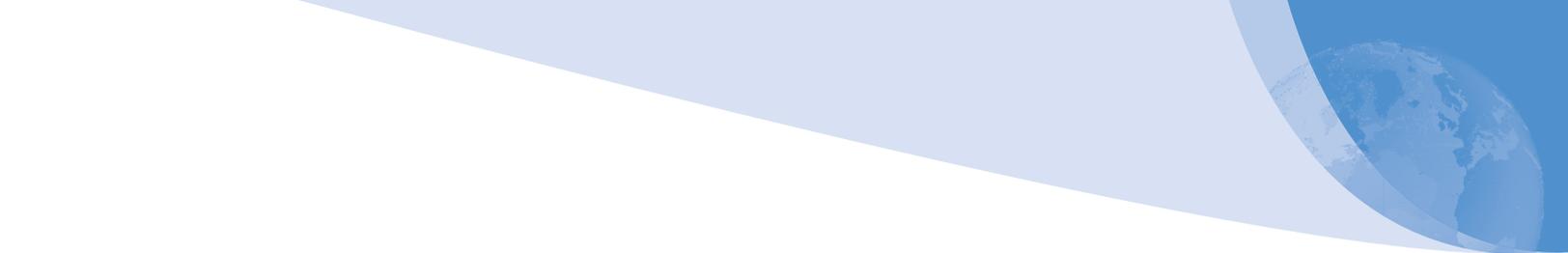
Table 4: Key Areas for Standards in Retail Payment Systems, 67

Table 5: Basic Metrics to Assess Progress in Retail Payments Development, 70



LIST OF ACRONYMS

ACH	Automated clearinghouse	MICR	Magnetic ink character recognition
AML/CFT	Anti-Money Laundering / Combating the Financing of Terrorism	MNO	Mobile network operator
APR	Annual percentage rate	MSF	Merchant service fee
ATM	Automated teller machines	MTO	Money transfer operator
BIS	Bank for International Settlements	NABARD	National Bank for Agriculture and Rural Development
CEMLA	Centre for Latin American Monetary Studies	NFC	Near field communication
CGAP	Consultative Group to Assist the Poor	NPC	National payments council
CPSS	Committee on Payment and Settlement Systems	NPS	National payments system
ECC	Electronic cheque conversion	NSP	No surcharge policy
EFT	Electronic funds transfer	NSR	No surcharge rule
EFTPOS	Electronic funds transfer at point of sale	PCI DSS	Payment application industry data security standards
FATF	Financial Action Task Force	PIN	Personal identification number
FDIC	Federal Deposit Insurance Corporation	POS	Point of sale
FIF	Financial Inclusion Fund	PSDG	Payment Systems Development Group of the World Bank
FITF	Financial Inclusion Technology Fund	RBA	Reserve Bank of Australia
FPD	Financial and Private Sector Development of the World Bank	RBI	Reserve Bank of India
GDP	Gross domestic product	RFID	Radio frequency identification
GPs	CPSS-World Bank General Principles for International Remittance Services	RPSP	Retail payments service provider
HAC	Honor All Cards	RTGS	Real-time gross settlement
IAT	International ACH transactions	SADC	Southern Africa Development Community
IC	Integrated circuit	SEACEN	South East Asia Central Banks
IVR	Interactive voice response	SEPA	Single Euro Payments Area
KYC	Know-your-customer	SHG	Self-help group
MFI	Microfinance institution	SME	Small and medium enterprise
		SMS	Short messaging service



EXECUTIVE SUMMARY

Reforms in the area of retail payments are becoming increasingly important. Given the nature of retail payment systems and the structure of the retail payments industry, there are multiple challenges and roadblocks that impede those much needed reforms. Navigating through these challenges requires a comprehensive and strategic approach. In this document, the Payment Systems Development Group (PSDG) of the World Bank presents a framework for countries to use in developing a comprehensive retail payments strategy. This framework has been developed by synthesizing the past studies of the World Bank, the CPSS, and other international and national bodies, and also the worldwide experience of the World Bank's PSDG in supporting payment systems reforms in over 100 countries.

This document is organized into five sections. The first section discusses the importance of retail payments and the ongoing efforts by public authorities and international organizations in this area. This section also provides working definitions for a few new terms, for some existing terms that need a re-look given the ongoing developments in the retail payments area, and for other terms commonly used in the industry but not yet formally defined by the international standard-setting bodies.

The second section scans the evolution of retail payment systems over the last five to six decades, the types of retail payment instruments, the challenges in increasing the adoption of electronic payment instruments, and finally the various processes and entities that together constitute the national retail payments system. The analysis of the evolution of retail payments over the last five to six decades shows the following trends: (i) the successful adoption of advances in technology have played a key role in the development of new channels for payment initiation, improved authentication, and efficient processing; (ii) new and emerging payment needs at Internet auction sites and social networking sites, among others, and for transit payments, as well as the need to find efficient mechanisms for advancing financial inclusion objectives have led to the creation of new payment mechanisms; and, (iii) the payment infrastructure created for one payment product has been successfully leveraged for other payment products—one example is the use of the ACH for online banking-enabled payments.

The third section analyzes the public policy objectives in the area of retail payments. It builds a case for expanding and elaborating on the range of public policy goals with respect to retail payments from the general overarching goals of ensuring safety and efficiency of the National Payments System. The additional public policy goals advocated are:

- Promote affordability and ease of access to payment services;
- Promote development of efficient infrastructure to support development of payment instruments and mechanisms to meet retail payment needs; and,
- Promote socially optimal usage of payment instruments.

The fourth section, and the heart of this report, builds a case for adapting the CPSS-World Bank General Principles for International Remittance Services to build a framework for a comprehensive retail payments strategy. The following guidelines are proposed:

- Guideline I: The market for retail payments should be transparent, have adequate protection of payers and payees interests, and be cost-effective.
- Guideline II: Retail payments require reliable underlying financial, communications, and other types of infrastructure; these infrastructures should be put in place to increase the efficiency of retail payments. These infrastructures include an inter-bank electronic funds transfer system, an inter-bank card payment platform, credit reporting platforms, data sharing platforms, large value inter-bank gross settlement systems, availability of robust communications infrastructure, and also a national identification infrastructure.
- Guideline III: Retail payments should be supported by a sound, predictable, non-discriminatory, and proportionate legal and regulatory framework.
- Guideline IV: Competitive market conditions should be fostered in the retail payments indus-

try, with an appropriate balance between co-operation and competition to foster, among other things, the proper level of interoperability in the retail payment infrastructure.

- Guideline V: Retail payments should be supported by appropriate governance and risk management practices.
- Guideline VI: Public authorities should exercise effective oversight over the retail payments market and consider proactive interventions where appropriate.

Under each of these guidelines, the key issues pertaining to them, including, where appropriate, some instrument-specific issues, are discussed. In addition, indicative lists of actions that can be envisaged are also discussed for each of the guidelines.

The fifth and final section of the report discusses the implementation aspects of a retail payments strategy. This builds on PSDG expertise in implementing national payments system strategy. This section identifies six key steps: (i) stocktaking; (ii) establishing appropriate internal organizational arrangements; (iii) developing a coordination framework; (iv) developing a vision; (v) developing an implementation plan; and finally, (vi) ongoing monitoring and evaluation.¹

This document is not intended to provide an all-encompassing and universal guide to develop a retail payments strategy. It is rather intended to provide a framework that can be used to think through the retail payments landscape in a particular jurisdiction and to offer guidance on what the building blocks for a successful retail payments strategy could be.

¹The topic of stocktaking is also discussed in detail in an accompanying publication – “A Practical Guide to Retail Payments Stocktaking.”



SECTION I INTRODUCTION

I.1 PAYMENT SYSTEM MODERNIZATION EFFORTS AND THE GROWING INTEREST IN RETAIL PAYMENT SYSTEMS

Over the last three decades, payment system modernization has become a prominent feature in financial sector reform programs in many countries. In many cases, central banks have played a leading role in these modernization efforts, which have been mainly driven by increased financial activity as evidenced by growing volumes and values of payment transactions, greater appreciation of risks inherent in the use of payment systems, technological developments, globalization, and the general realization of the important beneficial role that stems from active central bank involvement in payment systems development and oversight. Central banks tend to become involved because of their universal objectives to achieve financial stability through policies and measures to ensure the safety and soundness of the financial system, and to maintain trust in the currency.

World Bank research has shown that while a large number of countries have already implemented or are in the process of implementing successful payment system modernization reforms focusing on improve-

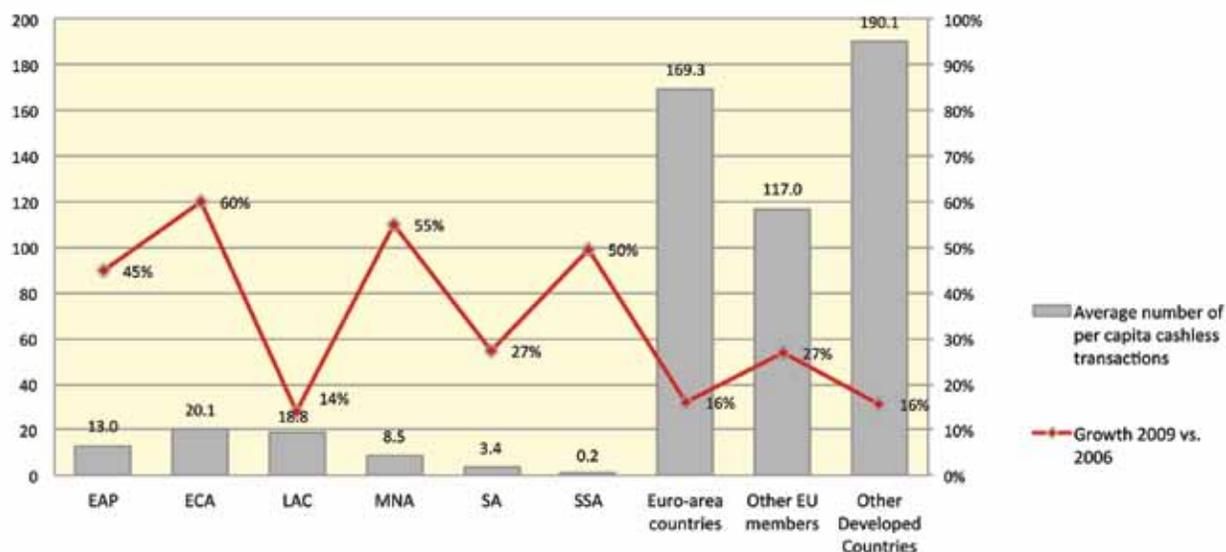
ments to large-value payments systems, the area of retail payments has remained relatively underdeveloped in many countries.² This is well illustrated in Figure 1.

However, this situation is changing. Indeed, in the last few years, a renewed interest in retail payments and retail payment systems has emerged, recognizing that such systems are very important in that they facilitate the conduct of commerce and improve the efficiency of both day-to-day transactions among consumers and businesses and the distribution and collection of payments made by and to government agencies.

Among other relevant elements, it has been widely acknowledged that moving from cash and paper-based instruments to electronic payment instruments is beneficial for the economy as a whole. Recent academic findings based on empirical data reveal that shifting from paper-based payments to electronic ones could entail yearly savings to a country's economy of about one percent of its GDP. This estimate is primarily attributed to savings in back-office operations, reduc-

² Large-value payment systems typically process a relatively small number of high-value and time-critical payments. These systems are essential to the proper functioning of the financial system; a failure could trigger disruptions or transmit shocks, both at local and at cross-border level. These payments are also referred to as systemically important payments and include: interbank money market operations, the cash leg of securities trades, and the cash leg of foreign exchange trades. Some customer transactions may also be processed in large-value payment systems.

FIGURE 1: NON-CASH RETAIL PAYMENT TRANSACTIONS PER CAPITA
(Simple average for each region, 2009)



tions in leakages of government benefit transfers and collections, and significant improvements in overall payment process efficiency.³ It should be noted that cash might still be the most efficient and cost-effective for a society to pay in certain situations (e.g.) for low-value payments due to faster processing than other payment methods.⁴ The ongoing developments like NFC cards and mobile money could however change that.

From another perspective, retail payments are usually the point of entry to broader financial services. It is therefore paramount that the integrity of the design and operation of retail payment systems should

cause the user to have complete trust in the institutions that provide the relevant services and on the payment mechanisms themselves. Empirical evidence has also shown that providing broad-based geographical access to financial services to all consumers—including those currently unbanked—can be an important means of addressing poverty issues.

When taken together, all of these factors demonstrate the great importance of an effective retail payment system to a country's financial outlook and future.

1.2 PREVIOUS WORK ON RETAIL PAYMENTS BY THE WORLD BANK AND OTHER INTERNATIONAL ORGANIZATIONS

In an effort to improve the understanding of retail payments, some international organizations such as the Committee on Payment and Settlement Systems (CPSS) of the Bank for International Settlements

³ For example, a recent study by McKinsey et al. estimated that the Indian Government could save 1.6 percent of the country's gross domestic product for 2009 by moving all government payments to electronic payment mechanisms. In the same vein, a study done by the South East Asian Central Banks (SEACEN) research and training centre in 2008 estimated that the cost of cash handling in select Southeast Asian countries ranged from 0.29 percent to 2.23 percent of GDP. For additional information on these cases see McKinsey et al., 2010, and Choon Seng 2008.

⁴ Study by the Reserve Bank of Australia, 2007 - Payment Costs in Australia

(BIS), the World Bank, and others have produced several key studies and publications in this field. In addition to providing invaluable input and guidance to modernization efforts, some of these publications now constitute best practice or standards for the design and implementation of payment systems.

In terms of creating a better understanding of retail payments across G-10 countries, the first step was taken by the CPSS in the mid-1990s, resulting in the 1999 publication of a comparative study for these countries.⁵ This was followed by two more publications in 2000 and 2003, with the latter drawing attention to policy issues for central banks with regard to retail payments.⁶

Since then, the debate on retail payments has intensified, with focus not only on payment instruments and consumer protection issues like user fees, but also on market trends, customer needs, and other relevant public policy issues. In 2006, the CPSS published the report “General Guidance for National Payment Systems Development”.⁷ This report identified 13 Guidelines that countries could use to plan the development of their national payments system. Guideline 11 specifically refers to retail payments, as follows: “Expand availability of retail payment services”.

In 2007, the CPSS and the World Bank jointly issued the “General Principles for International Remittance Services”.⁸ While international or cross-border remittances are the primary target of the General Principles, the report itself envisages applicability of the same to the broader retail payment systems market.

Apart from the aforementioned effort, the World Bank, through its Payment Systems Development Group (PSDG), which is part of the Financial Infrastructure

business service line in the Financial Inclusion practice of the Finance and Private Sector Development (FPD), has also been intensifying its commitment to promote and disseminate both policy and research on retail payments topics, with a special focus on the development of an effective national retail payments system.

In 2007, the PSDG published a new study, jointly with CEMLA, entitled “Retail Payment Systems to Support Financial Access: Infrastructure and Policy”.⁹ This study focused on identifying a set of common issues in retail payment systems in Latin America and the Caribbean, and on this basis, as well as other World Bank experience, proposed an agenda for retail payments system reforms in developing countries.

Moreover, in 2008 the PSDG published the study “Balancing Cooperation and Competition in Retail Payment Systems: Lessons from Latin America Case Studies” which defined a conceptual framework to identify the issues pertaining to the development of retail payments infrastructure, and proposed policy guidelines for use by the authorities and other stakeholders in implementing practical reforms to their retail payments mechanisms.¹⁰

In 2007 the PSDG also launched the first Global Payment Systems Survey, covering retail payment systems as well as several other elements of the national payments systems. In further work based on this survey, countries were ranked according to the level of development achieved in retail payments as well as in other areas.¹¹ A new version of the Global Payment Systems Survey was launched in 2010 (see Box 1).

Currently, the PSDG has developed a set of documents collectively referred to as the “retail package,” which

⁵ CPSS 1999.

⁶ CPSS 2003.

⁷ CPSS 2006.

⁸ CPSS and The World Bank 2007.

⁹ Cirasino, et al., 2007

¹⁰ Guadamillas (study coordinator) 2008.

¹¹ Cirasino and Garcia 2008.

BOX 1: THE WORLD BANK GLOBAL PAYMENT SYSTEMS SURVEY 2010

The World Bank's PSDG launched its second Global Payment Systems Survey in July 2010. In all, 132 central banks have responded, representing 139 countries. As in the first iteration, the survey provided a snapshot of the payment and securities settlement systems worldwide and is also helping in identifying the developments in this field in the last few years.

The survey covered the following areas: legal and regulatory framework, large-value payment systems, retail payment instruments and systems, cross-border payments and international remittances, securities settlement systems, and payment system oversight and cooperation. In addition, in recognition of the relevant innovation taking place in the retail payments arena and the interest on this matter expressed by local authorities as well as by international bodies such as the G-8 and the G-20, a dedicated questionnaire to capture developments in this space such as new products or innovations in processing was also included as an annex. This additional questionnaire built on the CPSS Survey on Electronic Money and Internet and Mobile Payments from 2004.

The outcomes of the Global Payment Systems Survey 2010 are available at www.worldbank.org/paymentsystems. A separate publication on the specific outcomes of the questionnaire on innovations in retail payments will be released in 2012 as part of the set of documents being prepared by the PSD

consists of this document and the following additional documents: “A Practical Guide for Retail Payments Stocktaking” developed jointly with the Central Bank of Brazil and the European Central Bank; “Legal and Regulatory Framework for Retail Payments – issues to consider and practical approaches,” which discusses the development of legal and regulatory framework that enables development of an efficient retail payments market; and “Innovations in Retail Payments Worldwide: A Snapshot. Outcomes of the Global Survey on Innovations in Retail Payments Instruments and Methods 2010,” which was prepared in the context of the World Bank Global Survey 2010, and discusses the results of a specific survey on innovations taking place in the retail payments arena.¹²

Also worth mentioning is the fact that the CPSS has recently re-convened a retail payments working group

¹² Apart from these studies and research work, since the early 1990's the PSDG has assisted more than 100 countries in the design, development and implementation of comprehensive payment system reforms. For more information, visit the PSDG's website at: www.worldbank.org/paymentsystems.

to actively examine the scope for improvements in retail payments systems. The working group studied the recent innovations in retail payments and a report was published in May 2012. The PSDG is a member of this working group.

1.3 PURPOSE OF THE REPORT

The Global Payment Systems Survey 2008 showed that the disparities between high- and low-income countries in the area of large-value payment systems have been narrowing, mainly as a result of many middle- and low-income countries embarking on reforms in this specific area. Based on survey data, a country ranking exercise by Cirasino and Garcia, showed that many middle-income and low-income countries were in fact assessed at a high level or medium-high level of development for the large-value payment systems component.¹³

¹³ Cirasino and Garcia 2008.

On the retail payments front, huge disparities were, however, noted between the high- and low-income countries and between developed and developing regions. In the aforementioned country ranking study there were no middle-income and low-income countries ranked at a high level of development on the retail payments indicators, and the number of these countries rated at a medium-high level of development was also lower than for the large-value payment systems component.

These disparities can be attributed to a variety of factors such as: the slow development of infrastructure and access channels for electronic payments in most developing countries; limited development of the internal payments system in corporate, banks, and financial service providers; limited competition among banks and between the banks and other service providers; and absence of specific strategies for addressing these issues. Also revealed by the survey is the fact that a significant number of central banks do not actively track the developments and market conditions for retail payments.

A specific thrust of the guidelines stemming from the 2008 study on cooperation and competition in retail payments was a discussion on the measures that could be taken to achieve the right balance between competition and cooperation, especially the benefits that can accrue through cooperative investments in basic infrastructure and as to how each institution might use the common infrastructure while still retaining its competitive advantage. It also explored two key public policy objectives that arise when designing retail payments systems, namely access to and affordability of payment services, and extent to which the trade-off between cooperation and competition can have an impact on the quality and accessibility of retail payments infrastructures.

Driven by these findings and others obtained through field work, and also drawing on work that has already been done in the retail payments arena in many developed countries, the PSDG has compiled this document with a view to: (a) analyzing the key obstacles and constraints faced by countries when promoting and adopting a modern retail payments system strategy; and (b) providing a basic framework for addressing these constraints to promote faster adoption of a comprehensive retail payments system improvement strategy. In addition to the analysis of the traditional retail payment instruments, this document also takes into account the importance and effectiveness of innovative payment instruments that have emerged in some markets to fill gaps in the existing payments landscape.

I.4 NEW TERMINOLOGY AND DEFINITIONS USED THROUGHOUT THE REPORT

The CPSS and other bodies have defined various retail payments-related terms. To a large extent, this document embraces these definitions. However, given the recent advances in the field, some new terms that have gained prominence in general discussions on retail payments by non-payment systems practitioners need to be formally defined. This section offers definitions for such terms. A few other terms are discussed in the appropriate place in the document and are included in the glossary (see Annex 8). It needs to be noted that these definitions are offered here for consideration by the payment systems community and broader stakeholders, and where there is no real consensus on a definition; the definition offered in this document should be seen as for the limited purpose of this document only.

A retail payment is often defined indirectly as anything that is not a large-value payment. Large value payments are defined as payments typically of a relatively

high-value and between banks and/or participants in a financial market.¹⁴ Based on this definition, retail payments are also commonly referred to as low-value payments. However, retail payments can also be for relatively large amounts. In a more general way, for the purposes of this document a retail payment is defined here as a payment that meets at least one of the following characteristics:

- The payment is not directly related to a financial market transaction;
- The settlement is not time-critical;¹⁵
- The payer, the payee or both are individuals or non-financial organizations; and
- Either the payer, the payee or both are not direct participants in the payments system that is processing the payment.

This definition of retail payment includes person-to-person, person-to-business, business-to-person, business-to-business, person/business-to-government, and government-to-person/business payments.

A retail payments system is defined here as a system comprising the technical infrastructure; participants; instruments; arrangements for clearing and settlement; business relationship arrangements (such as bank-customer relationships, rules, procedures, the applicable legal framework, and governance arrangements) that, put together, provide the overall environment within which retail payments are posted, authorized, processed, cleared, and settled.

¹⁴ CPSS 2003(b).

¹⁵ It needs to be noted that “not time-critical” should not be interpreted to mean not real-time. There are many retail payment transactions that are processed on a near real-time basis, such as a person-to-person funds transfer. However in such cases the settlement agent is the same as the issuer or the settlement is completed at a later time (typically on a deferred net settlement basis) for (example as in the case of a card payment transaction).

A National Retail Payments System is defined here as a collection of individual retail payments systems that support the practical and efficient use of a range of payment instruments and payment services.

A retail payment instrument is defined here as an instrument that facilitates the transfer of funds, for example a check, debit card, or credit transfer. A related term is *electronic payment instrument*, which is defined here as a payment instrument that uses electronic means for initiation, authorization and authentication of a payment transaction. Even though a transaction might be initiated electronically, the subsequent processes of clearing and settlement might involve a combination of manual and electronic procedures. The common payment instruments in use today are defined and discussed later in this document.

SECTION II

OVERVIEW OF RETAIL PAYMENTS



II.1 RETAIL PAYMENT INSTRUMENTS

Retail payment instruments that are available in most countries today may be classified into four broad categories:

Paper-based instruments: These include cash, cheques, money orders, travelers' cheques etc. Cash is typically used in face-to-face transactions of low value between two counterparties. Other paper-based instruments normally require the involvement of one or more financial institutions to effect the transfer of value from the payer to the payee. Non-cash paper-based instruments are used for both face-to-face as well as remote payments, usually of value higher than that of cash payments.

Electronic Funds Transfer (EFT)-based products: These include direct credit and direct debit transfers, and are typically used for remote payments. Credit transfers are defined as a payment order, or possibly a sequence of payment orders, made for the purpose of placing funds at the disposal of the beneficiary. Both the payment instructions and the funds described therein move from the bank of the payer/originator to the bank of the beneficiary. Some common credit transfer-type transactions include payroll, pensions, and dividend payments. In processing terms, a debit transfer can be viewed as the reverse of a credit trans-

fer since the payee originates the payment order for the purpose of collecting payment from the payer. Debit transfers are typically used for person-to-business or person-to-government payments, for example for the payment of utility bills and installment payments, and often need to be set up in advance by the payer by way of providing explicit permission to the payee to collect funds through a debit transfer payment order (often referred to as a "mandate"). The evolution of information technology has made it possible that credit transfers can now be initiated through a range of channels—Internet, telephone, interactive voice response (IVR), automated teller machines (ATMs), and increasingly through mobile phones—in many countries. The processing of EFT products is generally conducted using an interbank network under well-codified rules and procedures. These networks are usually domestic although there are networks that have an international coverage.

Payment card-based instruments: These include credit, debit, prepaid and other smart-card based applications, and typically involve usage of a physical card by a payer to discharge the payment obligation to the payee. The physical card has the associated account information encoded in a magnetic stripe or in an embedded Integrated Circuit (IC) chip. The information on the magnetic stripe or IC chip when read by an appropriate device of the payee triggers a funds trans-

fer from the payer's account in favor of the payee.¹⁶ Payment cards can be used for in-person purchases, as well as for remote payments. Increasingly, card-based payments are accepted in all standard banking channels like ATMs, automated voice response mechanisms like IVR, Internet, through mobile phones, and kiosks. Card-based transactions typically involve the payee being guaranteed payment provided all the acceptance procedures specified by the payment network have been adhered to.¹⁷ This guarantee is generally provided by the payment card network.

Innovative payment products:¹⁸ This category includes payment products that are emerging in both developed and developing countries. In general terms, these products involve the payer maintaining a pre-funded account with an institution, not necessarily a banking or financial institution, and drawing down this pre-funded account to make payments to participating payees as well as person-to-person transfers through a network of business correspondents, at participating merchants, or through conventional retail payments infrastructure such as ATMs or point-of-sale (POS) terminals.¹⁹ The payment instruction to draw down the pre-paid funds could be initiated through the Internet, mobile phone or via specific payment cards issued for this purpose. E-money products are one type of innovative payment product. E-money is a record of funds or value available to a consumer, stored on a payment device such as chip, prepaid card,

mobile phone, or on a computer system. At the time of transaction, the stored value is read/accessed through an appropriate infrastructure and the value transferred accordingly.

The next sub-section discusses the evolution of these payment instruments in the last few decades.

II.2 THE EVOLUTION OF RETAIL PAYMENT INSTRUMENTS AND SERVICES

Historically, cash has been the dominant retail payment instrument, especially for face-to-face payment transactions. In the late 19th century, some western countries started introducing paper cheques as a substitute for the use of cash for some retail and person-to-person payments. A cheque is defined as a written order from one party (the drawer) to another (the drawee, normally a bank) requiring the drawee to pay a specified sum on demand to the drawer or to a third party specified by the drawer. Cheques may be used for settling payment obligations or for withdrawing money from banks.

Cheques became an effective way to pay instead of using cash, particularly in cases where the transactions were not conducted face-to-face. However, in the early days of cheques, the clearing and settlement process was highly inefficient as the banks would typically discount the value of deposited cheques based on the cost of presenting it to the paying bank for payment and some assessment of the latter's creditworthiness. Geographic attributes further complicated cheque processing. For example, the farther away the banks of the payer and that of the payee, the latter would be less familiar with the paying bank's financial condition, and the greater the transportation cost associated with clearing the instrument—therefore the greater the discount applied by the banks. Correspondent banking

¹⁶ It needs to be noted that payment cards also often have some elements of the account information also printed/embossed on the card face to enable using this information for initiating remote payments through the Internet or other channels.

¹⁷ The procedures could delineate, for example, that online authorization should have been obtained, a copy of the charge-slip bearing basic details of the transaction retained, and the transaction submitted for settlement within a particular number of days.

¹⁸ For the purpose of this document, innovative payment instruments include all instruments other than cheques, electronic funds transfers and traditional payment cards.

¹⁹ These products can be pre-funded by users themselves or by another entity on behalf of the user (e.g. government, corporation, or person).

arrangements helped to address these issues to some extent. During the first half of the 20th century, driven by the need to integrate regional payment systems, improvements were made when countries began to establish national cheque clearing systems where cheques could be exchanged at par value. Over time, as the volumes grew, central banks as well as correspondent banks started offering cheque clearing services, driving down the cost and improving efficiencies in the clearing and settlement process.

By the 1960's, some large commercial banks had already adopted the new technologies that were available for cheque processing, which increased the efficiency of their clearing operations. These banks found the paper cheque payments business to be profitable, and the consumers had become very comfortable and confident in their use of cheques. In many countries, the cheque became the dominant form of non-cash payment, and there was little incentive for change in the payments system. However, there were concerns at the policy level that the increasing volume of cheques would eventually outpace the technology and equipment used for cheque clearing.

As an outcome of several initiatives undertaken to determine alternative approaches to process small value, recurring payments, the electronic Automated Clearinghouse (ACH) was born in the 1970's. An ACH is defined as an electronic clearing system in which payment orders are exchanged among financial institutions, primarily via magnetic media or telecommunications networks, and handled by a data processing center.

Over the years, ACHs have focused their development to support two distinct retail payment products: credit transfers and debit transfers, collectively defined earlier as EFT-based products.

Debit transfers are often processed in bulk by the payee collating the various payment orders and submitting them to their financial institution for collection through the ACH. In contrast, the payer often initiates credit transfers individually, and the payer's institution then often batches various credit transfers initiated by its clients and processes them subsequently in bulk. As noted earlier, credit transfers and debit transfers are also commonly referred to as Electronic Funds Transfer (EFT) products, as they typically involve processing in an automated manner by an ACH. It needs to be noted, however that, credit transfers and debit transfers are also processed in many countries in a non-automated manner, in some cases involving bilateral arrangements between the financial institutions in the country.

The adoption levels of ACH as an alternative form of payment was initially mixed. The adoption was slow in countries where only banks and not individuals could initiate ACH payments. Over the years, ACH products have become increasingly practical, with ever growing possibilities and options for individuals to initiate these payments easily and conveniently.²⁰ In some countries (Germany, the Netherlands, Japan, and Belgium, among others) EFT-based direct credit transfers and debit transfers became an important electronic payment instrument to replace cash for consumer-to-consumer payments and also for consumer to business payments many years ago.

Starting in the late 1990s, countries where paper cheques were the dominant form of non-cash payments, electronic cheque conversion (ECC) applications were developed that further expanded the use of

²⁰ The Global Payment System Survey 2010 showed that a total of 92 countries were served by at least one ACH. This is a small increase in relative terms to the 2007 survey which showed 83 countries being served by an ACH. The existence of ACHs is more frequent across the European Union, other developed countries and in Latin America and the Caribbean. They are also more frequent in larger countries.

the ACH for retail payments. These applications capture information from the cheque's magnetic ink character recognition (MICR) line to create ACH transactions at merchant point of sale, at lock box locations, Internet, and over the telephone.

More recently, a new international format for ACH—International ACH Transactions (IAT)—was developed to facilitate cross-border ACH transactions. Other recent developments include same-day ACH services and the use of devices such as ATMs and smart mobile phones to capture cheque images and initiate ACH payments.²¹

In the last few years, the ACH and RTGS systems in some countries have also been used to support near real-time transfers for low-value transfers and in particular person-to-person transfers. This has been enabled by advances in processing capacity and the increasing need for cost effective means for near real-time transfers even for low-value payments. The examples of this include the services in Mexico, India and the UK.

Whereas ACHs have had some success to convert certain types of person-to-person and business-to-business payments from paper to electronic, payment cards have proved to be most instrumental in converting paper-based payments to electronic at the point of sale.

Credit cards were introduced in the 1950s, and their use grew rapidly over the next three decades. The infrastructure of credit cards was developed and managed mainly by card associations Visa and MasterCard. Companies such as American Express, Diners Club, Discover, and some other national and regional brands also introduced payment cards in the form of charge

cards during this period.²² During the late 1980s and 1990s, with increased sophistication in technologies relating to information processing and telecommunications, which among other features allowed online transaction authorization by the issuer, credit cards became a widely accepted form of payment in many countries. As volumes grew, the processing of credit card payments also became more complicated. To address this need, third-party payment service providers started to emerge to provide specialized services related to both the issuing and the acquiring sides of the business. To address these complexities, the international card associations developed rules and standardized procedures for handling transaction flows. They also created international processing systems to handle the exchange of money and established dispute resolution procedures, including arbitration mechanisms to handle disputes between consumers and merchants.

In the 1980s, another form of payment card, the debit card, started to evolve as an important form of electronic payment instrument. Today, in some countries where credit card adoption has been slow due to limited infrastructure for credit information and other reasons like cultural preferences, debit cards have become the most popular electronic instrument for making retail payments. The growth in debit cards has been dramatic over the last 25-30 years. At first, debit cards emerged as an enabler for moving customers from bank teller counters to the then newly deployed ATM systems. Over time, instead of using the card to withdraw cash from an ATM to pay merchants, bank customers could simply present the card to the merchants and have their bank account debited directly. Given this tremendous potential, debit card products evolved globally and began using the infrastructure that was already in place for processing credit card transactions at the point of sale. There are a few variants of debit

²¹ USAA Bank in the U.S. launched the first iPhone application that allows users to capture the photo image of a cheque and send it to the bank for processing. This development has moved part of the process of cheque processing right down to the beneficiary of the cheque.

²² Charge cards, unlike credit cards, need to be settled in full at designated intervals, typically once every month.

cards like “delayed” debit cards, where the payment instruction resulting from the usage of the debit card for payment results in placing a hold on the funds in the underlying account, as against, resulting directly in a debit. There were also variants based on whether the authorization was taken online or offline. The offline authorization cards mostly relied on information recorded on the chip.

The market for prepaid cards, also commonly called stored-value cards, has also emerged as one of the fastest growing segments in the retail payments industry.²³ In the 1990s, when prepaid cards were first issued, they were mostly issued by non-financial businesses and used in limited deployment environments such as mass transportation systems. In recent years, prepaid cards have grown significantly as financial institutions and non-bank organizations target unbanked and migrant remittances segments. Some prepaid cards already use the existing infrastructure for traditional credit and debit cards.²⁴ Technological innovations in the way information is stored (e.g., magnetic stripe or computer chip), the physical form of the payment mechanism, and biometric account access and authentication are converging to create efficiencies, reduce transaction times at the POS, and lower transaction costs.

Since the late 1990s, financial institutions and retailers have also been developing electronic payment instruments for use mainly in the Internet. Using specialized account-to-account services, individuals can transfer E-money value to other individuals or businesses.

²³ While the terms prepaid cards and stored-value cards are frequently used interchangeably, differences exist between the two products. Prepaid cards are generally issued to persons who deposit funds into an account of the card issuer. During the pre-funding of the account, most issuers establish an account and obtain identifying data from the purchaser (e.g., name, phone number, etc.). Stored-value cards do not typically involve a deposit of funds into an account as the prepaid value is stored directly on the cards.

²⁴ These are typically “branded” prepaid card, i.e., supported by an international payment network such as Visa or MasterCard. Branded prepaid cards have similar functionality to debit cards, the only relevant difference being that prepaid cards are not linked to a current bank account, as is the case with debit cards.

Consumers can use the payment instruments for purchases at retailer websites or they can transfer cash to other individuals in some cases identifying the recipient by email-identification. Pre-funded accounts that consumers can use for online auction payments are among the most recent applications. In these applications, individuals use a credit card or signature-based debit card number to pre-fund the web certificate or electronic account, and recipients redeem the value from the issuer at the time of the transaction. PayPal is the iconic product in this space.

The increasing popularity of social networking websites is also translating into increased e-commerce activity amongst the members of the social network and also with external entities who create content such as games for sale on such sites. This closed user group kind of environment is creating a demand for efficient micro-payment solutions. Facebook, one such social network, has created a closed-loop payment product “Facebook credit” which is pre-funded account akin to PayPal with the restriction currently that it is used only for purchases in the Facebook environment. Payments and other fees accounted for \$557 million in revenue for Facebook in 2011, up from \$106 million in 2010, showing the dramatic growth in payment volumes on such platforms.²⁵

Mobile telephony started spreading around the world in late 1990’s. The inherent data communication capability of mobile phones caught the attention of banks and they started launching basic inquiry services like account balance inquiry, and slowly starting expanding the range of functions to also include transaction services like funds transfer. This set of services collectively started being referred to as mobile banking. The world-wide subsequent rapid spread of mobile telephony in the 2000’s and the early experiences with mobile banking, combined with the experiences with

²⁵ *The Economist* 2012.

e-money products, motivated various entities to experiment with e-money products designed with transaction initiation through mobile phones as a key design aspect. This is referred to as *mobile money* in this document. As per a recent industry report,²⁶ the first issuer of mobile money in the world was Smart Telecom in the Philippines in 2004 and the 100th mobile money product was launched in May 2011, with 88 percent of them being in developing countries.

In the quest to expand access to payment services in a cost-effective manner, banks and other institutions evolved a business arrangement of using local entities like small shops to provide basic payment and banking services on their behalf. Brazil was one of the early adopters of this model and various countries have begun adopting this in the last few years. This arrangement has been referred to as *business correspondent* or *agent* in this document. The technological developments in payment devices and mobile phones have been leveraged to equip the business correspondent with tools to service customers efficiently and effectively, and to a large extent have been able to expand the access to banking/payment services dramatically. A recent report²⁷ by CGAP reported on seven schemes world-wide which had an agent network of more than 10,000 each—three from Brazil, two from India and one each from Philippines and Kenya.

Developments in retail payments have typically been evolutionary, with gradual developments enhancing the scope, efficiency, and scale of existing payment instruments and systems. Many of the developments can be seen as primarily providing an additional channel to access and use the same set of payment instruments. For example, remote data capture of cheques builds on the existing cheque imaging system, by changing the channel from presenting the cheque at a bank branch

to one of scanning and uploading the cheque through an ATM, Internet banking, or mobile banking channel. The development however has a very significant improvement in convenience to the customer but also poses a range of security and other risks to the payment system. Similarly, mobile payments can be seen as essentially an additional access channel to a traditional or non-traditional account. However the developments involving usage of innovative payments mechanisms like mobile payments *combined* with the recent developments in the use of business correspondents and non-banking entities becoming issuers of payment instruments represent more than just increasing convenience. Such services are very quickly becoming a popular substitute in environments where the infrastructure for card-based or EFT-based payments is not adequately developed, and have the potential to dramatically expand the penetration of the electronic payment instruments by both an increase in more accessible service points and the introduction of new lower-cost business models.

To summarize: an analysis of the evolution of retail payments over the last five to six decades shows the following trends:

- Successful adoption of advances in technology have played a key role in development of new channels for payment initiation, improved authentication and efficient processing;
- Development of new payment needs like at transit payments, Internet auction sites, and social networking sites recently, and a need for expanding financial inclusion also have led to creation of new payment mechanisms; and,
- Payments infrastructure created for one payment product have been successfully leveraged for other payment products – like using ACH for

²⁶ GSMA 2011.

²⁷ McKay and Pickens 2011.

online banking enabled payments and successful leveraging of infrastructure created for credit cards by debit cards.

The trends in innovations in retail payments are discussed in the accompanying document: “Innovations in Retail Payments Worldwide: A Snapshot. Outcomes of the Global Survey on Innovations in Retail Payments Instruments and Methods 2010,” and also in the recently published CPSS report “Innovations in Retail Payments”.²⁸ These documents provide a detailed perspective on what constitutes innovation in retail payments.

II.3 FACTORS INFLUENCING THE ADOPTION OF SPECIFIC RETAIL PAYMENT INSTRUMENTS

The adoption of any given retail payment instrument by consumers, businesses and governments is influenced by how well-suited that instrument is in addressing the specific payment need of the payer and the payee, as well as how each of these perceive the instrument in terms of risk, liquidity, cost, acceptance, and convenience.

For a *payer*, the choice of payment instruments is typically influenced by the following factors:

Cost: Usage of payment instruments entails both explicit as well as implicit costs. Explicit costs include the direct charges paid by the payer for using the instrument, such as per-transaction fees. Implicit costs incurred include, for example, the waiting time for processing the payment request or the cost of time

spent commuting to a designated place to obtain cash to make payments or to be able to use the non-cash payment instrument.

Safety and reliability: A payer needs to have a high level of trust that a payment instrument will work as expected and discharge the payer’s payment obligation to the payee as required. This includes aspects related to system uptime, fraud misuse, correcting processing errors, and so forth.

Convenience: The payment instrument needs to be convenient to use. This includes aspects like what the payer needs to remember or what the payer needs to physically carry or use when making the payment, how much time the transaction takes to complete when using that payment instrument, and other related considerations.

Acceptance: A payer would want the payment instrument to be widely accepted for his payment needs. For example, a payment cardholder might not find his card useful if the card is not accepted at locations like grocery shops and restaurants, or for utility payments and other uses that constitute a significant share of the cardholders routine payment needs.

Payment confirmation and reconciliation: A payer would want a confirmation that his payment has been initiated and will be processed as per a defined timeline. This is to serve as a reconciliation record and also as proof that payment has been made. This would help the payer in managing and monitoring his payment account.

For a *payee*, the factors influencing his choice of payment instruments are similar to those mentioned above, but have some important differences:

Cost: The payee incurs in various explicit and implicit costs when accepting a payment instrument. Cash,

²⁸ CPSS, 2012, “Innovations in Retail Payments”, Report of the Working Group on Innovations in Retail Payments, available at www.bis.org.

for example, has associated handling and safekeeping costs. One major implicit cost is the time taken for receipt of funds into their accounts. The longer the delay, the higher the cost in terms of unearned interest and/or higher liquidity management costs, among others.

Acceptance: In general, the payee would want to accept those payment instruments that a significant proportion of the payers like to use (i.e., “payer’s choice”). Some payment instruments will require the payee to have some type of deposit account with a bank or an-

other payment service provider. In addition, for some instruments the payee will need to deploy certain infrastructure, like POS terminals and the associated telecommunications means.

Safety and reliability: The payer needs to trust that the payment instrument he has accepted will be processed as expected and the payment due to him will be honored. This includes aspects like assured processing timelines, system uptime, non-repudiation of payment, and settlement finality.

BOX 2: THE ROLE OF MANDATES IN DIRECT DEBIT

How characteristics of a payment instrument impact its choice – the case of direct debit.

Direct debits, usually require the payer to pre-authorize debit from his account, only after which can the payee initiated a direct debit request. This pre-authorization is commonly referred to as a “mandate.”

The issuance, processing, and presentment of this mandate vary across systems.

In some cases, the payer provides the mandate to the payee, and the payee, based on this, authorizes his financial institution to process a direct debit to the payers account. In many other cases, the payer and payee have to register the mandate with their respective financial institutions and the mandate is verified during every subsequent direct debit instructions issued by the payee. The requirement of mandates for direct debits makes them difficult to use for unplanned remote payments, such as for e-commerce. This limitation is also strongly influenced by the rules related to dispute resolution related to repudiation of a transaction by the payer. The proof to be produced by the payee in such situations strongly influences whether the payee will accept a direct debit payment. In addition, the lack of guarantee that the direct debit would be processed successfully, due to reasons such as lack of sufficient balance, erroneous account number, or other related reasons also could make direct debits unsuitable for e-commerce. This has been addressed successfully in some systems²⁹ by moving the process of providing a mandate online and at the time of the transaction. In these systems, the payer, while transacting at the Payee’s website, chooses to provide the mandate for the payment online at his bank’s Internet banking website by authenticating himself using his Internet banking password. The successful recording of the mandate is also conveyed electronically to the payee including an authorization for the underlying amount. The payee then subsequently initiates a direct debit instruction.

²⁹ There are many examples of this worldwide, notably in Germany, the Netherlands, Malaysia, and recently in the U.S. See Box 3.

TABLE 1: MAPPING OF PAYMENT INSTRUMENTS TO PAYMENT NEEDS

Instrument	Payee	Payer
Cash	Instant liquidity Handling costs and risk of loss Safekeeping costs Difficult to maintain audit trails	Wide acceptance Handling costs and risk of loss Difficult to maintain audit trails Anonymity
Cheque	Funds not guaranteed* Clearing time required Costly to handle Highly susceptible to fraud	Might have limited acceptance Inconvenient Susceptible to fraud Suitable for person-to-person and person/business/Government to business/person/Government
Payment cards	Funds guaranteed if based on online authorization, which enables the sale to be completed immediately Reconciliation is easy Explicit acceptance costs exist ³⁰ Fraud and security risks can exist if adequate controls are not in place Dispute resolution process is well defined	Wide acceptance Convenient to use Could lead to over-spending if use is not well controlled (credit cards) Certain usage patterns could lead to high fees ³¹ Suitable for both face-to-face and online payments, as well as for one-time and recurring payments, both payee-initiated and payer-initiated Value added features might be included by issuers as part of product packaging (e.g. travel insurance) Easy to track usage Fraud and security concerns; but these are actively managed by the payment networks and issuers
Debit transfers	Clearing timelines Suitable for recurring payments Low processing costs Easy to reconcile (if banking partner provides details) Can control initiation In the case of authenticated and pre-approved debit transfers, suitable for online payments Fraud and security risks can exist if adequate controls are not in place.	Account maintenance costs May have limited acceptance Suitable for recurring fixed-amount payments Often require pre-registration of the payee, making it unwieldy for unplanned and online purchases**
Credit Transfers	Suitable for recurring payments Low processing costs Easy to reconcile (if banking partner provides payer details) Prolongs order processing Cannot control initiation	Account maintenance costs Can control initiation Suitable for varying amount recurring payments and for person-to-person payments Audit trails and reconciliation is easy Low processing costs Several channels available like Internet, ATM and mobile to initiate transaction Fraud and security risks can exist if adequate controls are not in place.
Innovative payment products	Funds guaranteed; enables completion of the sale right away Reconciliation is easy Processing costs could be low Fraud and security risks can exist if adequate controls are not in place Typically accepted by payee for low value transactions	Limited acceptance Convenient to use Easy to track usage Fraud and security concerns Risk of losing pre-funded amount if operator goes bankrupt*** Risks related to weaknesses in new technologies Suitable for person-to-person payments

Notes: * This often limits the usage for payments between trusted parties. ** This is however addressed in the systems referred to in Box 3. *** While this risk exists for other payment products as well, it is heightened in the case of innovative products, mainly because of their novelty and insufficient maturity and also because many of the issuers are non-banking institutions. This risk can however be effectively managed by instituting mechanisms like having escrow accounts.

³⁰ It needs to be noted that all payment instruments have acceptance costs; in the case of payment cards there are certain explicit costs for the merchants. This should be not be interpreted to mean that acceptance costs are high or low; a detailed contextual analysis taking into account all explicit and implicit costs needs to be done for this.

³¹ Certain payment card issuers or acquirers could impose specific fees for certain transactions like for (e.g.) online bill payments, transactions at other bank ATMs and inactivity fees.

BOX 3: ENHANCEMENTS TO THE ACH TO SUPPORT AUTHENTICATED E-COMMERCE TRANSACTIONS

In the recent past, in many countries the clearing and settlement features of the ACH have been leveraged to support online e-commerce transactions as well. ACH by design are deferred settlement systems with no means for online authentication and authorization of the payer. This has generally resulted in ACH being limited to certain types of transactions like bulk payments, person-to-person transfers, and recurring payments.

The increasing popularity of Internet banking and mobile banking, has, however, been leveraged in some countries to add on an authentication and online authorization capability to traditional ACHs. A typical transaction sequence in such an arrangement is described below.

1. The payer is ready to checkout his purchases of goods/services at the payee's website and clicks on the available payment options.
2. One of the options could be the new payment option—ACH enabled payment.
3. The payer chooses this option and is asked to enter his bank account number and other ACH specific routing information like bank routing identification.
4. This information along with the purchase information is passed onto the additional component added to the ACH, which uses this information to re-direct the payer to the website of the payer's bank where he can authenticate himself and the payer responds back to the ACH component with the results of the authentication. At this stage, the rules of the ACH are modified to bind the payers' bank to the transaction when a successful response.
5. Based on the assurance that the payers' bank has verified and committed to accepting the transaction when presented for settlement, the payee completes the transaction.
6. There are two options for processing the settlement—either the payee can request his bank to process a direct debit to the payer's account based on the assurance received in Step 4, or the payer's bank can be obligated to process a credit transfer to the payee's bank within a specified period of time.
7. The standard ACH clearing and settlement process then kicks in.

There could be other variations where Step 4 can be concluded on a mobile phone by exchange of SMS messages, or by entering a PIN at a POS terminal etc.³²

Successful examples of this include the iDeal in Netherlands and proprietary bilateral arrangements of companies like Bill Desk in India. In the USA, NACHA partnered with eWise systems to provide a similar mechanism, Secure Vault Payments.

This mechanism has a number of advantages: the payer can use his existing bank account and does not need a payment card; all transactions are authenticated; there are significant economies of scale as existing ACH infrastructure can be used; and this can help in spurring adoption of Internet banking as well.

³²NACHA's "Secure Vault Payments", Javelin Strategy and Research, October 2008.

Payment reconciliation and audit trails: A payee needs payment reconciliation information to enable proper bookkeeping. Payment audit trails are also crucial, for example when defending repudiation related claims.

How these aspects play out in the case of direct debit is discussed in the Box 2.

In addition to these payment instrument specific attributes, the overall context of the country in terms of cultural, social, economic development and financial sector development influences the availability of specific payment instruments and also the overall NPS.

Each of the payment instruments described earlier has its own specific set of value propositions for payers and payees. Table 1 shows the respective benefits and risks to both the payer and the payee from the use of these instruments.

The general features depicted in Table 1 may vary from country to country, especially with regard to costs. Moreover, some instruments may not be widely available or widely accepted, due, for example, to the lack of the necessary infrastructure like POS terminals.

II.4 CLEARING AND SETTLEMENT PROCESSES IN RETAIL PAYMENT SYSTEMS

Clearing and settlement processes are a vital component in the processing of any non-cash payment instrument, either paper-based or electronic. This section describes the typical clearing and settlement models for the various payment instrument groups described earlier. While the clearing and settlement process and the flow of funds and information may be different for each payment instrument, in general terms there is a common set of participants. The payer

is typically a consumer but can also be a business or a government entity. The payee is typically a merchant but can also be another consumer, a business entity or a government entity. Both the payer and the payee are represented by their financial institutions and the payment networks, and the clearinghouse plays a role in routing transactions between various parties and in determining settlement positions at specific intervals (normally daily).

Figure 2 below shows a generic clearing and settlement process for retail payments using a standard four-party model.

Cheque Clearing and Settlement

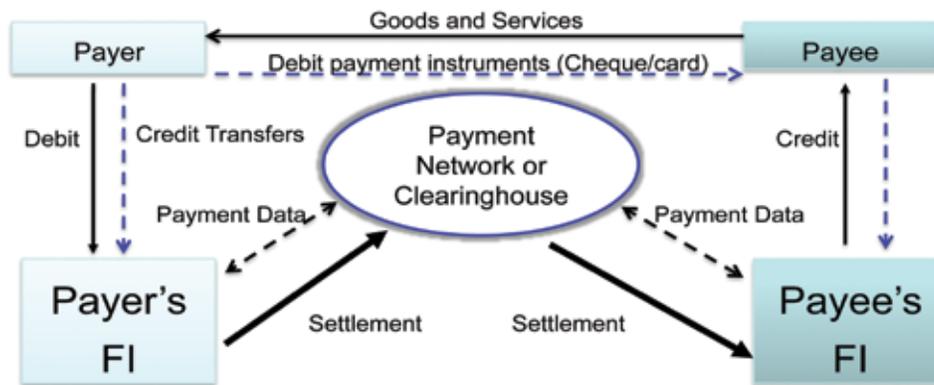
The typical flow starts with the payee (e.g. an individual or a business) using a cheque to pay for goods and services. The payee (e.g. another individual or a merchant) that accepted the cheque as a means of payment may opt for cashing the cheque at a branch of the payer's financial institution, in which case the transaction is settled with finality at that point.³³ Alternatively, the payee may opt for depositing the cheque with its own financial institution for collection. For deposited cheques drawn on other financial institutions, the payee's financial institution sends an electronic presentment file with the required cheque data or sends the physical cheque to the clearinghouse.³⁴

Based on the information received from or through the clearinghouse, the payer's financial institution sends back information to the clearinghouse on the cheques it will honor and those it will not (so-called "return items") for reasons such as insufficient funds, a closed account, a stop-payment order, fraudulent signature, or failure of the paying financial institution.

³³ Assuming there are enough funds in the account of the payer to cover the amount of the cheque

³⁴ With electronic presentment files, financial institutions exchange the physical cheques at a later stage or do not exchange them at all (that is, the cheque is truncated at the point of deposit).

FIGURE 2: GENERALIZED CLEARING AND SETTLEMENT MODEL



- Clearing and settlement process for retail payments using the standard four corner model – relevant for cheque clearing systems (both electronic and paper), ACH networks, ATM/payment card networks.
- The flow of funds and information is different for each payment instrument, solid lines represent flow of goods/services and funds; dashed line represents flow of information.

All the participants of the clearinghouse send this same information to the clearinghouse, on the basis of which the clearinghouse calculates the amounts financial institutions owe to each other. Normally, these amounts will be subject to some form of netting in order to reduce the gross amounts to be exchanged through offsetting of amounts owed by/due to other financial institutions. In cases where multilateral netting is used, each financial position ends up with a single position (credit or debit) vis-à-vis all other participants in the clearinghouse.

Once all clearinghouse participants know their positions, the corresponding transfer of funds takes place. In most cases, this is done through a central settlement agent, normally the central bank.³⁵ In a multilateral net environment, the settlement agent first debits the account of each of the clearinghouse

participants with a multilateral net debit position, and then credits the account of each of the participants with a multilateral net credit position. Once the clearinghouse cycle is completed, the financial institution of the payee will make the funds available to the latter.

There are of course many variants to this basic scheme. Some of the most relevant include tiered clearinghouse participation, the cheque clearinghouse system being based on regional clearinghouses rather than on a single nationwide clearinghouse, mechanisms by which the financial institution of the payee makes the funds available to the latter before the clearing and settlement cycle is completed, etcetera.

Clearing and Settlement for EFT-based Products

EFT based products use the electronic network or automated clearinghouses (ACH) for the exchange of payment instructions among financial institutions,

³⁵ One hundred one of the 106 cheque clearing houses reported in the World Bank Global Payment Systems Survey settled in central bank money

typically on behalf of customers. They are typically batch-processed, value-dated electronic funds transfers between the payer's and payee's financial institutions.

The flow of an EFT debit transaction is very similar to that of a cheque cleared by means of electronic presentment files. Instead of depositing a cheque, the payee, based on a mandate received from the payer, instructs its financial institution to debit the account of the payer.³⁶ The payee's financial institution routes this and other transactions in batches to the EFT network (or the ACH operator). The latter separates the transactions corresponding to each of the other participating financial institutions and re-routes them also in batches. As in the case of cheques, the financial institution of the payer sends back information on the transactions it will honor, and the rest of the clearing and settlement cycle is also similar to that of cheques.³⁷

The clearing of a settlement of an EFT direct credit transaction is also similar, with the exception that the flow within the system is initiated by the payer. The payer submits the payment instruction to its financial institution, which verifies the availability of funds for each of the requested transactions and submits transaction data files to the EFT network or ACH operator. The transaction is then re-routed to the payee's financial institution, which confirms that the relevant account can be credited (e.g. account number is correct, account has not been closed, etc.). The clearing and settlement process takes place and then the funds are made available to the payee by crediting his account.

There are also several variants for this basic scheme. If both the payer and the payee hold an account at the same financial institution, then the corresponding EFT

transaction will not need to undergo the interbank clearing and settlement mechanism earlier described. Moreover, in many countries electronic direct credits can also be executed through a real-time gross settlement system, in which case the funds are transferred directly from the financial institutions of the payer to that of the payee.

Clearing and Settlement for Payment Cards

For a typical payment card transaction, be it a credit card or debit card—for example the purchase of goods and services at a merchant location equipped with a POS terminal—once the card is swiped or the chip is read, the card's data is transmitted through the payments network's electronic network (called a *payment cards switch*) to the card issuer for authorization. If approved, the merchant receives the authorization to capture funds, and the cardholder accepts liability by signing the credit voucher (can be paper or electronic). The merchant receives payment, net of fees, by submitting captured payment card transactions to its financial institution in batches at the end of the day. The merchant's card acquirer forwards the sales draft data to the payment network, which forwards the data to the card issuer. Once again, the rest of the clearing and settlement cycle is similar to that of cheques and EFT-based products.³⁸

Signature-debit transactions are cleared and settled in the same way as credit card transactions. For an online, PIN-based, debit card transaction at a merchant POS, the cardholder enters a PIN to authorize the transaction. For all prepaid cards, whether they are branded prepaid card or affinity, closed loop prepaid cards, a financial intermediary—typically a commercial bank or another third-party payment service provider eligible to issue prepaid cards³⁹

³⁶ The ECC process mentioned earlier is a particular case in which the cheque given by the payee serves the same purposes as the mandate.

³⁷ The settlement agent is also in most cases the central bank. According to the Global Payment Systems Survey 2010, 97 percent of ACHs reported settling their transactions in central bank money.

³⁸ Of the 165 payment card switches reported as part of the Global Payment Systems Survey 2010, around 67 percent of the switches were reported to be settling in central bank money and around 31 percent in commercial bank money.

³⁹ These may include non-financial institutions.

—holds the funds in a pooled account. Each pooled account has various sub-accounts, depending upon the characteristics of cardholders and the program to which the cardholders belong. An issuer or its third-party payments processor maintains a system of record, keeping a record of all transactions belonging to each sub-account. When a consumer uses a prepaid card, the merchant sends a message to the recordkeeping entity to determine whether the balance is sufficient to cover the transaction. In the case of branded prepaid cards, the authorization, clearing, and settlement works similar to a traditional debit card.

Processing of Transactions in Agent-based Mobile Payment Services

Typically, these schemes rely on the payer and payee exchanging payment instructions through either custom applications loaded onto their mobile phones or through standard mobile phone messaging services like short messaging service (SMS). In general industry terminology these are referred to as “mobile payments.” These payment services are typically used for person-to-person payments. However, in some country environments mobile payment services are also being considered or used for various types of bill payments, government payments, and collections as well as for cross-border remittances.

There are two predominant models in the delivery of agent-based mobile payment services. In the first model, a commercial bank holds funds and maintains the customer accounts. It may outsource the management of the agent network and transaction processing to a third-party payments processor or a mobile network operator (MNO). In the second model, a non-bank payment service provider, typically an MNO leads the effort, including customer management and ownership of accounts. In this scenario, it may partner with a bank to hold funds on its behalf. Consumers typically buy (cash-in) e-money credit from the network of agents, who in turn buy e-money credit in

bulk from the MNO or the bank. The consumer then uses the mobile phone interface to generate a payment instruction to another individual or business, which then obtains funds (cash-out) from the network of agents. There is typically a one-to-one relationship between the e-money credit a consumer holds and the real money that is held in their sub-account at the bank. This is illustrated in Figure 3.

In large scale agent networks like that used by FINO in India and M-Pesa⁴⁰ in Kenya, additional entities are involved to provide cash management services to the agents; these are often referred to as *super-agents*. The super-agents typically hold the accounts of the agents and facilitate conversion of the agents e-money balance to cash balance in their regular bank accounts and also in certain cases provide overdraft facilities to the agents.

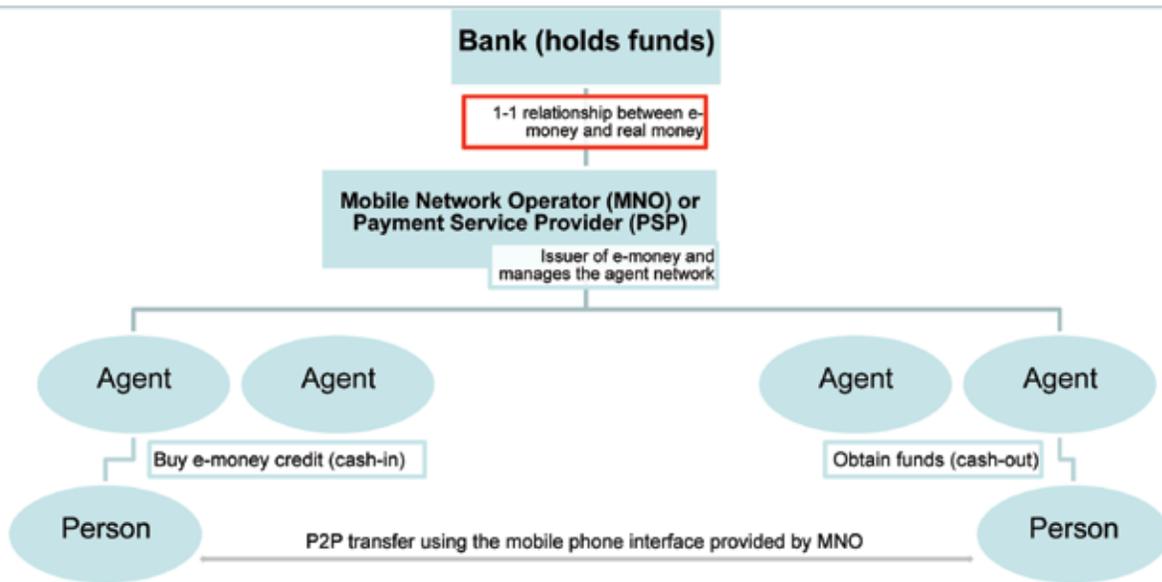
There are also a few other mobile payment models where a separate entity operates the mobile payment platform integrating with a set of institutions or even in some cases with a payment card switch.⁴¹ These models mirror the clearing and settlement arrangement of payment cards. In these models, the mobile phone is used as a channel to send the payment instruction instead of a card being swiped at a POS terminal, with the payment instruction being handed off to the merchant’s acquiring bank. From there on the process remains the same as for payment cards. The transaction confirmation is received on either a standard POS terminal or perhaps at the mobile device of the merchant.

The above model also applies to agent-based payment services using other mechanisms for transaction initi-

⁴⁰ For details on M-Pesa please refer Annex 8.

⁴¹ These models have been created by existing payment networks in some countries (e.g. Dominican Republic), by the existing global payment networks Visa and Master Card, and also by independent entities like Obopay, Yellow Pepper, and others.

FIGURE 3: CLEARING AND SETTLEMENT FOR MOBILE MONEY SCHEMES



ation, such as the payer using a smartcard at the agent’s POS terminal to initiate a range of transactions including remittances, cash deposits, and cash withdrawals.

II.5 DIFFERENT ROLES WITHIN RETAIL PAYMENT SYSTEMS

The Role of Central Bank

Central banks typically seek efficiency and safety in payment systems as well as stable financial markets. More recently, in addition to safety and efficiency, accessibility and the existence of a competitive environment are also being considered important objectives. Safety implies that the system functions smoothly and securely, which is important for the trust in currency/ fiat money. Efficiency implies that the costs⁴² within

the retail payments value chain are as low as possible, and depends upon factors such as technology, innovation, and the level of cooperation and competition within the retail payments market. To fulfill these goals, a central bank typically plays three different roles: a) an operational role; b) facilitator, acting as the catalyst in provision of retail payment services; and c) overseer and/or regulator of retail payment systems and services.

In an *operational role*, the central bank typically provides settlement services for some or all retail payment systems in a country. The settlement is done on the books of the central bank and is common for paper-based systems (usually cheques), EFT-based systems, and some debit card and ATM systems. In some countries, central banks also play a more direct operational role by provide direct clearing services to various retail payment systems; for example, central banks in countries like Saudi Arabia, Kazakhstan, Kyrgyz Republic,

⁴² Cost is used here broadly and is used to refer to both direct costs like transaction fees and also indirect fees like costs of access to the system/instrument.

Germany, Italy and Belgium provide cheque, EFT, and payment card clearing services. In some other countries the central banks also operate some retail payment systems. The responses received for the World Bank Global Payment Systems Survey-2010 show that central banks operate approximately 55 percent of the check clearing houses; 35 percent of ACH systems; and, 12 percent of the payment card switches.

As a facilitator of retail payment services, most central banks maintain close relationships with commercial banks and other retail payment service providers in order to discuss priorities for payment system development within the country and to promote these to materialize. Through these relationships, central banks also pursue development of strategic initiatives aimed at benefiting all participants uniformly (e.g., implementation of payment systems standards). In many countries, as part of their public policy objectives, central banks also pursue important research agendas that benefit the wider payments industry in an impartial way.

As an overseer and/or regulator of retail payment systems: the scope of oversight function varies across central banks, and in some cases depends upon whether retail payment systems are considered systemically important or not.⁴³ In the responses to the World Bank Global Payments Survey 2010, 64 percent of the central banks surveyed responded that their oversight powers extended to all payment systems operational in the country. However, 48 percent responded that they actually exercise oversight powers only over systemically important payment systems. In only a few countries some retail payment systems are considered to be systemically important, while in many others retail systems are considered to play a role of “prominent” importance, since their failure can have major eco-

nommic effects and may undermine the confidence of the public in the payment systems and in the national currency. Central banks typically exercise their oversight powers by monitoring, assessing, and inducing change, if necessary, through the issuance of formal regulations.

The Role of Payment Institutions

For all EFT and most card-based payment instruments, banks⁴⁴ have the direct relationship with customers and hold funds on their behalf (depending on the type of payment product) and are issuers of the relevant payment instruments and operators of the underlying current account. In the case of credit and debit transfers, they also provide the transaction channels (e.g. online banking platforms) through which the payment instructions are received and processed.

For some innovative payment services, some non-bank institutions are playing one or more of these roles.

In card systems, an additional role is that played by the so-called *acquirers*. These institutions maintain the relationship with the merchant, provide the infrastructure needed for accepting a card payment (e.g. access to the POS terminal or the payment services supporting an e-commerce website) and normally operate the current account in which the proceeds of the sale transaction are deposited.

Clearing and Settlement Arrangements

In cases where the payer and payee maintain a relationship with the same payment institution, then that institution will normally perform all clearing and settlement functions associated with the transactions between those parties. Likewise, in closed-loop, pro-

⁴³ Bank of Japan and Bank of Sweden, for instance consider at least one or more retail payment systems as systemically important.

⁴⁴ Throughout this document, the term banks refers to all deposit taking institutions.

prietary payment mechanisms, the payee and payer institutions are by definition the same since one institution manages the entire payment process.

In payment mechanisms where the payment institution of the payer and that of the payee are different, an inter-institution network that facilitates authorization routing, clearing, and settlement of transactions is necessary. The payment card networks, clearinghouses and clearing associations, play this role.⁴⁵

Payment card networks play an important role in facilitation of payment card transactions, including payment authorization and clearing and settlement services for member institutions. To perform these services efficiently, reliably and securely, the payment card networks define and enforce highly standardized operating procedures and policies, and controls for payment card issuance, acquiring, and settlement activities.

In some cases, some or all of such services are provided directly by or in close association with the international card networks like Visa and MasterCard, which typically also own the trademarks/logo and grant membership to eligible financial institutions that use the logo and services to facilitate issuance and acquiring/acceptance. International card networks like Visa and MasterCard, also set and enforce the interchange fees that are normally incorporated into the fees charged to merchants or cardholders for point of sale transactions.

Clearinghouses and clearing associations⁴⁶ facilitate both electronic (EFT) and cheque clearing and settlement services. Clearinghouses that facilitate EFT-

based transactions and other electronic instructions like the ones arising from electronic processing of cheques in an automated manner are also referred to as ACHs. Cheque clearinghouses play a similar role and act as a network for exchange of payment instructions for cheques. Financial institutions or third-party service providers typically send payment instructions for credits or debits in batches for processing one or two days before the settlement date, however there are several ACHs with same-day settlement.⁴⁷ Both ACHs and clearing associations set standardized schedules, along with rules and procedures for payment submission, formatting, messaging, and processing that members are required to follow.

The Role of Third-Party Payment Service Providers

The role of third-party payment service providers has become more prominent in recent years due to growth and increasing sophistication and specialization of retail payment systems. Recent technological innovations have further influenced the growth of such specialized services.

A third-party payment service provider is a generic term that implies a company providing specialized services within the retail payments value chain. This company may be contracted by a bank or another payment service provider to conduct one or more sub-processes, for example by providing specialized software or hardware used to create and send ACH files and/or to act as a sending or receiving point for one of the participants in the ACH system, or to provide authorization, settlement, and merchant services.

In this document, all these three types of players—payment institutions; payment networks, clearing associations and clearinghouses—along with third-party

⁴⁵ For details refer to CPSS, “Clearing and settlement arrangements for retail payments in selected countries”, BIS, 2000.

⁴⁶ The difference between a Clearinghouse and Clearing Association is that the former does multilateral clearing and settlement, whereas the latter is a combination of bilateral clearing and a combination of bilateral and multi-lateral netting for settlement.

⁴⁷ Examples include the Faster Payments Service in the UK and the NEFT system in India, among others.

payment service providers are collectively called Retail Payments Service Providers (RPSP). These three categories in themselves are not mutually exclusive, there are significant overlaps and in some cases the same organization could play different roles in different scenarios. For example, a bank could offer its own payment products and in addition also provide processing services in terms of processing clearing and settlement of transactions to another bank.

II.6 CONCLUDING REMARKS ON THE OBSERVED TRENDS IN RETAIL PAYMENTS

It can be concluded from the discussion in this chapter that finding the “right” solution to a nation’s retail payments needs is not a simple task but one that involves a complex interplay of factors that influence both the demand for and the supply of electronic retail payment instruments.

The demand for a payment instrument is influenced by the latter’s effectiveness in satisfying the payment needs of the users, and the ease with which the users can adopt and substitute it for the traditionally dominant payment instrument, namely cash. The supply side, on the other hand, in addition to the existence of demand is typically influenced by the extent of cooperation and competition in the market, the availability of infrastructure and technology, as well as by the legal, regulatory, and payments system oversight environment.

The key trends that are observed to be taking place today are summarized below.

- **Consolidation of payment service providers and emergence of third-party non-bank providers for specialized payment services.** Recent changes to payments technology such as introduction of electronic cheque conversion and electronic cheque presentment, introduction of prepaid cards, mobile payment services and virtual wallets have influenced the rapid consolidation of retail payment service providers, credit issuers, merchant acquirers, processing companies, and cheque processors. As a result, some small and mid-sized financial institutions have exited the processing business and outsourced certain functions of the retail payments process to larger financial and non-financial institutions. Non-banks, in particular, are assuming more roles in retail payment systems such as the clearing and settlement functions, and the issuance and processing of electronic payment cards and other devices.
- **The shift from paper to electronic payment instruments is more pronounced today than previously, however, paper-based instruments and especially cash are still strong in many countries.** In many country environments, the shift from paper to electronic payments has gained significant momentum with technological progress and the ever-increasing preference by consumers, merchants, and other payees for convenient and low-cost payment alternatives. The most significant growth is seen in debit and prepaid cards, followed by direct credits and direct debits. For example, the increasing availability of online banking and automated bill payment, among others, are reducing the number of cheques that flow through the payment system. Likewise, wider availability of modern POS terminals has contributed to growth of payment

card programs and added to the convenience for consumers. The use of cash, however, is declining at a much slower rate.⁴⁸

- **Emergence of innovative payment instruments and services both to expand payment services to hitherto unbanked and other under-served market segments, as well as to meet new types of payment needs in mature markets, and, in general to improve overall efficiencies in the payments process.** Underdeveloped or missing payment services infrastructure has resulted in relatively high transaction costs and low penetration of payment services for lower-income populations in many countries. Very often, financial institutions find it too costly to invest in the expansion of traditional retail payments infrastructure that is geared towards serving the needs of low-income people. In recent years, however, improvements in technology combined with new product offerings have been adapted mostly, though not uniquely, by non-bank payment service providers to satisfy the payment needs of lower income consumers. A closely related development is the demand for efficient payment services for supporting international remittances and other cross-border payments, which has led to the development of innovations like inter-ACH linkages and specialized payment service providers. There is similarly a demand associated with Government payments and corporate payments which is creating inno-

vations like the use of biometric authentication and agent models and also for introducing near real-time payments.

Several other innovative payment instruments have emerged for very different reasons. For example, new payment needs like the ones created with the emergence of e-commerce and auction websites or the need for transit payments resulted in innovative payment services like PayPal in the United States and Octopus card in Hong Kong. It needs to be noted that even now, traditional payment cards have a majority share of all e-commerce payments; however, innovative payment services like PayPal are quickly becoming significant players in this space.

Improving efficiencies has also been a motivation for development of innovative payment services, for example the remote deposit capture service—capturing a cheque image using the payee’s mobile phone and submitting it to the presenting bank directly.

On the other hand, while several innovative payment instruments have been successful in specific environments, with very few exceptions their success at the global scale has not yet taken place. The results of the questionnaire on innovations in retail payments as part of the Global Payment Systems Survey 2010 provide additional insights on the current status of innovative payment instruments and services around the world. The main findings are presented in Box 4.⁴⁹

⁴⁸ On a worldwide basis, the World Bank Global Payments Survey 2010 showed that debit cards are the most used means for payments in 32 percent of countries, followed by checks. An analysis by income level shows that checks are the most used payment instrument in 65 percent of low-income countries compared to only 13 percent in high-income countries, 19 percent in upper-middle income countries and 37 percent in lower-middle income countries. In geographical terms, check usage is still substantial in Sub-Saharan Africa, South Asia, and Latin America.

⁴⁹ The accompanying publication, “Innovations in Retail Payments Worldwide: A Snapshot. Outcomes of the Global Survey on Innovations in Retail Payments Instruments and Methods 2010 (consultative report)”, provides a detailed analysis of the responses to this survey. This is available at www.worldbank.org/paymentsystems.

BOX 4: MAIN RESULTS OF THE WORLD BANK SURVEY ON INNOVATIONS IN RETAIL PAYMENTS

This survey was conducted as part of the World Bank Global Payments Survey 2010. There was a separate accompanying questionnaire to collect information on innovations.

The questionnaire requested general information on the type of innovative products and on innovative access channels to bank accounts used in a country as well as more specific information on the design features of the relevant innovations (e.g. protection of the monetary value created, involved entities, usage of the product, pricing, clearing and settlement, security, and fraud issues). In addition, questions about the legal and regulatory framework were covered and the provision of statistical data was requested. Finally, central banks were asked about planned reforms in the legal and regulatory framework and about plans to introduce new products and processes.

A total of 101 central banks completed the questionnaire and reported 171 innovative retail payment products/product groups. Most of the central banks provided information on a product group basis and not individual products.

The main findings are as follows:

1. In terms of usage, innovative payment products are still much less relevant than traditional retail payment products. However, they are important for financial inclusion in over 10 percent of the countries.
2. While non-banking organizations are playing a significant role in the provision of innovative retail payment products/mechanisms, banks remain a significant player in this field.
3. Customer funds are fully protected in around 60 percent of the cases.
4. Innovative payment products appear to have fairly well developed pricing models.
5. Merchant payments, utility bill payments, and person-to-person transfers were the most common transaction types supported by the innovative payment mechanisms. Less than 10 percent of the products supported government-to-person payments.
6. The majority of the innovative products/mechanisms have very limited interoperability.
7. The traditional clearing and settlement infrastructure is in general not used.
8. Security and fraud risks seem to be getting inadequate attention.
9. Central banks identified themselves as the overseers for around 60 percent of the products, however 10 percent of the products were subject to collaborative oversight.
10. In contrast to the detailed transaction data available for traditional retail payment systems and products, the details available for innovative payment products and payment systems are limited.

SECTION III

PUBLIC POLICY OBJECTIVES IN RETAIL PAYMENTS



Retail payment systems have been generally initiated and operated by private entities that come together to try to address collectively recognized payment needs in a market. In some cases, it has even been suggested that public authorities should adopt a hands-off policy as direct intervention might hinder innovation.

However, as evidenced by various studies and PSDG field work in over 100 countries, it is clear that significant public policy objectives relating to retail payments exist and should be pursued by public authorities in general and the national central bank in particular. This chapter discusses these key public policy objectives, based on which it later establishes the need for a holistic retail payments development strategy to be adopted by any country that lacks a well-functioning retail payments system.

III.1 OVERALL SAFETY AND EFFICIENCY

Standard setters and international financial institutions have already provided a useful framework to guide reforms in retail payment instruments and systems. In particular, in 2003 the CPSS identified a set of

overall policy goals for retail payments system (see Box 5).⁵⁰ This framework identifies efficiency and safety as key public policy objectives for retail payments system.

In the specific context of countries with an underdeveloped retail payments system, in addition to the public policy goals of “safety” and “efficiency” some other public policy goals are typically required to address both “demand” side as well as “supply” side constraints.

The PSDG’s global experience in the modernization and reform of retail payment systems indicates that national authorities should have at least three additional policy goals with respect to retail payment system development:

1. Affordability and ease of access to payment instruments and services.
2. Availability of an efficient infrastructure to process electronic payment instruments.
3. Availability of a socially optimal mix of payment instruments.

These are described in further detail below.

⁵⁰ CPSS 2003.

BOX 5: CPSS PUBLIC POLICY GOALS FOR MAINTAINING AND PROMOTING EFFICIENCY AND SAFETY IN RETAIL PAYMENTS

Policies relating to the efficiency and safety of retail payments should be designed, where appropriate, to:

1. Address legal and regulatory impediments to market development and innovation;
2. Foster market conditions and behaviors;
3. Support the development of effective standards and infrastructure arrangements; and
4. Provide central bank services in the manner most effective for the particular market.

III.2 AFFORDABILITY AND EASE OF ACCESS TO PAYMENT INSTRUMENTS AND SERVICES

The “demand” for electronic payments is often restricted by limited financial inclusion of the country’s population. Payment services are a basic component of financial inclusion, which is defined for the purposes of this document as the availability of basic financial products to meet the payment, savings, credit, insurance, and investment needs of a society. The key requirement for accessing non-cash payment mechanisms involves the payer entering into a formal relationship with an intermediary like a bank (or in some cases a non-bank institution) that provides support for electronic payment instruments. While the types of payment instruments and levels of service may vary across different segments of society based on a host

of demand and supply factors, overall there should be reasonably affordable and reliable access to a set of basic electronic payment instruments and services.

If significant sections of a society do not have access to electronic payment instruments, the use of relatively high-cost and potentially growth-limiting paper-based payment instruments payments would remain high. Moreover, adequate access to payment services can positively impact the provision of other financial services. Financial services such as provision of credit, insurance, and investment services all depend on the ability of the institution to disburse funds and/or collect periodic payments from their customers. Lack of efficient payment services impacts the ability of financial service providers to operate in a cost-effective manner, often resulting in that the services these institutions intend to provide become unaffordable for some segments of the population. Also, the increased use of payment services by traditionally unbanked and under-banked individuals also may provide banks and other service providers an insight on the financial condition of these persons, potentially making them eligible for further financial services such as credit, investment, or insurance services, among others.⁵¹

The estimates for world-wide levels of financial inclusion vary. The World Bank and CGAP estimate that there are around 2.7 billion working age adults who do not have access to savings, transactions or credit accounts.⁵² While the levels of financial inclusion are certainly lower in developing and low-income countries, there are significant extents of population financially excluded even in high-income countries. For example, in the United States it is estimated that 10 percent of households are unbanked.⁵³ In the European Union,

⁵¹ As an example, Annex 3 describes financial inclusion initiatives undertaken by the Reserve Bank of India.

⁵² CGAP and World Bank 2010.

⁵³ FDIC 2009.

TABLE 2: SELECT BANKING INFRASTRUCTURE AND ACCESS METRICS

Region/Countries	Household penetration Deposit accounts (%)	Deposit accounts per 1000 adults	Bank branches per 100,000 adults	ATMs per 100,000 adults
High Income Countries	91	2022	32	94
Sub-Saharan Africa	12	163	3	5
East Asia and Pacific	42	1756	15	11
South Asia	22	317	7	4
Middle East and North Africa	42	818	17	28
Latin America and Caribbean	40	1140	14	31
Europe and Central Asia	50	1330	18	50
All Developing Countries		737	10	29

Source: World Bank 2010

there are indications that about seven percent of consumers 18 years old and above do not have a bank account.⁵⁴

Regional estimates for the penetration of basic banking services and infrastructure are shown in Table 2. As this data shows, the differences in banking service coverage and traditional banking infrastructure between developing countries and developed countries are still very significant. These gaps have a significant bearing on the low number of per-capita electronic transactions in developing countries as shown earlier in Figure 1.

Apart from limited financial inclusion, those individuals and organizations that do have access to traditional

payment services may keep on using cash and other paper-based instruments on a large scale, thereby further undermining the demand for electronic payment instruments. This could be explained by a variety of factors, going from the lack of convenient and/or cost-effective alternatives to them, to regulatory environments and working habits that favor paper-based instruments and records, among others elements. Table 3 shows data on the main payment instruments used for government payments and government receipts or collections, as depicted in the Global Payment Systems Survey 2010.

⁵⁴ European Commission, Commission Staff Working Paper 2011.

TABLE 3: PAYMENT INSTRUMENTS USED FOR GOVERNMENT PAYMENTS

	Mainly cash	Mainly paper based payment instruments- cheques, payment orders	Mainly electronic payment instruments- payment cards, EFT, and other e-payment schemes
Government to person payments			
Public sector salaries	11%	24%	76%
Pensions and transfer payments	14%	26%	67%
Cash transfers and social benefits	22%	31%	52%
Person to government payments			
Taxes	40%	48%	44%
Utility payments	55%	33%	42%
Payment for services, etc.	54%	35%	34%
Government to business payments			
Procurement of goods and services	2%	50%	61%
Tax refunds	2%	49%	50%
Business to government payments			
Taxes	11%	58%	57%
Utilities	16%	53%	50%
Benefits transfers	9%	52%	46%

Note: Central banks were asked to indicate the main payment mechanism used for the specific types of government payments. In certain cases more than one payment mechanism was chosen, hence the total may add up to more than 100 percent.

The typical usage patterns of the financially excluded, which are often erratic and/or small-value, when coupled with limited ability of these groups to comply with product requirements like maintaining minimum balances and having the ability to bear the standard transaction fees, make it financially unviable for financial institutions to service these segments using their traditional payment products. Seen another way, tra-

ditional payment products might not be affordable for the financially excluded. It needs to be noted that the costs associated with a payment instrument includes not just explicit costs like account opening fees and transaction fees, but also indirect costs like time to travel to access a transaction channel. In many cases, indirect costs may be more relevant to the explanation of financial exclusion than direct costs.

III.3 AVAILABILITY OF AN EFFICIENT INFRASTRUCTURE TO PROCESS PAYMENT INSTRUMENTS

The supply or provision of electronic payment instruments and services is largely dependent on the availability of certain common infrastructure like payment networks, clearinghouses and ACHs, as well as on certain institution-level infrastructures such as a centralized account management system.

In many low-income and middle-income countries, commercial banks and other payment service providers typically face an unviable business case to expand the traditional payment and banking infrastructure beyond major urban areas. In recent years, there have been many promising innovations that could assist in addressing the infrastructure gap. These developments mainly include:

- Using mobile phones on which payment instructions can be initiated and/or received; and,
- Using business correspondents equipped with mobile phones and/or custom-built POS terminals to provide banking services, reducing the need to rely solely on traditional banking infrastructure for provision of payment services.

It should be noted, however, that these developments will not reach their full potential without availability of appropriate payment infrastructures for clearing and settlement.

The supply can also be constrained by limited automation of financial intermediaries and other payment service providers. Only with some basic automation of their retail and corporate customer account-management systems will electronic payment instruments be able to reach their full potential (e.g. to allow rapid

authorization of transactions with cards, quick processing of payment instructions, or quick posting of incoming payments to clients' deposit accounts).

The market structure of the financial services industry can also play a substantial role in slowing down the growth of electronic retail payments. For example, the market may be characterized by barriers to entry, to innovation and to effective competition in the provision of retail payment services. Such barriers might have been created by market participants themselves or in some cases by regulation. Under these circumstances, the market arrangements can limit the incentives of existing retail payment service providers to expand their service base for retail payments and, as a result, to invest in the development of new electronic payment instrument and service infrastructure, which can require significant volumes to be cost-efficient.

III.4 AVAILABILITY OF A SOCIALLY OPTIMAL MIX OF PAYMENT INSTRUMENTS

There is a wide range of payment instruments in use today. However, the proportion of relative usage varies significantly from country to country due to a variety of reasons, including those of a socio-cultural nature. Usage of payment instruments also entails costs, with some payment instruments being better suited for certain payment needs than others. For example, for payments of a somewhat larger value, a credit transfer might be a better option than a payment card—transactions costs are lower for the receiver, and possibly for the sender as well, and the funds can usually be made available to the receiver immediately or within a day.

However, for an individual who does not have sufficient funds in his current account, a credit card payment linked to an available line of credit can finance immediate transactions. Also, some incidental costs

such as account maintenance fees might cause traditional credit transfers and debit transfers to be unaffordable for certain types of payment needs (e.g. disbursement of some government social benefit transfers to unbanked recipients), whereas a prepaid payment cards might be more cost-effective for this purpose.

Therefore, while at a conceptual level the overall public policy objective could be to promote and encourage usage of electronic payment instruments, the associated costs and other factors such as suitability of specific instruments for a specific type of transaction must be taken into account.

In summary, from a public policy perspective, the national payment system should support a range of payment instruments that provide users with choice based on cost, convenience, speed of processing, and safety.

SECTION IV

GUIDELINES FOR DEVELOPING A COMPREHENSIVE STRATEGY FOR REFORMING RETAIL PAYMENTS



The overall trends in retail payment systems and services and the public policy goals identified in the previous chapters confirm the need for adopting a comprehensive, strategic approach when undertaking a reform of the national retail payments system; even more so, considering the many choices that are available and the many business and technical decisions that need to be made.

In this chapter, a set of “Guidelines” or “Guiding Principles” are discussed, with an eye to providing a strategic framework for reformers and other stakeholders for the modernization of a national retail payments system.

IV.1 GENERAL FRAMEWORK UNDERLYING THE GUIDELINES

In revisiting the numerous studies that have been undertaken by the World Bank’s PSDG, the CPSS and other international and domestic organizations it is clear that, in general, those studies’ key findings and especially their public policy implications can be mapped around the CPSS-World Bank General Principles for International Remittance Services (hereinafter the “GPs”). At present, the GPs, shown in Box 6, are the prevailing international standards for a special type of retail payment—cross-border retail payments.

While there are some differences between an international remittance transaction and an ordinary retail payment transaction, these differences do not have much of a bearing on the applicability of the GPs to both. In fact, a remittance can be treated as two sets of retail payment transactions—one between the sender and the remittance service provider (RSP), and another between RSP and recipient. Moreover, some of the traditional particularities of remittances *vis-à-vis* ordinary retail payments have been disappearing over-time. For example, RSPs are increasingly establishing account-type relationships with remittance senders and recipients. Or, a growing share of remittances is now using one or more elements of the retail payments value chain.

On the other hand, the proposed expansion of policy objectives for retail payments beyond safety and efficiency as discussed in Chapter 3 requires a certain reformulation of the five GPs, and adding one more. Also, unlike in the GPs, separate roles for public authorities and private sector players have not been elaborated.

GUIDELINE I: The market for retail payments should be transparent, have adequate protection of payers and payees' interests, and be cost-effective.

DESCRIPTION

Transparency

From an efficiency perspective, adequate transparency promotes a greater usage of the most cost-effective payment instrument(s). From the perspective of consumers, improving transparency about the various cost elements and service conditions of payment instruments helps promote consumer confidence and trust in those instruments.

Often, however, consumers of retail payment instruments and services are not entirely certain about the real cost of using a particular payment instrument. Moreover, when they wrongly or rightly attribute a higher cost to the usage of a payment instrument, the usage of that payment instrument gets restricted.

This situation is due in part to the complexity of retail payment instrument pricing. Retail payments rarely involve usage of a stand-alone payment instrument, but rather involve using a broader financial product (e.g. a current account), one of the underlying functions of which is its usage as a payment instrument. The financial product would have various levels and types of fees.

Electronic payment instruments used for retail payments often involve an element of “subscription,” that is, subscribing to a service which enables a person to use a particular payment instrument. For example, to pay using a credit transfer, a payer would need to sign-up for a banking account, or to make payments using a credit card, a customer would need to have signed-up for a credit card.

In many cases, the use of the underlying financial product also entails a monthly fee or some other type of “maintenance” fee. Moreover, as part of using the product’s payment functionality, consumers might incur additional costs (for example, per transaction fees).⁵⁵

In addition, a major difficulty for achieving proper levels of transparency is that financial institutions and other service providers usually create a variety of ancillary services around the financial product, some of them not directly related to the payment function, for example accident insurance coverage. In other cases, the consumer is actually rewarded for using the financial product and/or associated payment instruments. These additional services and benefits by themselves could involve a specific price, though in most cases a bundled price structure is created. The variety of services bundled into the total price makes it very difficult for consumers to determine the unitary price they are paying to their financial institution or service provider for their payment transactions.

Consumer protection and financial literacy

In a non-cash retail payment there are multiple consumer-provider relationships. A non-cash retail payment transaction involves a payer and a payee, both of which are consuming the services offered by their payment service provider. In turn, such service providers might be availing themselves of services from other service providers. Hence, in the context of retail payments, the term *consumer* is used to mean all consumers in all these scenarios. For example, when discussing card payments, the cardholder and the merchant are both consumers and similarly if the issuer avails itself of services from a payment network then the latter is also a consumer.

⁵⁵ The discussion on pricing is further elaborated under Guideline IV.

BOX 6: THE GENERAL PRINCIPLES FOR INTERNATIONAL REMITTANCE SERVICES AND RELATED ROLES

The General Principles are aimed at the public policy objectives of achieving safe and efficient international remittance services. To this end, the markets for the services should be contestable, transparent, accessible, and sound.

Transparency and consumer protection

General Principle 1. The market for remittance services should be transparent and have adequate consumer protection.

Payment system infrastructure

General Principle 2. Improvements to payment system infrastructure that have the potential to increase the efficiency of remittance services should be encouraged.

Legal and regulatory environment

General Principle 3. Remittance services should be supported by a sound, predictable, nondiscriminatory, and proportionate legal and regulatory framework in relevant jurisdictions.

Market structure and competition

General Principle 4. Competitive market conditions, including appropriate access to domestic payment infrastructures, should be fostered in the remittance industry.

Governance and risk management

General Principle 5. Remittance services should be supported by appropriate governance and risk management practices.

Roles of remittance service providers and public authorities

- A. *Role of remittance service providers.* Remittance service providers should participate actively in the implementation of the General Principles.
- B. *Role of public authorities.* Public authorities should evaluate what action to take to achieve the public policy objectives through implementation of the General Principles.

In general, it has been observed that consumer protection, transparency and dispute resolution for service arrangements between institutional customers are typically handled adequately bilaterally as both the entities are sophisticated and have the necessary skills to protect their interests. This, however, is usually not the case for relationships where either one of the parties is an individual or small business, as imbalances of information, resources, and power are generally on the side of financial institutions or other service providers.

Consumer protection attempts to redress those imbalances by giving individuals clear and complete information on which to make informed decisions, by prohibiting financial institutions from engaging in unfair or deceptive practices, and by providing adequate mechanisms to resolve disputes between individuals and financial institutions. There are a variety of disputes that can arise in the provision of retail payment services; broadly speaking they can be categorized into:

- Incorrect processing of payment instructions in terms of the amount or recipient or perhaps even when it was processed;
- Fraud liability – the liability of customer for fraudulent activities on his account resulting in a direct or indirect loss to the customer; and
- Disputes on operational service standards.

Consumers who are empowered with information and basic rights—and who are aware of their rights and responsibilities—provide an important source of market discipline to the financial sector, encouraging financial institutions to compete by offering better products and services rather than by taking advantage of poorly informed consumers. Financial literacy is a complement to consumer protection, because it helps consumers understand the information and make risk/return choices that optimize their financial wealth.

Consumer protection also improves governance of financial institutions. By strengthening transparency in the delivery of financial services and accountability of financial firms, consumer protection helps build demand for good governance of the sector and the strengthening of business standards. In addition, consumer protection and financial literacy help promote the deepening of the retail financial sector, attracting first-time consumers to access financial services and building public trust in financial institutions. Therefore, consumer protection and financial literacy promote efficiency, transparency, and deepening of retail financial markets.⁵⁶ According to PSDG experience, competition policy alone does not fully address consumer protection issues on its own.⁵⁷

⁵⁶ World Bank Publication 2010 – “Good Practices for Consumer Protection and Financial Literacy in Europe and Central Asia: A Diagnostic Tool”.

⁵⁷ For additional discussion on this specific issue see Armstrong, “Interactions between Competition and Consumer Policy”, *Competition Policy International*, Volume 4, Number 1, 2008.

Issues specific to payment cards

Payment cards are associated with a range of fees that are charged to the cardholder (payer) and to the merchant (payee). A card issuer may charge cardholders an annual fee, penalty fees and other transaction specific fees.⁵⁸ In addition, the merchant is also subject to a range of fees by the acquiring bank such as merchant service fees (MSF), account maintenance fees, penalty fees and other transaction-specific fees.⁵⁹ There are several issues with respect to transparency and consumer protection related to these fees from a cardholder’s perspective:

- Awareness about these fees;
- Having a good understanding about the scenarios in which these fees are charged;
- Having adequate assistance and support to avoid the specific scenarios in which the exceptional fees get charged;
- Receiving adequate notice of any changes to the fees; and
- Changes having no retroactive effect (e.g. increase in revolving rate not being applicable to balances being carried forward from the past).

⁵⁸ Annual fees are like a subscription fee to be paid to retain the privilege of using the card. Revolving fees are specific to credit cards and are paid on the balance carried over (revolved) by the cardholder from a billing cycle to another. This is typically a percentage rate and expressed as an Annual Percentage Rate (APR). There are a range of penalty fees associated with cardholders that are typically applied on occurrence of specific events such as late payment, short payment, etc. There is also a range of transaction-specific fees that are typically applied for specific transactions like cash withdrawals, requesting a duplicate copy of a statement, or in the case of prepaid cards, charges may be applied for transactions like loading money, closing the card account and so forth.

⁵⁹ The MSF is the fee paid per transaction by the merchant to the acquiring bank, usually structured as a combination of a fixed fee and a percentage of the transaction amount. The MSF comprises the interchange fee, which therefore constitutes a floor to the level of the MSF.

From a merchant's perspective, the transparency and consumer protection issues are more related to a clear understanding of when and how the merchant will get paid for the transaction, the schedule of fees, how the fees payable are calculated, and the specific procedures the merchants needs to follow and the records he needs to keep to have guaranteed settlement for a transaction.

In addition to the two interactions of cardholder-issuer and merchant-acquirer, there are other sets of interactions for payment cards. Transparency and adequate consumer protection is important for these interactions as well. The most relevant ones are: issuer-acquirer, issuer-payment network and acquirer-payment network. Given that these interactions are between institutions, the traditional transparency and consumer protection issues appear less relevant at a first glance. However, certain aspects of these interactions have been widely debated and are areas that have seen several regulatory interventions, primarily because these aspects have been widely believed to influence the fees for the cardholder-issuer interactions, and the acquirer-merchant interactions. These aspects are discussed in detail in the section on market structure.

Issues specific to EFT-based products

EFT credit payments by nature are deferred payments; the payer needs to receive a confirmation about receipt of the payment request, and confirmation that it will be processed as per a defined timeline and if there are any problems a notification would be issued. The payer would clearly be in need of information pertaining to: when the payee would be paid, the exact amount that will get paid to the payee, and finally the process for addressing any delays in the processing of this payment request.

Increasingly, in many systems the payer has a choice of receiving the confirmations through various channels.

In the absence of a confirmation being received, the payer would have to use other means such as contacting the payee to confirm receipt of payments.

EFT debit payments are again deferred payments. The payer should receive both a confirmation that an attempt would be made to collect the payment from his/her account on a specified date and also the status of the debit. Erroneous execution, inadequate balance in account due to some other unexpected payout from account and other operational issues could result in the payment being unsuccessful. The impact of such an unsuccessful payment could be beyond the underlying transaction.

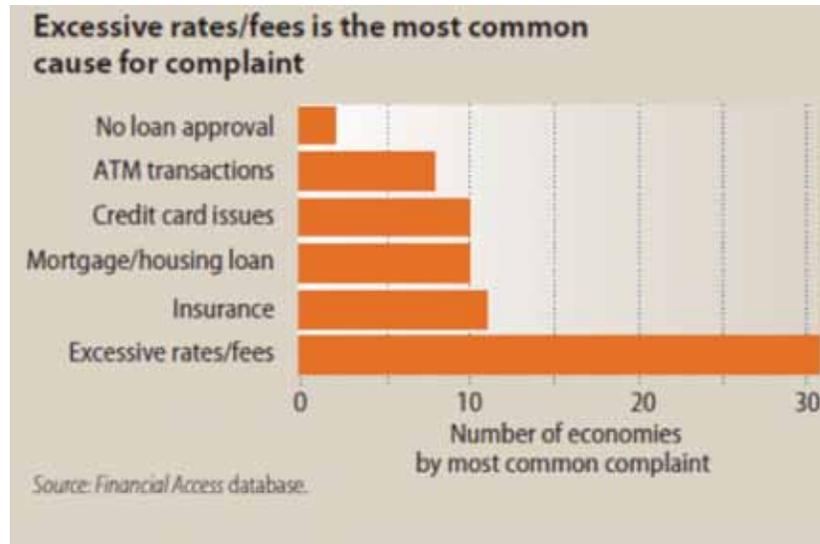
EFT debit payments are often used for recurring payments. A payer should be able to cancel the general mandate he has given to the payee to charge his account. Moreover, whenever there is a discrepancy on the amount actually debited from the payer's account, he should be able to reverse the transaction and get reimbursed even before an investigation is initiated. Ability to easily cancel a recurring payment instruction from a designated future date is also an important consumer protection feature.

A payee needs adequate protection for his interest, as well, for unsuccessful payments. In many countries, bouncing of a cheque is deemed an offense and there are stipulated penalties for the payer. Absence of similar protection for ACH debit payments could make them unsuitable for a broad range of payment needs.

Issues specific to innovative payment mechanisms

Prepaid mechanisms, including prepaid cards, have a range of costs associated with them: initial sign-up fee, account maintenance fee, cash load fee, cash withdrawal fee, balance inquiry fee, and other transaction and event-specific fees, particularly for redemption. The sign-up process for innovative schemes is often

FIGURE 4: TYPES OF DISPUTES



handled remotely or at locations of an agent of the entity operating the scheme. Ensuring all the details about these fees are communicated clearly to the subscriber in this remote channel is critical.

Extensive use of agents also brings in the challenge of ensuring uniform quality, transparency and reliability of service.

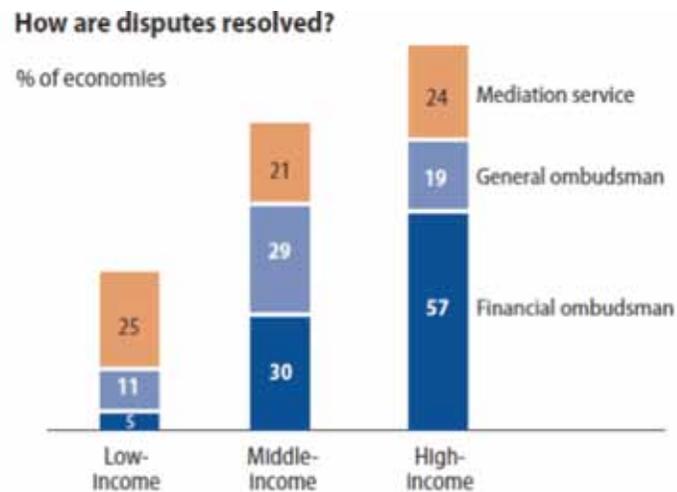
The dispute resolution and consumer protection measures for many innovative mechanisms might not be formally specified. Traditional payment mechanisms are typically managed by banks, and are in general closely associated with their banking business. Given this, the consumer protection measures available for typical banking services get extended to such traditional mechanisms. However, in the case of innovative payment mechanisms, the payment mechanisms are often offered by non-banking entities, or when offered by banks they are typically kept separate from their traditional banking business. These make the

consumer protections mechanisms applicable to traditional payment mechanisms unlikely to apply for the innovative mechanisms.

Possible Actions

Creating minimum standards related to transparency and consumer protection: These should be applicable to all providers of retail payment services. These standards could be explicitly enforced in the form of a law, regulation or guideline or where appropriate through an implicit enforcement through self-regulatory mechanisms. In some cases, the usage of a service mark to identify those organizations that are compliant with the standards defined in this area has been an effective strategy to inform consumers in a very practical way.

FIGURE 5: DISPUTE RESOLUTION



Developing simplified procedures for dispute resolution: Ombudsman⁶⁰ services are becoming increasingly common for industries like insurance and general banking services. Extending these services to payment services regardless of whether or not the service provider is a bank could provide the consumers an easy, reliable, and cost-effective mechanism to resolve disputes that could not be resolved bilaterally with the service provider. Figures 4 and 5 capture statistics on the types of disputes related to retail payment products and prevalent mode of disputes resolution for financial services.⁶¹

Encourage creation of databases to enable easy comparison of costs: Having access to reliable, comparable, and consumer-friendly information about the various payment products enables the payers and payees to choose

the one that meets their needs most effectively. As previously discussed, there are many different pricing elements for a payment product, which could make comparing payment products difficult. However it is possible to create some indicators based on standard concepts that could enable making some preliminary comparisons. Some of the key indicators include:

- Account opening fees;
- Account maintenance fees/monthly fees;
- Per transaction fee paid by payer/payee;
- Account inquiry fees;
- Account closing fees; and
- Interest rate charged and method of computation, where credit is provided.

⁶⁰ For a detailed discussion on banking ombudsman see Thomas and Frizon 2012.), Resolving disputes between consumers and financial businesses: Fundamentals for a financial ombudsman, January 2012

⁶¹ Source: Financial Access CGAP and World Bank 2010.

BOX 7: THE WORLD BANK REMITTANCE PRICES WORLDWIDE DATABASE

The World Bank Group's Financial Sector Strategy of March 2007 set as a goal the reduction of remittance costs, and called for the creation of a remittance prices database. The World Bank launched the remittance prices database in March 2008 – remittanceprices.worldbank.org. It has been continually upgraded, and is updated every six months; the most recent update was done in October 2011. Currently, the database covers 219 “country corridors” worldwide. The corridors studied comprise 32 major remittance sending countries to 89 receiving countries, representing more than 60 percent of total remittances to developing countries. In most cases, data was captured from the main sending location/area to the capital city or most populous city in the receiving market.

Methodology and Data Collection: In the remittances market, in particular, the total cost might not always be clear to customers as there are a number of variables that go into it: the transaction fee, the exchange rate applied and the margin eventually charged, and the speed of the service, among others. Researchers posed as customers and contacted individual firms to collect within each corridor. Data was obtained within each corridor on the same day, in order to control for fluctuations in exchange rates and other changes in fee structures. It should be noted that data in this database is intended to serve as a snapshot of a moment in time, and that pricing may vary over time.

The following data is collected from 8-10 major service providers in each corridor including both the primary Money Transfer Operator (MTO) and Banks active in the market, for standard remittance amounts of US\$ 200 and US\$ 500.

Transfer fee: This is the most visible cost component, and can differ significantly among market players. This fee usually represents the charge the sender pays at the initiation point, and usually varies with the amount sent, within set bands. In some cases, there may be fees and taxes charged at the destination that have not been detected in this database.

Exchange Rate Fee: An important portion of the remittance cost is the exchange rate spread, which is generally not quoted in the transfer fee. Even though in some receiving countries remittances can be paid in the same currency of the sending country, the majority of remittance transactions are paid in local currencies, and, thus, an exchange operation is required.

Product: The survey covered mainly cash-to-cash transactions. For some RSPs different products were surveyed.

Speed of transfer: The speed of transfer is the time needed for the remittance to be available for the receiver.

Network coverage: The following categories are used to describe RSP coverage: nationwide, urban only, rural only, main city, and major cities.

The World Bank has developed a price database for international remittances (see Box 7). Some of the key concepts underlying this price database may be used for other retail payments as well.⁶²

Develop initiatives to foster consumer education and awareness. The success of the actions mentioned above is based on a certain minimum level of consumer awareness. Initiatives to improve consumer awareness through education campaigns are therefore critical. These initiatives should be developed in a format that is appropriate to the socio-economic context and literacy levels of the target populations.

GUIDELINE II: Retail payments require reliable underlying financial, communications and other types of infrastructure.

These infrastructures should be put in place to increase the efficiency of retail payments. These infrastructures include inter-bank electronic funds transfer systems, inter-bank card payment platforms, credit reporting systems, data sharing platforms, large-value inter-bank gross settlement systems, a reliable communications infrastructure, and a national identification infrastructure.

DESCRIPTION

As earlier discussed, an effective national retail payments system should be able to provide users with an adequate mix of payment instruments and services to satisfy a wide variety of payment needs, ranging from card payments that can be initiated at merchant loca-

tions to electronic funds transfers that can be initiated through a variety of channels. Providing such services efficiently requires an appropriate infrastructure of access points and for transaction processing. These include payment card switches to enable online authorization of card payments, a sufficient number of POS terminals to initiate card payments, or an ACH to process EFT-based products efficiently and within standardized service levels, among others. Absence of such infrastructure components severely hinders the system from exploiting the potential benefits of modern payment instruments. For example, credit card payments being manually authorized and manually processed thereafter are not very much different in efficiency terms from paper-based instruments.

The provision of safe and efficient retail payment services also relies to an important extent on there being appropriate clearing and settlement arrangements. A centralized inter-bank clearing and settlement system enables the entities providing the payment services to focus on their particular transaction authorization services, account management services, and operational responsibilities in the payment clearing and settlement networks.

A safe and reliable clearing and settlement mechanism is based on a robust infrastructure as well as on a sound and clear set of rules and procedures for sorting and exchanging information pertinent to the individual payments and participants involved, and for transferring the funds related to these payment transactions. In this last regard, a crucial element is a system for final settlement with appropriate risk management mechanisms. Typically, time-critical payments such as those associated with financial market transactions settle in a system that guarantees finality and has appropriate risk management mechanisms to address credit risk and liquidity risks of participants. Very often, real-time gross settlement (RTGS) systems serve this function. RTGS systems typically settle transac-

⁶² Some central banks have already developed price databases for domestic retail payment services. See for example Banco de Mexico's database on maximum fees and surcharges for payment services as determined by service providers, and the calculator for current account fees, available at www.banxico.org.mx/sistemas-de-pago/sistemas-pago-servicios.html.

tions in central bank money and there are defined risk management mechanisms like queuing, liquidity optimization, and liquidity injection through repos. By settling the final positions of retail system participants (i.e. usually net positions stemming from the clearing cycle) in an RTGS system, retail systems also benefit from RTGS arrangements.⁶³

Provision of credit cards and other credit services like overdraft on debit cards and current accounts, and also for merchant acquiring for payment cards involves a credit decision process by the issuer. The lack of an effective industry-wide credit reporting system hampers an institutions ability to take a view of the credit risk associated with the applicant. This could result in denial of the service itself. This is particularly important for enhancing usage of payment services by Small and Medium Enterprises (SME). Studies have shown that access to finance is higher in countries with credit reporting systems.⁶⁴ The flow of information of payment services usage to credit reporting systems could also enhance the information available for credit decision process.

A payer or payee wanting to avail non-cash based payment services, needs to have a formal relationship with an institution providing payment services. Increasingly, because of money laundering and terrorism financing concerns, the institutions providing payment services require a robust identity-verification mechanism.

All the aforementioned systems and infrastructure interconnect multiple parties requiring a fast response to their requests or enquiries. Therefore, a robust telecommunications infrastructure in the country is a

critical prerequisite for the effective functioning of all the various systems supporting and underlying retail payment services.

It must be noted that, in order to benefit from the infrastructure components discussed in this section, the participating institutions *themselves* need to have certain basic systems for their internal operation. Financial institutions and other institutions that offer payment services need to have automated and centralized account management infrastructure, in order to support electronic payment mechanisms. Electronic payments involve electronic transmission of the payment instruction between the payer and his financial institution, between the payer's financial institution and payee's financial institution, and finally between payee and his financial institution. Since these exchanges of instructions happen in real-time or near real-time, the financial institutions would need an automated centralized customer account management system for processing these, because a decentralized system would require additional steps, which would be inefficient, and if the operations are manual, impossible.

It should be noted that these infrastructures are listed as an illustration of the typical infrastructure components that underpin provision of electronic retail payment instruments. These need not be standalone systems: there are successful examples of some of these components being integrated into one system for (e.g.) the large-value inter-bank gross settlement system and the inter-bank electronic funds transfer system intended for retail-type payment transactions have been integrated into one platform in many countries. In fact the World Bank has actively advocated for such an integration to build efficiencies especially in countries where there are no existing electronic systems of that type.⁶⁵

⁶³The World Bank Global Payments System survey 2010 showed that 86 percent of ACH systems worldwide were using an RTGS system for their final settlements. The equivalent figure for payment card switches was 54 percent.

⁶⁴The World Bank Group 2009.

⁶⁵Such a system is normally referred to as an "Automated Transfer System" (ATS) by the World Bank

Possible Actions

Develop an implementation plan to deploy the required industry level infrastructure components, anchored in an overall payment system development plan: This has been found to be very successful in addressing the infrastructural shortcomings in a rapid manner. Retail payments infrastructure development is a complex task typically involving a high degree of collaboration between various institutions that often are also direct competitors in the provision of payment services. Therefore, infrastructure development needs to be a well-deliberated and collaborative exercise involving detailed analysis of the needs, the usage patterns, pricing levels, risk management, governance arrangements, ongoing enhancements, and evaluation of potential to reuse and build on existing infrastructure.

Promote the adoption of common technical and usage standards for payment services to facilitate interoperability and thereby widespread adoption of electronic payment instruments: Common technical standards are a basic requirement for developing interoperable platforms. Interoperability improves overall efficiency (e.g. by enabling straight-through processing) and increases convenience to users. Lack of common standards is likely to result in each payment service provider needing to create its own proprietary systems, procedures, and in many cases enter into specific business alignments with payees and payers.⁶⁶

⁶⁶ In a retail payment system there are multiple levels of standards: (i) customer to financial institution; (ii) interbank standards; and, (iii) financial institution to customer standards. There have been multiple developments in the area of interbank standards like ISO20022, ISO 8583, etc. focusing on data formats for transaction processing. In addition, there have been standards focused on specific areas like authentication – 3D Secure for e-commerce card transactions, EMV for chip cards; data security – Payment Card Industry Data Security Standards (PCI DSS); and, account numbering – IBAN. There are also standards for specific products like SEPA credit and debit transfers, and standards for specific card products by Visa, MasterCard, and American Express.

Collaborate with industry players to speed-up the implementation of innovative mechanisms that may help in addressing infrastructural gaps: Authorities should use all mechanisms available to promote, in coordination with industry participants, the sound expansion of access points to electronic payment instruments and services. Authorities should also analyze whether there is a business case for developing some basic infrastructure (e.g. telecommunications network) to be used collectively by small service providers to offer electronic payment services, and also link up their service outlets to provide a virtual large service delivery network.⁶⁷ In some cases authorities may also consider creating suitable incentives (e.g. some tax incentives) to promote private sector investment in infrastructure for retail payments.

GUIDELINE III: Retail payments should be supported by a sound, predictable, non-discriminatory, and proportionate legal and regulatory framework.

DESCRIPTION

Payers and payees need to be confident that their interests are protected when a particular payment instrument is being used for settling their mutual payment obligation. These interests include receipt of actual funds as per agreed timelines, protection from operational errors/fraud, and that only the agreed-upon cost is charged. The intermediaries and service providers also need a clear and predictable legal environment, wherein they are clear about their obligations and also how any disputes that arise would be settled.

⁶⁷ A good example of this is the establishment of “LA RED DE LA GENTE” by creating a common infrastructure of credit co-operatives and establishment of a fund “FIMPE” for rapidly expanding POS terminals.

The legal and regulatory environment includes laws, regulations issued by the central bank or other regulatory bodies, and the set of rules, standards, and procedures agreed upon by the participants of a payment system and between providers of payment instruments and services and their subscribers.

Increasingly, laws with specific applicability to payment and settlement systems are being developed—as opposite to laws of general applicability to all relevant sectors of the economy—to address in a more precise way the specificities and particularities of payment systems and services. Some of the most relevant legal provisions supporting a well-functioning retail payments market include:

- Recognition of electronic payments as valid means of payments, including the responsibilities and rights of the parties involved.
- Acceptance of digital signatures, digital records, and digital exchange of payment instructions as equivalent to their physical equivalents. Likewise, recognizing frauds made with or through these elements as crimes and typifying them.
- Finality of the settlement of positions stemming from clearinghouses and other clearing mechanisms.
- A designated authority, usually the central bank, vested with oversight powers.
- Recognition of payments as a business service that has a number of functions that can be regulated and overseen separately from some of the other traditional banking functions such as lending or deposit-taking.

- Adopting a regulatory framework that is proportionate to the nature, scale, and risk profile of the various types of payment service providers.
- Creation of an enabling environment for innovation, including provisions guarding against anti-competitive practices and ensuring consumer protection.

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, for example for detailed operational issues and scenarios, specific agreements among participants might be adequate. In this case, an appropriate professional assessment of the enforceability of these arrangements is usually required.

Possible Actions

Determine the existing gaps with regard to the legal and regulatory framework and blend tactical measures with full-fledged reforms. This should be a cooperative effort between the central banks, other authorities, and market participants to ensure all views and different expertise are taken into account. Moreover, it should not be a one-time effort but rather a recurrent one to ensure that the legal and regulatory framework keeps pace with new developments.

In cases where most of the key provisions do not exist at the law level, consider developing an overarching law (i.e. a “Payment Systems Law”) that addresses as many such issues as possible. In some situations adopting new laws could be time-consuming which could delay developments and implementation of new products or systems that are critical for the achievement of public policy objectives. In such situations certain tactical measures which keep in mind the overall legal reforms framework in mind could be adopted. Such measures could include issuing regulations, develop-

ing guidelines and also entering into memorandums of understanding and agreements with system participants and payment service providers.

The law should vest the central bank with adequate powers to regulate and oversee retail payments: This empowerment should be broad enough to allow the central bank to issue regulations and guidelines to rapidly react to specific situations without necessarily having to amend laws. Moreover, it should allow the central bank to propose new regulations and other types of measures in areas that are not directly under its jurisdiction.

The central bank should ensure that payment system operators and payment service providers develop a sound set of system rules and procedures, and that these be revised periodically for any required updating.

GUIDELINE IV: Competitive market conditions should be fostered in the retail payments industry, with an appropriate balance between cooperation and competition.

DESCRIPTION

The following key issues need to be analyzed in detail to determine whether any given market for retail payments operates under competitive conditions.⁶⁸

⁶⁸ This discussion is based on the analysis presented in World Bank document “Balancing Cooperation and Competition in Retail Payment Systems: Lesson from Latin America Case Studies”, Washington, 2008(a).

Environmental, legal and legacy issues

The market for retail payments services is characterized by:

- *Economies of scale* in messaging, clearing, and settlement services due to the fixed costs of the infrastructure;
- *Economies of scope* in clearing and settlement as well as in messaging services due to technology flexibility; and,
- *Network externalities* in messaging, clearing, and settlement services produced by complementarities of users and/or products and compatibility of products.

These characteristics have resulted in natural monopoly features that cause a high concentration of payment platforms, sometimes due to vertical or horizontal integration in financial infrastructures.⁶⁹ Whether this is a positive or negative result is unclear—there is not a definitive answer. Effective cooperation may exploit economies of scale and scope and network externalities in a cost-efficient way, and is likewise crucial for setting standards that will secure compatibility between the various products. However, centrally agreed upon common features can sometimes hamper product and/or service differentiation and innovation at the individual service provider level.

Retail payment markets are also influenced by a number of dynamics. Some of these are specific to the end users, some are specific to the platforms (networks), and some depend on the intermediaries:

- *Switching Costs*—at the platform level (for platform participants), at the cross-product level

⁶⁹ See Bustos and Galetovic, U of Chile, 2003, Tapking and Yang, ECB, 2004 and Lai, Chande and O'Connor, Bank of Canada, 2006.

(among payment instruments) and within the same type of product. Switching costs may prevent the adoption of better technologies and social optimization.

- *Path Dependence* as the legacy of previous technology developments, often determined by transient conditions, does typically influence later choices and outcomes, thus, restricting investment decisions that may negatively affect innovation and adoption of more efficient technologies.
- *Tipping points* as there is a tendency for one system to end up as the dominant one (payment card systems are an exception). Since the network externalities dictate higher utility for each participant by adding more participants, the participants' individual and group utility can be raised if everybody participates in one single network, and if there are no significant capacity limitations that can give rise to serious congestion effects.
- *Multihoming and stickiness*. In most cases, both sides in a payments market use several platforms, i.e. they *multihome*. Consumers have more than one type of payment instrument, and merchants accept several types of instruments. This *multihoming* also takes place within one type of instrument (e.g., credit cards). Often, however, the consumers favor one card over another, i.e. their usage is *sticky*.

Public ownership of retail payments infrastructure is another factor that may impact competition. In response to coordination problems or due to legacy reasons, the central bank may be the owner and op-

erator of one or more retail payments infrastructures.⁷⁰ Under certain circumstances, for example inadequate pricing or overly restrictive criteria for participation in the system, such public ownership of retail payments infrastructure may skew the pricing signals and market structure.

The legal and regulatory environment may also establish barriers to competition. For example, in some countries the legal framework directly prohibits non-banking entities from providing any type of retail payment services, even those not directly linked to a bank current account. In other cases, a similar effect is achieved through regulations that limit the provision of central bank account services to banks. In such situations, if a retail system settles its final positions in central bank money, then direct participation in that system by non-banks may not be feasible in practice.

Access to the relevant infrastructure and limitations to interoperability

Gaining access to messaging, clearing, and settlement services is of capital importance for the ultimate success of new entrants in the market. In the absence of appropriate governance arrangements, participants with a dominant position in a payments infrastructure may establish strategic barriers to prevent new entrants to the system.⁷¹ These barriers could be explicit or implicit in terms of higher pricing terms and access requirements.⁷²

Players with a dominant position in an infrastructure can alternatively block access to it for the customers

⁷⁰The Global Payment Systems 2010 showed that 51 percent of check clearing houses and 40 percent of ACH's were operated by the respective national central bank. Also, around 20 percent of the payment card switches were either operated by the central bank or other governmental bodies.

⁷¹ Guideline V deals with governance issues for retail payment systems.

⁷² On the other hand, as earlier discussed, the operator of the payment infrastructure often establishes an access policy to ensure adherence to specific rules and also as a risk management measure to ensure overall safety and stability of the infrastructure being operated.

of other issuers of the same payment instrument. This situation is known as lack of cross-platform interoperability, and is an important element that hinders greater competition and efficiency in the marketplace by impeding lowering of processing costs, duplication of infrastructure, and service providers focusing on competing through larger investments in infrastructure rather than by offering better products and services to their customers. While lack of cross-platform interoperability is usually associated with some payment card systems, it can also be observed for EFT-based products, for example co-existence of two or more ACHs for the same payment instruments that offer the same or very similar services to their respective participants.⁷³

There is also the case of infrastructure-level interoperability, whereby the same infrastructure can be used to support multiple payment mechanisms. This is especially relevant for innovative payment products, since without some basic interoperability with more traditional payment instruments and systems their acceptance and/or usefulness for consumers might be very limited.⁷⁴

However, in the case of innovative payment products, requiring cross-platform interoperability when the individual platforms are not that well developed could be onerous.

Broadly speaking, an interoperable payments system enables the seamless participation of two or more proprietary acceptance and processing platforms, and possibly even of different payment products, thereby

promoting competition and also enabling economies of scale. In general, lack of interoperability could foster anti-competitive practices. However in the case of innovative payment mechanisms, when and how to impose interoperability is a significant policy issue.

In the context of retail payment, there could be multiple levels of interoperability—*system-wide*, *cross-system*, and *infrastructure-level*. A system that has only system-wide interoperability enables competition among the participants of that system, a system that has cross-system interoperability enables competition between systems; a system that has infrastructure-level interoperability enables the same infrastructure to be used to support multiple payment mechanisms thereby also supporting competition between payment instruments. For example, an acquirer who has deployed an infrastructure for accepting Visa cards must process all Visa cards (system-wide), and can also additionally use significant components of the infrastructure to process transactions of competing payment card brands like MasterCard (infrastructure-level), and also Visa and MasterCard networks allow routing of transactions among themselves; however an acquirer that is not a member of MasterCard cannot accept a Visa branded payment card, even though his infrastructure can support it, (i.e.) no cross-system interoperability. A bank-operated proprietary payment infrastructure is not inter-operable on any of these dimensions. A system that is inter-operable on all levels would enable an entity deploying acceptance infrastructure for a particular payment instrument to be confident that customers with that payment instrument—irrespective of their banking/partner affiliation—would be able to use the infrastructure, thereby creating a stronger business case for the entity. This would enable the entities involved in the payment system to compete on quality of services, while collaborating in terms of creation and operation of the underlying system.

⁷³ In the Global Payment Systems Survey 2010, only 57 percent of the central banks reported that the payment cards system in their country was fully interoperable for ATM transactions, and an even lower number of 45 percent for POS transactions.

⁷⁴ For the Global Payment Systems Survey 2010, 61 percent of the innovative products/product groups reported were proprietary with no interoperability, and only 30 percent had some form of linkage with traditional retail payment instruments and systems.

There have been arguments that the requirement for interoperability could impact innovation and be too onerous a requirement for new innovative payment products. For example, if a bank develops a new innovative mobile payment service, it might need to invest significant amounts in developing an acceptance network. To protect its investment the bank might want to lock in these merchants in an exclusive arrangement for a long period of time. If this is not allowed, the bank might not find it viable to make the first move in promoting this product, and would wait for an industry-wide collaborative exercise to take effect. While this is a persuasive argument, it needs to be borne in mind that if the innovation is truly novel, the entity could always seek protection of its interests through seeking a patent. That approach with the built-in protection for ensuring optimal social benefit of innovations would, perhaps, be better than relying on setting up barriers using exclusive arrangements and other business arrangements.

Requiring cross-system interoperability when the individual systems are not that well developed could indeed be onerous, and where the systems are independently managed with different membership rules requiring cross-system interoperability might be unviable. One approach to achieve a significant degree of interoperability could be to require, at a minimum, system-wide and infrastructure level interoperability, and to make cross-system interoperability necessary for systems that cross a particular scale of operations; and also require fair, transparent, and non-discriminatory membership criteria to promote cross-membership. A sizeable cross-membership combined with system-wide and infrastructure level interoperability would enable achievement of de-facto cross-system interoperability.

In general, when interoperability is discussed, it is in the context of similar payment instruments, for example the payment card of one issuer being usable

at the various payment card infrastructures available domestically or even internationally. In the context of innovative retail payment products, interoperability is not that straightforward as it could mean not just interoperability in the context of the same payment instrument but also with other payment instruments, either traditional or innovative or both. For example, for a mobile money product interoperability could mean one or more of the following: ability of the customers of one mobile money issuer to use the product to make purchases at institutions not directly affiliated with his issuer; ability of the customers of one mobile money issuer to use the product to perform transactions like cash withdrawal at institutions not directly affiliated with his issuer, either at POS terminals or other acceptance infrastructure like perhaps the merchants mobile phone; and ability of the customer to top-up and transfer the balance in his mobile money account from/to various types of accounts, including, for example, another mobile money account operated by another telecom provider or a traditional bank account.⁷⁵

Innovative retail payment mechanisms in general are at least initially structured as proprietary solutions, typically because they are new developments for which there are no agreed-upon standards in the domestic context, though at times it could also be because of an attempt to block competition, for example by requiring exclusivity from agents.

Pricing of payment systems infrastructure services

Pricing and fee patterns for accessing the infrastructure supporting retail payments have an impact on the

⁷⁵ There could be other aspects, such as the ability of the mobile money customer to seamlessly migrate his mobile money account when he changes his mobile number or when he switches to another mobile phone company. But these aspects should not be confused with interoperability, as they actually refer to the “portability” of access devices and account identifiers. This is akin to bank account portability.

industry structure and competition. The pricing structure for accessing a retail payments system is often a complex structure involving:

- Joining fees—often determined based on size of the participant, projected transaction volumes, membership type (e.g. direct or indirect), and other similar factors.;
- Membership fees—often collected periodically based on transaction volumes and other non-usage based parameters;
- Per-transaction fees—typically collected more frequently and directly linked to usage levels, with tiered pricing in many systems;
- Contributions to various funds like settlement guarantee funds, marketing funds and so forth; and,
- Exception fees—linked to occurrence of certain events such as, for example, settlement delays, termination of membership, and other similar events.

This complex structure of fees is typically set to arrive at an equitable sharing of investment costs and proportional allocation of marginal costs, with an inbuilt revenue generation. The complexity of the fee structure can have a series of effects on network participation and development; it can for example: even out average participation costs between small-volume and large-volume participants, and thus encourage more direct participation; enable the incumbents to misuse pricing structures to discourage new entrants; and support or

discourage innovation in technology and services by affecting the pattern and rate of accumulation of system development funds.⁷⁶

As previously discussed, public ownership of retail payments infrastructure may skew the pricing signals, and as a result affect market structure and competition. For example, the pricing structure may reflect a lack of urgency to recoup the investment costs and generate adequate returns. This could hamper both innovation and infrastructure modernization, as well as become unfair competition for other similar infrastructures owned by the private sector.

However, it needs to be noted that even with public ownership the pricing structure can be set in a way that it does not impact competitiveness of private ventures.⁷⁷

It should however be borne in mind that pricing models in payment services, as in many other industries, need not necessarily be cost-based pricing. Use of electronic payments brings about a range of benefits to various stakeholders:

- *Payee*: benefits range from reduced operational expenses to increase in sales arising from customers not being limited by the cash in their person and in the case of credit cards even enhancing the payers ability to pay;
- *Payers*: more convenience;

⁷⁶ There are also positive effects to non-linear pricing schemes in network industries. See Rochet and others such as Chakavarti on (two-sided) network pricing. Also unpublished memos by McAndrews (Federal Reserve Bank of New York), Angelini (Banca d'Italia), Green (Pennsylvania State University), O'Connor (Bank of Canada).

⁷⁷ In the United States, for example, the Reserve Banks operating ACHs follow a pricing policy that requires them to ensure full recovery of all costs and inclusion of a private sector adjustment factor to reflect the cost structure of a private operator. This enables the three private sector ACHs to compete with the ACH services provided by the Reserve banks. For additional information see Oliver and Weiner 2009.

- *Issuers of payment instruments:* lower operational expenses; and
- *Government:* operational efficiencies through automated funds, accounting and records management systems and also increased financial intermediation.

Each of these stakeholders also experience a particular set of constraints and legacy inertia factors that impact adoption of electronic payments. This gives rise to various pricing models designed to build in incentives to increase adoption of electronic payments, some of which do not necessarily result in exact apportionment of costs incurred. One such model is that involving interchange fees in card payments. In any case, the entities involved in the electronic payments value chain should be able to operate in a commercially viable manner, failing which their capacity to continually invest in and their incentive to innovate would be impacted. At the same time, the users of electronic payment instruments need to be better off with using the electronic payment instrument instead of cash.

Payment cards specific topics

The pricing structure and specific program rules in card payments have for long been argued to be anti-competitive. The divergent views emerging from the current research on these specific issues is presented below. Some regulators have already taken specific interventions in this area. The impact of some of these actions has been studied but needs to be interpreted in the specific context of that country and it is not yet clear whether some universal policy actions emerge from the prevalent research.

Interchange fees are arguably the most discussed of these aspects. Interchange fees are payments between issuers and acquirers. Their direction and amount is typically a function of the type of transaction, type of card being used, type of merchant accepting the card,

channel through which the transaction is being conducted, whether the transaction is domestic or international, the authentication mechanism⁷⁸ used, and in some cases the amount of transaction. Interchange fees are typically set by the payment network, and enforced uniformly for all similar type of transactions processed through that network. Interchange fees are, in general, meant to balance the interests of the parties involved in a transaction: merchants, acquirer, issuer, and cardholder, and to create the right incentives for the parties to maximize the volume and value of transactions processed through the payment network. The level of the interchange fee is very relevant because, among other aspects, it sets a floor for the fees charged by card acquirers to merchants (i.e. merchant service fee). If the merchants feel that the processing costs are too high, possibly because of the higher interchange fees, then the number of card acceptance points will not develop as fast as it would be desirable. Conversely, if the interchange fees were too low, then the issuers would need to suitably adjust the fees charged and incentives provided to cardholders.

The so-called *Honor All Cards* (HAC) rule enforced by most payment networks typically requires the acquirers to ensure that their merchants accept all the cards affiliated with the payment network. The affiliation of a card to a payment network is typically visually represented by a logo of the payment network placed on the face or obverse of a card. In some jurisdictions, a distinction is made between accepting all types of cards affiliated with a payment network and all cards of a particular type affiliated with the payment network, irrespective of the issuer. This rule very clearly enables greater utilization of the payment network by

⁷⁸ For example, interchange fees for ATM transactions are typically paid by the issuer to the acquirer and is a fixed amount irrespective of the amount of withdrawal; interchange fees for transactions at merchants are paid by the acquirer to the issuer and is usually a percentage of the transaction amount; interchange fee for Internet transactions are higher than interchange for point of sale transactions; interchange fees for transactions authenticated using PIN are lower than transactions conducted without PIN, and so forth.

BOX 8: DURBIN AMENDMENT – THE DODD-FRANK WALL STREET REFORM AND CONSUMER PROTECTION ACT

The Durbin amendment, as it is called, targeted all the three areas—HAC, NSP and interchange fees rules—in the United States market. Some of the most relevant provisions are the following:

1. The Federal Reserve is to ensure that the interchange fees for debit cards be “reasonable and proportional.”
2. The debit cards and prepaid cards used for Government benefit programs and also debit cards issued by banks with assets lower than \$10 billion are exempt from the interchange fee limitations.
3. The Act allows merchants to offer discounts for payments for specific cards, cash, or other forms of payments, provided there is no discrimination by issuer or brand.
4. The Act allows merchants to set a floor of below US\$10, under which credit cards acceptance can be denied.
5. The Act allows merchants to route transactions over a payment network of their choice, by requiring the payment networks to not impose specific routing requirement.
6. The issuers are required to be affiliated with at-least two card processing networks to allow the merchant a choice of network routing.

Note: Further details are available at the Federal Reserve Board's website: www.federalreserve.gov.

enabling introduction of new types of cards. However, there are drawbacks to this rule, which are discussed subsequently.

The *No Surcharge Policy* (NSP) is another of the contentious aspects. This rule typically enforced by payment networks requires the acquirer to ensure that the merchant does not surcharge, (i.e. add an additional fee) for payments made with a card.⁷⁹

Merchants, merchant associations and lobbyists have long argued that the combination of interchange fees, the HAC rule and the NSR rule is anti-competitive.

⁷⁹In some jurisdiction, for example in the United States, merchants are however allowed by law to offer a discount for cash payments.

They argue that, taken together, this troika of rules forces the merchant to accept all payment instruments at par, and either absorb the extra costs or pass them on equally to all payers in the economy, amounting to a cross-subsidy for payers using payment cards and place the merchant at a disadvantageous position.

The contentiousness of the HAC and NSP rules stems from the merchants' reluctance to accept certain types of cards, typically those that bear higher interchange fees, which is believed to directly reflect in a higher merchant service fee charged by the acquirer to the merchant. The HAC and NSP rules force the merchant to absorb the higher costs, as these rules require them

BOX 9: THE WELLINK REPORT

In April 2001, in the context of the public debate about tariffs charged for the use of payment instruments and the way the payment infrastructure in the Netherlands functioned, the Minister of Finance asked the President of the Nederlandsche Bank (central bank of the Netherlands) to lead an investigation into tariff structures and infrastructure in retail non-cash payments for individual and business users. A working group was established chaired by the President of the Nederlandsche Bank and including the chairmen of the boards of seven banks, the president of Interpay and the chairman and the director of the Dutch Bankers' Association.

At that moment Interpay played an important part in processing electronic POS payments. First, as the agent responsible for transporting the information required for authorization of each transaction by the banks. Secondly, it managed the EFT-POS terminal network. The network linked retailers' terminals to the banks' computers, allowing every card holder to pay at any terminal. The network then linked 165,000 EFT-POS terminals, servicing the 20 million debit cards. And thirdly, Interpay also did the clearing of interbank positions resulting from electronic payments; it provided payment information to the banks and was responsible for submitting the settlement instructions to the Nederlandsche Bank, which effected the final settlements.

As a provider of network and transportation services for the authorization of debit card payments, Interpay took up a key position in processing electronic payments. Whereas Interpay competed with other banks and nonbanks, such as credit card companies, in many of its activities, it was the sole provider of the network and transportation services mentioned above in the Dutch payments market. The fact that Interpay was the single acquirer who contracted with business users had been the subject of debate. Retailers' criticism of the tariffs charged by Interpay and of its authority to set EFTPOS terminal specifications had been especially severe.

In order to achieve further efficiency improvements in payment systems it would, in the opinion of the central bank, be desirable to stimulate market forces. In this context, it has recommended:

- (i) the introduction by the banks of the possibility for private customers to choose between different tariff structures;
- (ii) continued research into the public efficiency of POS payment instruments as a basis for policy aiming at optimum efficiency in the retail payment market;
- (iii) the creation of a 'consulting group on payment services' as a discussion platform to reach agreement on changes in the payments market and for the structured collection and analysis of information on payments and payment systems;
- (iv) contracting for corporate debit card services, including networking services, to the banks;
- (v) the creation within Interpay of a users' advisory group on the use of debit and prepaid cards;
- (vi) improving the transparency of Interpay by having it provide more detailed information in its external reports;
- (vii) the inclusion in Interpay's Supervisory Board of independent experts in order to improve corporate governance.

This report was accepted by the Government and all the recommendations were implemented. Interpay now does not contract acquiring services with merchants.

to accept all cards and not dis-incentivize usage of specific cards by giving a discount for payment with another card or another form of payment.

Some researchers have also argued that the HAC and NSP rules result in obfuscating the price signals and help in promoting payment behaviors which benefit only issuers of payment cards and card networks and thereby artificially boost the growth of particular payment products at the cost of more efficient ones.⁸⁰ They argue that the dismantling of HAC and NSP rules would therefore allow the merchants to provide the right pricing signals related to the processing costs of the payment instrument and thereby encourage a shift to more efficient payment instruments and lower interchange payment cards like debit cards or even specific types of debit cards.

It is however unclear whether the merchants would necessarily reflect the processing costs correctly in the surcharges. Card networks, issuers, and other entities argue that the merchants might not necessarily set the surcharges on a cost-recovery basis, and could in fact profit from surcharges. There is insufficient research to show how surcharges behave in the long-term. Also, given the large number of merchants, it could be difficult to enforce and monitor the surcharge levels. In addition, these rules provide the ability for card payment networks to introduce new products in a more efficient way thereby supporting innovation.

The regulatory action thus far, has been widely divergent and has been guided by different public policy goals.⁸¹ Some of the actions have been focused exclu-

sively on one of these three aspects, though in some recent cases all three aspects have been focused upon together (see Box 8).⁸²

In countries with underdeveloped payment cards markets, the HAC and NSP rules could in particular play a positive role and help in creating an enabling environment for faster introduction and adoption of payment cards and innovations.

Another aspect related to competition in relation to payment card systems is the way underlying payment card infrastructure is setup. A payment card network is generally established as a four-party model⁸³ in the sense that there are parties involved in a payment card transaction – cardholder, issuer, acquirer and merchant. In these models the payment card network does not issue cards or acquire merchants and there is a competition in the provision of cards to card-holders and merchant services to merchants. However there are so-called three-party models⁸⁴ and the parties involved are: (i) cardholder, payment card company, merchant. In these models, the payment card company issues cards and acts as the acquirer. There are variants of these two schemes, a notable variation of four-party model is where the card network functions also as an acquirer however does not issue cards. In situations where four-party and three-party models co-exist or there are multiple such arrangements in a country, it can be argued that competition is not impacted. However in situations where the three-party model is the only card network in the country for domestic transactions or variants where a lone card network also functions as the lone acquirer in the market there could be competition concerns, the experience

⁸² The Australian experience with reforms on HAC, NSP and interchange fees rules is also presented in Annex 4.

⁸³ Examples of this include Visa, MasterCard and also many domestic card payment networks.

⁸⁴ Examples of this model include American Express and Discover. The card company could issue cards or function as an acquirer also through franchisee arrangements.

⁸⁰ Leinonen 2009.

⁸¹ For a snapshot of all the recent regulatory actions and a scan of the research on these topics, refer to Chakravorti 2009 and The World Bank 2008(a).

of the Netherlands is presented in Box 9. In the World Bank Global Payment Systems Survey 2010, operators of 52 switches in 35 countries also functioned as an acquirer. Including in developed payment card markets like Brazil, Hong Kong, Singapore and Belgium.

EFT products specific topics

Interchange as an issue applies to EFT-based products as well. However, it has not been that controversial since the interchange fees involved are smaller, and also they do not involve external entities like merchants. However, interchange fees have been found to impact choice of the EFT-based products versus other products like cheques which do not have the same interchange structure.

Innovative products specific topics

As mentioned earlier, most innovative products involve use of agents or a closed network of acceptance points. In many of these cases, exclusive arrangements are created for these tie-ups, thereby blocking an agent/acceptance point of one innovative product being able to accept another innovative product. In addition, given that many of the issuers of innovative payment products are not banking entities, they typically lack access to traditional clearing and settlement infrastructure. This could directly impact interoperability of innovative payment products with traditional payment products.

Possible Actions

The World Bank study: “Balancing Cooperation and Competition in Retail Payment Systems” recommended a number of guidelines (see Box 10). These have also been synthesized below.

Central banks and other authorities should determine their policy objectives with regard to competition in the market for retail payments, and make them transparent to stakeholders: Policy making is complex due to the institutional fragmentation of relevant policy mak-

ers as well as by the different—and sometimes overlapping—scope of their mandates. An ex ante and transparent determination of policy objectives clarifies different actors’ roles and avoids mistrust in the development and operation of the infrastructure. This is especially important if the public sector is one of the infrastructure providers. Interventions should be closely related to the public policy objective(s) being pursued and upon evidence of perceived market failure. For example, in the presence of a sufficient number of service providers and lack of interoperability, efficiency might be a primary objective to be pursued. On the other hand, insufficient access to and excessive cost of payment services, coupled with an insufficient degree of innovation, might be a call for more competition, including networks and clearing arrangements.

Central banks should include the monitoring of aspects related to anti-competitive behavior as part of their oversight function: As earlier discussed, such practices include exclusive arrangements, unjustified denial of access to infrastructure, and unfair pricing mechanisms for infrastructure participants, among others. Although, the actual investigation and any regulatory actions on these aspects might be the responsibility of other specific authorities, including the same as part of a central bank’s oversight activities would help in identifying such instances faster, and the central bank would be able to provide specialized feedback to such other authorities. Rules prohibiting certain anti-competitive behaviors could also be included as a condition in the licensing of payment system operators (i.e. license could be withdrawn in case of violation).

Central banks should also use their oversight function to balance other cooperation and competition issues: Identifying the socially optimal level of interchange fees and other interbank fees is a very difficult task, since competition at three different levels needs to be considered (across payment instruments, across platforms, across service providers of the same platform)

BOX 10: GUIDELINES FROM THE WORLD BANK REPORT “BALANCING CO-OPERATION AND COMPETITION IN RETAIL PAYMENT SYSTEMS”

Guideline 1: Market complexities need to be recognized and analyzed in detail before any action is decided and implemented.

- Environmental, legal and legacy factors are important issues shaping the evolution of retail systems.
- Governance of the infrastructure has a significant impact on cooperation and competition. Ensuring neutrality, objectivity and contestability normally requires a closer public scrutiny.
- Gaining access to messaging, clearing, and settlement services is of capital importance for the ultimate success of new entrants in the market. Players with a dominant position in one infrastructure may have the incentive to create barriers for access to new entrants. The authorities' analysis should go beyond traditional payment system providers (e.g., banks) and consider the role of new players (e.g., non-financial sector providers) and new instruments (e.g., mobile payments).
- Pricing of some retail payment systems are subject to network economies (e.g., two-sided markets) and traditional cost structures are not appropriate to analyze these markets as pricing structures matter. Interchange fees (e.g., cards markets) and interbank fees (e.g., ACH markets) are mechanisms to balance different interests in payment networks but can also be advantageously used by dominant infrastructure players. In order to determine a socially optimum level, competition at three different levels needs to be considered (across payment instruments, across platforms, across service providers of the same platform) and, also, the different nature of payment instruments (e.g., credit cards providing a payment and a credit service).

Guideline 2: Policy trade-offs are relevant in this domain. Therefore, policy priorities will have to be determined and the type of public intervention should depend on the main public objective(s) pursued.

- Public policy objectives in retail payments are multiple and none of them is in principle more important than the other. They include efficiency, safety, reliability, competition, access, and consumer protection. These objectives might need to be reconciled and prioritized, also taking into consideration the policy goals of other segments of the National Payments System (e.g. the need for a safe centralized system for the settlement of large value transactions).
- The justification for intervention depends upon the main public policy objective(s) pursued and upon evidence of perceived market failure. For example, in presence of a sufficient number of service providers and lack of interoperability, efficiency might well be the primary objective to be pursued. On the other hand, the insufficient access to and excessive cost of payment services, coupled with an insufficient degree of innovation, might be a call for more competition, including networks and clearing arrangements.
- An ex-ante and transparent determination of policy objectives clarifies different actors' roles and avoids mistrust in the development and operation of the infrastructure. This is especially important if the public sector is one of the infrastructure providers.
- Market transparency is key to promote competition and dispel mistrust among market players.
- Any policy solution should be considered in a dynamic rather than static context as these markets are constantly changing.

BOX 10 (Continued)

Guideline 3: Effective oversight of retail payment systems by the central bank is crucial to balance cooperation and competition issues.

- An effective payment system oversight is the tool authorities have to address market and coordination failures and achieve an appropriate balance between cooperation and competition in the National Payments System. In particular, the overseer plays the role of a central agent who is best placed to solve the coordination problems that typically plague multi-agent decisional contexts by mobilizing efforts from individual participants, prompting them, to act collectively when circumstances so require, and facilitating the development of private sector institutions equipped to deal with these problems.
- Central banks are the natural overseers on payment systems and should persuade themselves (or be persuaded) to play a central role due to their stake on the confidence in money and functioning of commerce and the economy in general.
- Other authorities might have an important role, as well, due to multiple implications of retail markets (e.g., competition authorities, financial supervisors, Ministries of Finance, etc.). The central bank, as primary oversight authority, should ensure all public policy goals are aligned.
- The scope of the oversight function should extend over the totality of the payment arrangements to ensure that new instruments and players (such as non-bank financial institutions and non-financial service providers) be appropriately covered.
- There is a broad range of oversight instruments, ranging from regulations and incentives (including those on access and pricing) to moral suasion and policy dialogue, from anti-trust enforcement to structural measures (e.g., government-owned service provision).

Guideline 4: Institutional mechanisms to promote cooperation and information sharing are essential.

- Policy-making is complex due to the institutional fragmentation of relevant policy makers as well as by the different—and sometimes overlapping—scope of their mandates.
- Sometimes authorities have already established cooperative arrangements but normally with a narrow scope that has to be broadened, other times these arrangements are nonexistent and need to be established.
- In particular, it is essential to develop a good cooperative framework between the overseer and the anti-trust agencies that rule against uncompetitive behavior.

and, also, the different nature of payment instruments (e.g., credit cards providing a payment and a credit service). In some cases, regulators may opt for a moral suasion approach to encourage stakeholders to evaluate their pricing policies and schemes in light of the public policy goal of achieving a socially optimal usage

of payment instruments. In this regard, preparing and presenting detailed information on the direct and indirect savings and revenues associated with migration of customers from cash and cheques to electronic payment instruments can be an effective persuasive tool.

BOX 11: THE PAYMENT CARDS INDUSTRY SECURITY STANDARDS COUNCIL

The Payment Card Industry (PCI) Security Standards Council is an open global forum, launched in 2006, that is responsible for the development, management, education, and awareness of the PCI Security Standards, including the Data Security Standard (PCI DSS), Payment Application Data Security Standard (PA-DSS), and PIN Transaction Security (PTS) requirements—all created to mitigate data breaches and prevent payment cardholder data fraud.

The PCI Security Standards Council operates a number of programs to train, test, and certify organizations and individuals to assess and validate adherence to PCI Security Standards.

The Council's five founding global payment brands—American Express, Discover Financial Services, JCB International, MasterCard Worldwide, and Visa Inc.—have agreed to incorporate the PCI DSS as the technical requirements of each of their data security compliance programs. Each founding member also recognizes the organizations and individuals certified by the PCI Security Standards Council.

All five payment brands share equally in the Council's governance, have equal input into the PCI Security Standards Council and share responsibility for carrying out the work of the organization. Other industry stakeholders are encouraged to join the Council as Participating Organizations and review proposed additions or modifications to the standards.

The enforcement of compliance with the PCI DSS and determination of any non-compliance penalties are carried out by the individual payment brands and not by the Council.

Note: The information in this Box has been adapted from the information in the website of PCI Security Standards Council: <https://www.pcisecuritystandards.org/index.php>

Institutional mechanisms to promote cooperation and information sharing are essential: Sometimes authorities have already established cooperative arrangements but normally with a narrow scope that has to be broadened. In other cases these arrangements are inexistent and need to be established. In particular, it is essential to count with a good cooperative framework between the overseer and the anti-trust agencies that rule against uncompetitive behavior.

GUIDELINE V: Retail payments should be supported by appropriate governance and risk management practices.

DESCRIPTION

Good governance arrangements provide incentives for an organization's top management to pursue the long-term interests of the organization, such as continued growth, increased coverage, profitability (where applicable), and overall viability. Payment system operators and other infrastructure services providers should be subject to mechanisms of accountability and independent oversight, including independent audits, to ensure they are pursuing such long-term interests.

All economic activities face a variety of risks, and it is the role of management to determine whether the identified risks should be avoided, accepted, shared or transferred to third parties. Major risks in operating and using payment instruments and systems include:

- *Systemic risks*, arising from linkages between various national payments system components and international payment systems.
- *Legal risks* (e.g. the legal framework not supporting some common practices, or the inadequate or erroneous compliance of the applicable legal and regulatory framework).
- *Settlement risks*, arising from liquidity or credit risk problems of the participants.
- *Business risks*, arising from the general operation and administration of the various participants in the retail payment systems.
- *Operational risks*, issues related to operational reliability of the various participants and infrastructures including issues such as fraud, data theft, or usage of retail payment for unlawful activities like money laundering or financing terrorism related activities.

Management will need to establish internal controls to mitigate the risks it decides to accept.

Risks specific to payment cards

Payment card infrastructures are for the most part globalized infrastructures and by far the most fraud-prone but also with the most advanced fraud risk management mechanisms. Counterfeit risk is a significant risk. However, technology to address this risk is available. Typically, payment card transactions involve exchange of the information about the card being used for payment, read from the cards magnetic stripe or

physically entered by the payer. This information is static throughout the life of the card. This information can be compromised at the point of transaction, in transit, at any intermediary processing system, at issuers processing system or finally by physically copying card information or extracting card information from the cardholder through social engineering attacks like phishing and vishing. A card prepared using this compromised information is called a counterfeit card. A counterfeit card can be used successfully for completing a transaction if it manages to evade the risk detection systems at the various levels, for example:

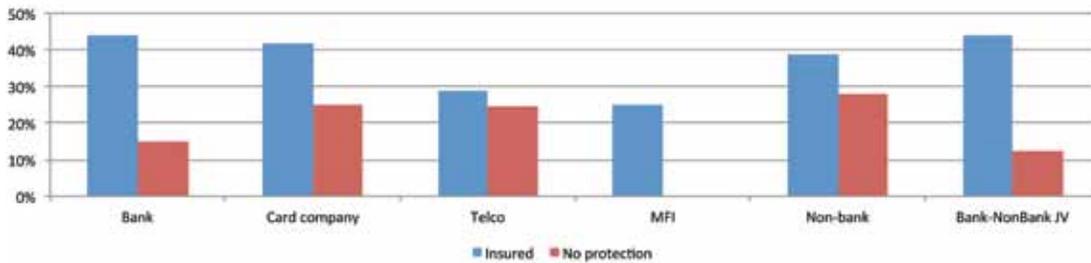
- Physical inspection of the card for verifying presence of standard physical security features like hologram stickers, issuer specific information, name of cardholder etc;
- Fraud detection at acquirer, network operators and issuers, using advanced fraud detection software often based on neural networks; and
- Strong authentication mechanisms such as a PIN number or 2-factor authentication for Internet and offline transactions.⁸⁵

In other cases the risk mitigation mechanism includes using chip in a card to create dynamic data that varies from transaction to transaction, hence making compromised information unusable. Box 11 describes a recent initiative by the payment card industry to create a data security standard for payment cards.

Identity theft is also a significant risk for payment cards. Data on the cardholder can be extracted and used by either redirecting a replacement card or applying for a fresh card which can then be used to conduct fraudulent transactions.

⁸⁵ 3D-Secure is an authentication protocol that enables multi-factor authentication for card payments where the acquirer and issuer are not the same institution.

FIGURE 6: PROTECTION OF CUSTOMER FUNDS IN INNOVATIVE PAYMENT PRODUCTS



Source: GPSS 2010

Risks specific to EFT based products

The EFT payment instructions can be delivered using a variety of channels—walk-in to a branch, phone, Internet, ATM, mobile phones, and kiosks. Except in the case of walk-in to a branch, all other channels are non-face-to-face and hence are exposed to typical authentication, social engineering, and data security risks.

However, since the respective financial institution manages these channels, a range of risk mitigation measures can be deployed. However, where the payer or payee uses Internet, the computing device is generally outside the control of the financial institution, and can be exposed to standard Internet virus, Trojan and bots-based attacks. These attacks could harvest the authentication information used by the payer or payee, and use that to generate fraudulent transactions. These risks to a large extent are mitigated by two-factor authentication, requiring prior registration of beneficiaries (which could require stringent offline verification), fraud detection systems to detect abnormal transaction patterns, and by providing customers with robust transaction alerts.

EFT transactions are also exposed to data entry error, as the transaction initiator has to provide the account details of the beneficiaries and transaction amount. EFT transactions require the initiator to provide ac-

count details of the beneficiary—the account number, name, branch, bank name, country etc. Any errors in these could result in the transaction being misdirected. These risks are mitigated by: requiring prior registration of beneficiaries to reduce the potential of errors; reducing the number of data entries required by providing data for bank names, routing codes etc., as standard drop-down lists; educating the transaction initiators to exercise caution, and requiring confirmations before executing the transaction; providing a cool-off period allowing the initiating institution to retract the transaction; and, finally by using robust fraud detection and transaction alert systems.

Risks specific to innovative payment schemes

Innovative payment mechanisms are basically exposed to many of the same risks as payment cards and EFT-based traditional products, and probably have heightened exposure to money laundering and terrorist financing risks. For example, the Financial Action Task Force (FATF) in its recent report identifies anonymity, high negotiability, and utility of funds as well as global access to cash as some of the major factors that can add to the attractiveness of innovative payment schemes for money launderers.⁸⁶ Anonymity can be reached either “directly” by making use of truly anonymous products (i.e., without any customer identification)

⁸⁶ FATF 2010.

or “indirectly” by abusing personalized products (i.e., circumvention of verification measures by using fake or stolen identities, or using straw men or nominees). Additionally, as many of the innovative mechanisms are operated by non-banking entities, their supervision might not be as rigorous. Moreover, these schemes might not have other protection measures like deposit insurance or the operator being able to access short-term funding to mitigate settlement risks. Figure 6, compiled based on the responses to the Global Payment Systems Survey 2010 (see that survey’s annex on retail payments innovations), captures the percentage of innovative products/product groups that were reported to have full protection of consumer funds.

Possible Actions

Ensure that infrastructure operators and payment service providers have appropriate governance structures and mechanisms. These mechanisms should provide for proper accountability of management and, where applicable, of board members, and should include independent audits or reviews. Moreover, governance arrangements should ensure appropriate identification and management of risks, through a system of sound internal controls and risk management mechanisms.

In consultation with the industry players, the central bank can develop guidelines with respect to risk management covering key areas: These may include data security and privacy standards, authentication standards, settlement risk, incident reporting, protection of IT and networking systems, data back-up, retention and business continuity procedures, disaster recovery planning, and anti-money laundering - combating the financing of terrorism AML/CFT procedures.⁸⁷ Requiring the industry players to demonstrate compliance through an independent assessment can enforce compliance with these standards and guidelines.

⁸⁷ There are well developed international standards for most of these aspects, especially for the data security, IT security, and authentication areas.

Fraud prevention is an area where collaboration amongst all the industry players is particularly important: The central bank and industry players can jointly create mechanisms to exchange information about fraudulent incidents and best practices, and also develop common repository of previous incidents to serve as a reference against which all future transactions or new applications can be cross-referenced to aid decision-making.

GUIDELINE VI: Public authorities should exercise effective oversight over the retail payments market and consider direct interventions where appropriate.

DESCRIPTION

In general terms, the payment system oversight function aims to ensure that the infrastructure and the market for payment services:

- Work smoothly, efficiently, and fairly to all participants and users⁸⁸;
- Pursue the level of technological and institutional development necessary to satisfy the payment needs of a growing and open economy; and
- Minimize the risk of transmitting shocks across the economy.

As discussed throughout this document, some of the key foundations for exercising oversight over retail payment systems include the existence of market failures (e.g. externalities, information asymmetries, and non-contestable markets, among others), coordination failures among stakeholders, and the existence of

⁸⁸ One example of this could be supporting both the payment needs of corporate and individuals, and for supporting different segments of customers like banked and unbanked.

**BOX 12: GUIDELINES FROM THE REPORT:
“A PRACTICAL GUIDE FOR RETAIL PAYMENTS STOCKTAKING”**

Guideline 1: The overall scope and structure of the stocktaking exercise shall be driven by the high-level public policy goals set forth in the area of retail payments. The public policy goals would vary from country to country, but in general are associated with the safety and efficiency of retail payment systems in the country. Some other relevant public policy areas in this area may include increased access and affordability, the availability of a socially optimal mix of payment instruments, and the availability of the required industry infrastructure to process such payment instruments. The retail payments stocktaking exercise should be designed so as to enable a clear understanding of the issues and areas of improvements required for achieving the stated public policy goals. The scope should be broad-based and should be developed in close co-ordination with all stakeholders.

Guideline 2: Adequate attention needs to be devoted to the planning and organization of the stocktaking exercise. Retail payments stocktaking is a complex undertaking requiring meticulous planning and active involvement of numerous stakeholders. A wide range of information sources should be used, including the information available in the broader payment systems community and also other sources. This information helps in benchmarking the status in the particular country. Where obtaining direct data might be difficult, information from other sources will help in assessing the intended aspects or variables in an indirect manner.

Guideline 3: Industry players should be involved from the very early stages. The retail payments industry will require adequate background information and sufficient time to ensure availability of good quality information when the stocktaking exercise is rolled out. In addition, the central bank should actively seek dialogue with industry participants as the latter can provide valuable inputs in structuring the exercise, including agreeing on certain common terminologies and helping to determine the appropriateness of the data being required as well as the feasibility of obtaining such data reliably.

Guideline 4: Obtaining sufficient, high-quality data and other types of information is at the heart of the stocktaking exercise. The collection, organization, validation and analysis of data is a critical part of the stocktaking exercise, and is probably the most resource-intensive one. Appropriate human and technological resources should therefore be devoted to this element of the exercise, including a strong emphasis on validating the data received from the industry. A retail payments stocktaking exercise is also not a one-off exercise; hence, an approach to enable comparison across iterations to measure evolution should also be considered.

Guideline 5: Devote sufficient time to report preparation and to designing the strategy for wide dissemination of the results. Being able to properly document and communicate the results of the stocktaking exercise as well as the alternatives available to address the underlying shortfalls is of utmost importance. A carefully designed strategy for the communication and dissemination of the Diagnosis Report should be developed to provide useful feedback to the various stakeholders and relevant information to the overall public.

dominant positions due to, among other reasons, the “natural monopoly” feature of the infrastructures supporting retail payment services.

It is increasingly accepted that the central bank should play a central role in oversight of all payment systems due to its stake in the confidence in money and functioning of commerce.⁸⁹ In practice, however, there are significant cross-country differences in the extent to which central banks have legal authority in the oversight of retail payment systems and arrangements.

It is nevertheless a fact that central banks in all regions of the world are paying increasing attention to retail payment systems, and are undertaking certain oversight activities in this area regardless of their specific legal mandate. For example, central banks with a weak or non-existent legal mandate for overseeing retail payment systems are opting for so-called “soft” or less interventionist oversight tools such as monitoring and engaging in dialogue with market participants. Many central banks also act as catalyst or facilitators, promoting public policy debate via relevant research, by establishing cooperative and consultative arrangements with the private sector, and by driving the adoption of better infrastructure or common operating standards and practices. Central banks with stronger legal mandates also have at their disposal more interventionist oversight tools such as the possibility to issue regulations and sanctions.

In the case of retail payments, there is usually a need to reconcile multiple public policy goals relating to safety and efficiency, information transparency, reliability, infrastructure development, access, and socially optimal usage of payment instruments and related

infrastructures.⁹⁰ Apart from the need to prioritize or choose among these objectives, transforming them into specific policy actions can be a difficult task.

First, as discussed under Guideline IV, retail payments are usually characterized by certain dynamics, market complexities and particularities for which there is no standard approach or policy response. Moreover, some of the public policy goals mentioned earlier are not the sole or even a direct responsibility of the payment system overseer. For example, while the central bank in its role as overseer is clearly interested in avoiding anti-competitive practices that may lead to lower levels of efficiency, the regulatory powers or tools to act upon such practices will more likely be vested in a different authority, such as the antitrust agency and/or the consumer protection agency. Coordination and information sharing amongst the relevant authorities is therefore crucial, and a key challenge for effective oversight.

Possible Actions

Given the multitude of objectives and actors involved in retail payments systems, a clear oversight framework is required to, among other basic objectives, ensure proper coordination and resolution of collective action problems.⁹¹

Although the central bank should be expected to lead oversight activities, the overall framework should also consider the role of other authorities, where applicable, in attaining the public policy objectives for the retail payments market. The authorities involved vary from country to country, but in general these authorities include competition authority, ministry of finance, and

⁸⁹ See Bossone and Cirasino 2001.

⁹⁰ For a discussion of public policy objectives in payments systems, see Bossone and Cirasino 2001.

⁹¹ Some of the main building blocks for an oversight framework are described in CPSS 2006, and Bossone and Cirasino 2001.

in some cases or for some specific products also the telecom regulator and/or the ministry responsible for social benefits.⁹²

In order to substantiate the need for public intervention, evidence of the type and extent of market failure needs to be documented. One approach in this regard is to conduct a detailed study of the retail payments market through data collection, analysis of relevant literature, and interviews with a broad set of key market players, and to compare the situation in the country to international peers. The PSDG, in association with the European Central Bank and the Central Bank of Brazil, have recently developed a “Practical Guide for Retail Payments Stocktaking Retail Payments Stocktaking” (see Box 12).

Any direct intervention should be assessed within a cost-benefit framework: For this purpose, the welfare costs of the identified market failure and the benefits from its partial or full correction should also be estimated. A cost-benefit analysis is also useful to determine priorities when several direct interventions are being considered. The rapidly changing nature of retail payment markets should also be recognized and considered in the analysis.

Strong cooperative mechanisms are crucial for effective oversight. These include mechanisms whereby stakeholders may voice their views to authorities on the design and evolution of retail payment systems, and mechanisms to coordinate regulatory functions amongst the various authorities.

⁹² For a detailed discussion please refer to CGAP Focus Note 76 at <http://www.cgap.org/p/site/c/template.rc/1.9.56703>

SECTION V

IMPLEMENTING REFORMS FOR RETAIL PAYMENTS



The CPSS and the World Bank's PSDG, among others, have developed specific guidance for the reforming of the national payments systems that has been tested successfully in many countries and under many different circumstances.⁹³ This chapter presents the same overall framework with the necessary adaptations to reflect the particularities associated with retail payments and their development.

The implementation of any significant national retail payments system development initiative should be based on a strategic, well-structured development plan. The key components of this plan include:

- Stocktaking of current situation;
- Creating appropriate internal organizational arrangements;
- Developing an appropriate coordination framework to involve all stakeholders;
- Developing a common vision of the desired end state;

- Developing an implementation plan after agreement on actions that need to be taken and their priorities; and
- Monitoring progress.

Each of these steps is described below.

V.1 STOCKTAKING

To get a good understanding of the prevailing state of retail payments system in a country and to achieve the desired state for retail payment systems, it is important to fully understand the dynamics that prevail in the existing market for retail payments and factors that have shaped the developments thus far so that appropriate reform initiatives can be designed. Stocktaking of the prevailing state of retail payments system would involve:

- Identifying and unambiguously classifying the various types of instruments available for retail payments, the institutional as well as the clearing and settlement arrangements for processing these instruments, and their usage statistics, including the typical processing costs;

⁹³ Annex 5 presents the relevant section of the CPSS General Guidance for National Payment System Development. Annex 6 presents a summary of the strategic framework for payment system modernization developed by the Southern Africa Development Community (SADC).

- The payment needs which are currently met largely through cash-based payments, paper-based payments, and electronic payments;
- The general trend in the processing costs, recent improvements and new features introduced for these payment instruments;
- The level of customer disputes, frauds and other risks related to usage of these payment instruments;
- Patterns in the usage and adoption levels of these payment instruments—geographic, socio-economic, or transaction size; and,
- The levels of overall population access to the payment instruments under the overall context of financial inclusion objectives.

The stocktaking exercise will provide inputs for identifying the specific elements of the reform program and in developing the business case for the reforms.

Stocktaking exercises should be done periodically to measure progress over time and also identify new developments and trends. As discussed under Guideline VI, The World Bank, in association with the Central Bank of Brazil and the European Central Bank/Eurosystem, has developed a set of practical guidelines for effective retail payments stocktaking (see Box 12).

V.2 ESTABLISH APPROPRIATE INTERNAL ORGANIZATIONAL ARRANGEMENTS

A retail payments system development plan ideally needs to be part of an overall NPS development plan and hence can leverage the organizational arrangements already in place. Moreover, reforming retail

payments system in isolation without consideration to other aspects of the payment systems may not yield the intended results. For example, several structures that are created for the overall reform such as internal and external working groups and other cooperation bodies can be leveraged with some minor rearrangements to also support retail payments system reform efforts.

Central banks would also need to ensure appropriate internal staffing before embarking upon a comprehensive retail payments system development plan. For example, a payment systems policy department or unit with no operational responsibilities is typically well positioned to lead the retail payments system reform. Where such a step is not possible right away, as an interim measure, the central bank may consider creating an empowered committee comprising senior central bank officers from the various relevant departments such as legal, policy management, operations, and technology.

V.3 DEVELOP AN APPROPRIATE COORDINATION FRAMEWORK WITH KEY STAKEHOLDERS

Comprehensive reforms of retail payment systems require significant coordination with many stakeholders. These include commercial banks, some non-banking financial institutions, retail payment services providers including any new players such as telecom companies, the national treasury, and other government ministries involved in social benefit transfers, major billers like utility companies, merchant associations, and representatives of final users (including consumers).

A national payments council (NPC) led by the central banks that includes all the relevant institutions previously described has proven an effective arrangement

TABLE 4: KEY AREAS FOR STANDARDS IN RETAIL PAYMENT SYSTEMS

Standards area	Key elements
Consumer protection and transparency	Articulation of key product features and pricing terms in an easy to understand format Provision of periodic statement of accounts Simple and time-bound dispute resolution framework Articulation of product operational performance metrics like settlement time etc. with recourse available to the consumer in the event of non-adherence
Operating standards and rules.	Know your customer and other AML/CFT related requirements Settlement risk management mechanisms Operational risk management requirements
Data formats and other technical standards	Device and infrastructure standards like EMV standards for POS terminals Account numbering standards like IBAN. Data security standards – PCI DSS, SSL etc. Data formats: ISO 20022, ISO 8583 etc. Device certification requirements
Authentication standards	POS authentication standards – for (e.g.) requiring PIN based authentication for card transactions at POS, telephone transactions etc. Online remote payments – for (e.g.) 2-Factor authentication for e-commerce transactions

for coordination of such a variety of stakeholders.⁹⁴ For retail payment reforming, a specialized committee within the NPC is normally most well positioned to discuss the specific matters related to this sector. Appropriate levels of representation for effective decision-making and the active involvement and leadership from the central bank to build wide support for the various reform initiatives are among the key elements to this committee’s success.

V.4 DEVELOPING A COMMON VISION OF THE DESIRED END-STATE

Envisioning the desired state of retail payments system assists in catalyzing action and serves as a reference point for all future endeavors. The desired state of retail payments systems might vary from country to country/region to region depending on a variety of factors.

In general, developing a vision for retail payments system should consider the following dimensions:

- The desired level of penetration of electronic payment mechanisms;

⁹⁴ The existence of a NPC seems to be not too common, in the response to the World Bank Global Payments Survey 2010, only around 40 percent of the central banks mentioned existence of NPC in their jurisdictions.

- Reducing the cost of retail payments to the society;
- Payment mechanisms being able to meet the payment needs of individuals and businesses;
- Appropriate levels of customer satisfaction; and
- Continuous innovation and improvement in the retail payments area.

Creating a set of general objectives to guide the development of the various individual retail payment systems might be useful to ensure that each of these is positioned to meet the overall vision. In other words, achieving the overall vision for the national retail payments system will be extremely difficult without ensuring each of its components individually adheres to the general guiding objectives. These objectives may include the following aspects: interoperability in design of retail payment systems that can be broadly adopted by wide customer segments; conformity to all applicable international standards; adequate use of established clearing and settlement infrastructures rather than creating parallel processes; and short to medium-term commercial viability.

Adoption of relevant standards would enable development of efficient and reliable national retail payment system. The key areas in which standards could be required are shown in Table 4. In many of such areas international standards already exist. These are mentioned alongside.

V.5 DEVELOPING AN IMPLEMENTATION PLAN

Analyzing the data and other information gathered through the stocktaking exercise is critical for iden-

tifying shortfalls in association with the stated public policy objectives, and the types of actions required to move from the current state to desired state.

Reform initiatives will need to be prioritized and sequenced to handle resource constraints and also interdependencies. A comprehensive implementation plan incorporating all these aspects should be developed and publicized. If necessary, adjustments to the original plan and/or interim measures might need to be developed. The development of the implementation plan would benefit from a detailed analysis of the business case for the reforms and design of the specific components.

The implementation plan would be a combination of discrete components such as development of an ACH or national payment card switch, and overarching components such as formalization of oversight arrangements and automation of government payments related processes. The entity or entities that are expected to lead each of these components should be clearly identified.

One of the most contentious issues in development of an implementation plan is who should be responsible for developing the core infrastructures of ACH, payment card switches, and other core payment networks. In the case of RTGS systems, there is in general a consensus that the central bank needs to take the lead, and if it is not the owner and operator of the RTGS systems, it must have a very key role in the overall development and operations of that system. In contrast, for retail payment systems the private sector is usually expected to play a very important role and in fact can take direct responsibility for creation of these systems.

However, in certain circumstances, notably when the private sector is unable to come to an agreement on developing these systems, the central bank might need to take a more interventionist role, which may include

developing and becoming the operator of some retail infrastructures. Even in these circumstances the central bank should consider this as a starting point and from the outset design the system in a manner that would enable it to transfer the ownership and operational responsibility to the private sector in the near future.

V.6 MONITORING AND EVALUATION

Retail payments system reform should be seen as a continuous process. The progress made needs to be assessed periodically against the vision and objectives established earlier on. A monitoring and evaluation framework should be developed upfront and be an integral part of the overall plan.

Developments of specific metrics that are easily measurable while at the same time convey the progress towards the agreed vision and objectives would greatly enable effective monitoring and evaluation. For example, the single European payments area (SEPA) project identified indicators like the share of SEPA-compliant credit transfers in total credit transfers. A basic list of metrics that could be collected to assess progress on retail payments development plan is presented in Table 5.

Monitoring metrics like these over a period of time could help in keeping the reform process on track and identifying course correction requirements.

TABLE 5: BASIC METRICS TO ASSESS PROGRESS IN RETAIL PAYMENTS DEVELOPMENT

Metric	Explanation
Per capita cashless transactions	This is the number of cashless transactions both inter-institution and intra-institution over a year in relation to the population of the country.
Infrastructure metrics	This would include metrics like ATMs and POS terminals per 1000 inhabitants and number of branches ⁹⁵ per 1000 adults. To get a more accurate assessment, metric for specific geographic areas could also be considered.
Access metrics	This would include metrics like number of accounts per 1000 adults, number of credit and debit cards per capita, proportion of Internet banking and mobile banking customers. These set of metrics help in assessing the penetration of payment services.
Transactions per ATM/POS	This is the number of transactions per ATM, POS or acceptance infrastructure over a period of time. This serves to measure the level of interoperability and usage of infrastructure.
Cost of Cash deposit and withdrawal	The fees for deposit and withdrawal of a representative amount at a representative frequency across types of institutions, channels and accounts.
Percentage of payment instructions received through electronic means.	This is the share of payment instructions received through electronic means in the total number of payment instructions (including electronic plus paper-based and face-to-face channels).
Percentage of government payment transactions made through electronic payment mechanisms.	This is the share of government payment transactions made both as a payee and a payer using electronic payment mechanisms in the total of government payments (i.e. using all types of payment mechanisms).
Cost for a domestic remittance between parties with accounts in different institutions.	This is the total cost (for the sender and for the receiver) of making a domestic remittance between parties maintaining accounts in two different institutions using the available payment mechanisms and channels. To make it comparable, this should be for a representative amount and shown as a percentage of such amount, and for different institutions and different modes.
Cost to pay a domestic utility bill and a typical transaction at a merchant.	This is the cost to pay a domestic utility bill and a merchant transaction for a representative amount through various mechanisms and across institutions. To make it comparable, this should be for a representative amount and shown as a percentage of such amount.
Cost to maintain specific payment product accounts by institution type.	This is the cost for the consumer to maintain specific payment product accounts like a bank account for debit cards, prepaid card account for prepaid cards, a mobile money account for mobile payments, etc.
Volume and value of frauds and operational errors.	This is the count and value of frauds represented in percentage terms for specific categories of frauds and operational errors like late processing of a remittance, debit of a wrong amount, counterfeit fraud, repudiation related fraud, etcetera.

⁹⁵ Could also include a separate metric for agents/business correspondents per 1000 adults.

ANNEX 1: PUBLIC POLICY GOALS, CENTRAL BANK MINIMUM ACTIONS, AND RANGE OF POSSIBLE ADDITIONAL ACTIONS FOR RETAIL PAYMENT SYSTEMS

(from CPSS “Policy Issues for Central Banks in Retail Payments”)

LEGAL AND REGULATORY FRAMEWORK

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

The Central bank should, at a minimum:

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

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

- Altering regulations that currently present barriers to improving efficiency and safety, where this is within the central bank’s remit and where other public interest arguments do not militate against such action;
- Introducing or proposing new regulations, as the central bank’s remit allows, where the legal or regulatory framework is insufficient to support increased efficiency and/or safety; and

- Offering expert advice to other responsible authorities, for example in the preparation of relevant legislation.

MARKET STRUCTURE AND PERFORMANCE

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

The central bank should, at a minimum:

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

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

- Promoting appropriate standards or guidelines for transparency, in cooperation with relevant public and private sector entities;
- Reviewing conditions in the market for cross-border retail payments, with a view to promoting improvements, where such action is warranted; and

- Considering and, if appropriate, performing regulatory and/or operational intervention in cases where market forces are judged not to have achieved or not to be likely to achieve an efficient and safe solution.

STANDARDS AND INFRASTRUCTURE

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

The central bank should, at a minimum:

- (i) Monitor developments in security standards, operating standards and infrastructure arrangements for retail payments which the central bank judges to be important for the public interest, and assess their significance; and
- (ii) Cooperate with relevant public and private entities to encourage market improvements in such standards and infrastructure arrangements, where appropriate.

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

- Participating actively in reviewing and developing appropriate standards and arrangements, in cooperation with relevant public and private entities, where the central bank judges its more intensive involvement to be necessary to furthering the goal; and
- Considering and, if appropriate, performing regulatory and/or operational intervention in

cases where market forces are judged not to have achieved or not to be likely to achieve an efficient and safe solution.

CENTRAL BANK SERVICES

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

The central bank should, at a minimum:

- (i) Review and, if appropriate, adapt its provisions of settlement services to contribute to efficient and safe outcomes; and
- (ii) Be transparent in its provision of services.

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

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

ANNEX 2: MODEL FOR NATIONAL PAYMENTS COUNCIL – TERMS OF REFERENCE

OBJECTIVES

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

Main Tasks

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

Methodology

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

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

ANNEX 3: FINANCIAL INCLUSION INITIATIVES IN INDIA

India faces enormous challenges for financial inclusion. Recent estimates for outreach by the formal financial sector are summarized below:⁹⁶

Financial product	Number per 1000 adults
Deposit accounts	815
Loans	147
Life Insurance	100
ATM or Debit Cards	291
Credit Cards	87
Non-life insurance	6

These figures are a simple ratio of the corresponding metric and number of adults. For example, they do not indicate that 81.5 percent of adults in India have accounts, as many adults have multiple accounts, which this ratio does not capture. By means of comparison, in 2009, the number of deposit accounts per 1000 adults was 222 and 737 for high-income countries and developing countries, respectively.⁹⁷

⁹⁶ Source: Speech by Dr. K.C. Chakraborty, Reserve Bank of India Deputy Governor, at 20th SKOCH Summit, July 2009, Mumbai. Estimates by extrapolation based on RBI Report on Currency and Finance; and CGAP and The World Bank 2010.

⁹⁷ Source: CGAP and The World Bank 2010.

The Reserve Bank of India (RBI) defines financial inclusion as “the process of ensuring access to appropriate financial products and services needed by vulnerable groups such as weaker sections and low income groups at an affordable cost in a fair and transparent manner from mainstream institutional players.”⁹⁸ As this definition indicates, the RBI is focused on ensuring wider access using existing banks.⁹⁹

Accordingly, the RBI has made a series of regulatory interventions. These include:

- In the early 1990s, the RBI allowed banks to provide deposit and loan services to self-help groups (SHGs).¹⁰⁰ By March 2010, 97 million low-income households had been reached through SHGs.¹⁰¹
- All domestic commercial banks are required to direct 40 percent of their lending to designated “priority sectors,” including micro and rural lending, either directly or through loans to SHGs and regional rural banks. Any shortfall below 40 percent must be restituted through deposits into a fund for development of rural infrastructure. As of March 2009, this program covered 51 million accounts.
- Additional licenses for banking branches are tied to progress made in financial inclusion efforts.

⁹⁸ RBI 2010.

⁹⁹ It is estimated that only about five percent of villages have bank branches, and outreach by microfinance institutions and self-help groups varies by state—from less than four percent of the adult population in northern and low-income states to more than 40 percent in southern states and relatively higher-income states.

¹⁰⁰ SHGs are not regulated or licensed; they are informal groups of 15 or more members coming together to manage their financial needs by pooling resources.

¹⁰¹ National Bank for Agriculture and Rural Development 2009-10.

- In 2005, the RBI enjoined banks to create simple, low-cost banking accounts—the “no-frills” account—with simplified KYC procedures. By June 2010, 35 million such accounts had been opened.
- In 2006, the RBI enabled banks to extend their reach using business correspondents. Guidelines for this approach have been progressively simplified. Today, banks are free to appoint a wide range of individuals and entities to act as business correspondents. Since 2007 the RBI has allowed non-bank entities to provide payment services.
- As recommended by the 2008 Rangarajan Committee on Financial Inclusion, the Government of India, RBI, and National Bank for Rural Development (NABARD) have jointly constituted two funds managed by NABARD, each with INR 6 Billion: the Financial Inclusion Fund (FIF) and the Financial Inclusion Technology Fund (FITF). As of March 2010, projects totalling INR 195 Million from FIF and INR 218 Million from FITF had been approved, covering 50,225 villages.¹⁰²
- In 2008 the RBI launched a programme to compensate banks issuing smartcards for government payments at the rate of INR 50 a card, provided the concerned state government also contributed by paying a mutually agreed fee to banks processing the payments. This scheme lapsed in June 2010, and though many banks in Andhra Pradesh and other states availed of this scheme, no banks in Bihar did. But banks in Bihar are planning to request an extension of this scheme.
- In January 2010, the RBI required all commercial banks to develop three-year financial inclusion plans and required their boards to track progress on implementation of the plans.
- The RBI has set a target of achieving at least one financial services point within a four-kilometer radius of all villages with populations of more than 2,000 households by 2012. There are 8,947 such villages in Bihar. The RBI has required that state-level banker committees track progress.¹⁰³

These initiatives have generated strong momentum for financial inclusion in India. Several commercial banks have made significant progress, with multiple pilots and solutions under way.¹⁰⁴ Almost all solutions have involved a combination of opening no-frill accounts and servicing clients through business correspondents, with some differences in the technology used. The three variants have been widely piloted, with some showing promising results:

- *Kiosk model:* Clients are provided with smartcards, cards with magnetic strips, or passbooks and are serviced at kiosks run by business correspondents.
- *Smartcard-POS model:* Clients are provided with smartcards and are serviced using POS-equipped business correspondents.
- *Mobile mode:* Clients or business correspondents use their mobile phones to conduct transactions.

¹⁰³ Source: Various RBI publications and transcripts of speeches on the RBI website www.rbi.org.in

¹⁰⁴ In parallel and sometimes in collaboration, microfinance institutions (MFIs) and self-help groups (SHGs) are playing a key role in promoting financial inclusion in India. Several MFIs are linked to banks or other payment service providers for remittances and payments for their clients. But because few MFIs and SHGs play leading roles in payment services, they are not specifically discussed.

¹⁰² NABARD 2009-10

- An inter-ministerial group constituted by the Government of India has proposed a framework for providing basic banking services to customers by using an interoperable, shared-services infrastructure linking business correspondents equipped with mobile phones to service no-frill bank accounts. It has been proposed that the shared services infrastructure be linked to the national unique identification infrastructure for client authentication. The client no-frills bank accounts are linked to client mobile phone numbers, and clients exchange payment instructions initiated from their mobile phones with a proximate business correspondent to operate their no-frills bank accounts.

ANNEX 4: CREDIT AND DEBIT CARD REFORMS IN AUSTRALIA

The Payments System Board's Mandate and Objectives

The Payments System Board (the Board) of the Reserve Bank of Australia (Reserve Bank) oversees the payments system in Australia. The responsibilities of the Board are set out in the *Reserve Bank Act 1959*. In particular, the Act requires the Board to determine the Reserve Bank's payment system policy so as to best contribute to controlling risk in the financial system, promoting the efficiency of the payments system, and promoting competition in the market for payment services, consistent with the overall stability of the financial system.

In order to give effect to these responsibilities, the Reserve Bank has powers that are set out in two Acts: the *Payment Systems (Regulation) Act 1998* (PSRA) and the *Payment Systems and Netting Act 1998*. Under the PSRA, the Reserve Bank has the power to designate payment systems and to set standards and access regimes in designated systems. The Act also sets out the matters that the Reserve Bank must take into account when using these powers.

The Board's Reforms: Interchange Fee Regulation and Removal of the 'Honour-All-Cards' and 'No-Surcharge' Rules

Since 2003, the Reserve Bank has regulated to reduce interchange fees in the MasterCard and Visa credit card systems, the Visa Debit system and the domestic debit card system (referred to as EFTPOS). These regulations reflected the Board's concerns that differences in interchange fees were resulting in pricing to cardholders that did not properly reflect the relative resource costs of different payment systems, leading to inefficient use of the payments system. For instance, many consumers faced a negative cost to make a credit card transaction (e.g. through the receipt of rewards

points and an interest-free period) but faced a positive cost to make an EFTPOS transaction, despite the fact that credit card transactions had a significantly higher resource cost than EFTPOS transactions. This was largely driven by the structure of interchange fees in the respective systems. Prior to the reforms, interchange fees for MasterCard and Visa credit and debit cards were around 0.95 per cent of transaction value (paid to the issuer, and typically passed on to the cardholder via rewards points), while bilateral EFTPOS interchange fees were around 20 cents per transaction (paid to the acquirer). In addition, the Board was concerned that there was a tendency for competition between card schemes to drive interchange fees higher, to provide additional incentives for issuers to promote each scheme. The interchange fee regulations, as they currently apply, are as follows:

- *MasterCard and Visa credit card systems:* Weighted-average interchange fees must not exceed 0.50 per cent of the value of transactions.
- *Visa Debit system:* Weighted-average interchange fees in the Visa Debit system must not exceed \$0.12 per transaction; MasterCard has also undertaken to meet this requirement voluntarily.
- *EFTPOS system:* Bilateral interchange fees in the EFTPOS system (paid to the acquirer) must be between \$0.04 and \$0.05 per transaction. Multilateral interchange fees in the EFTPOS system must not exceed \$0.12 per transaction (paid to the issuer).

Interchange fee regulation has therefore resulted in lower levels of interchange fees, as well as a significantly smaller differential between the fees in the various systems (Graph 1).

GRAPH 1

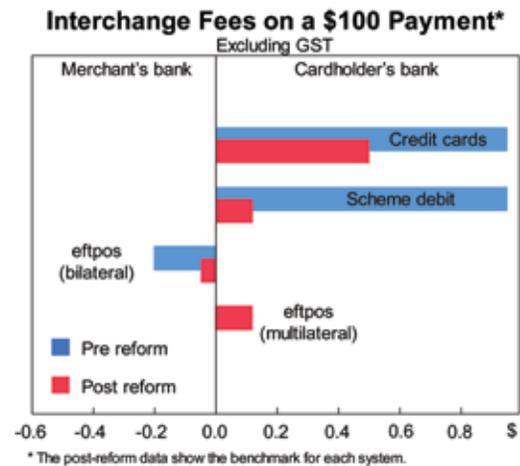
As well as the reforms to interchange fees, the Reserve Bank has removed various merchant restrictions that had previously been imposed by the card schemes, including:

- *No-surcharge rules:* rules that prevented merchants from surcharging for credit card and scheme debit card transactions.
- *Honour-all-cards rules:* rules that required a merchant to accept a scheme's debit card if it accepted its credit card and vice versa.
- *No-steering rules:* rules that prevented merchants from steering customers to other forms of payment.

The Reserve Bank also introduced a number of reforms to access arrangements in all the card payment systems in order to promote competition.

Overall, the reforms have aimed to improve efficiency of the overall payments system and to promote competition by seeking to: increase the transparency of the system; remove or modify restrictions that hinder competitive forces; liberalize access arrangements; and promote price signals to consumers that are conducive to the efficient evolution of the payments system.

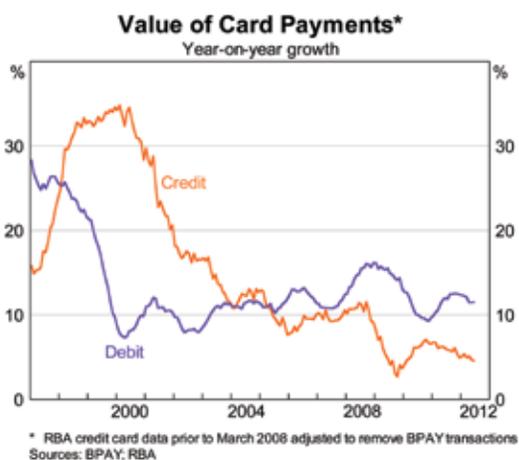
The reform process was undertaken with 'a whole-of-system' perspective, given the interrelationship between different card payment systems. However, the individual reforms have occurred at different times due to legal considerations and the Board's willingness to allow industry to explore solutions before considering regulatory solutions.



Effects of the reforms

When the Board reviewed the reforms in 2007/08, it concluded that they have delivered substantial benefits improving efficiency and competition in the payments system. One of the main effects of the regulations has been an improvement in price signals that consumers face when choosing between use of credit and debit cards. For credit card transactions, lower interchange fees have resulted in a reduction in the value of reward points and higher annual fees, increasing the effective price of credit card transactions faced by many cardholders. The reduced cost to issuers of EFTPOS transactions have been reflected in them offering customers unlimited free EFTPOS transactions with a transaction account (with a fixed monthly fee applied for all account services), compared with issuers' limit on the number of fee-free transactions before the reforms. Consequently, the relative prices consumers now face for credit and debit card transactions more closely reflect relative costs than was the case prior to the reforms. In line with this, growth in the number of credit

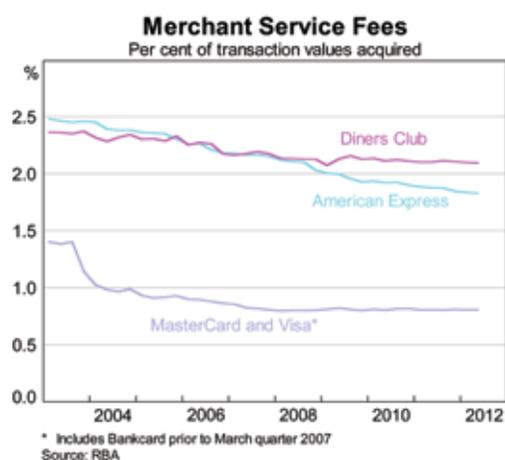
GRAPH 2



card transactions has slowed since the reforms, while growth in the number of debit card transactions has accelerated (Graph 2).

The changes in interchange fees have also been passed onto merchants, and appear to have also contributed to increased competition in acquiring. The average fee paid by merchants for transactions (merchant service fees) on MasterCard and Visa cards declined significantly after the introduction of the reforms in 2003 (Graph 3). Moreover, the margin between merchant service fees and interchange fees for these schemes has also narrowed. Merchant service fees charged by both American Express and Diners Club have also fallen, albeit more gradually, as merchants have reviewed their acceptance of these cards given the increase in their relative costs compared with the other cards. In the EFTPOS system, the debit card reforms initially led to an increase in merchant service fees as acquirers sought to recover some of their lost fee revenue.

GRAPH 3



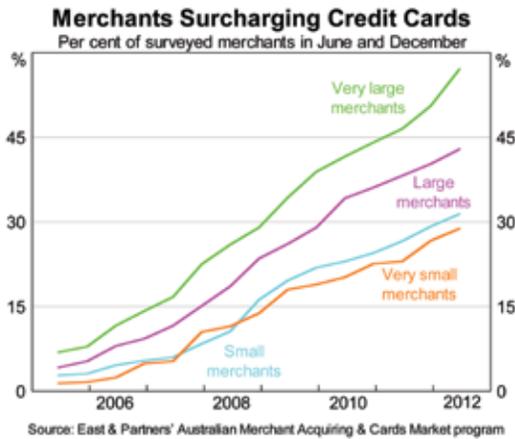
As with credit cards, however, increased competition in acquiring has lowered the margin of EFTPOS merchant service fees over interchange fees.

The removal of the no-surcharge rules has also played a role in improving price signals to cardholders. Although surcharging was slow to develop among merchants in the first few years following the removal of the no-surcharge rules, the rate of surcharging has picked up significantly in recent years.

According to a survey of the merchant acquiring market, in June 2012 around 36 per cent of merchants surveyed applied a surcharge on at least one of the credit cards they accepted (Graph 4).¹⁰⁵ Surcharging is more common among very large merchants, with over half now surcharging credit cards.

¹⁰⁵ East & Partners (2012), "Australian Merchant Acquiring and Cards Markets: Special Question Placement Report prepared for the Reserve Bank of Australia", June.

GRAPH 4



However, while merchants that apply surcharges are becoming increasingly commonplace, consumers appear to respond to the price signals by avoiding surcharges where possible. According to the Reserve Bank's 2010 Consumer Payments Use Study, consumers paid a surcharge on just 5 per cent of their credit card transactions over the one-week diary period, with this proportion little changed from a similar study conducted in 2007 despite the greater prevalence of surcharging.

ANNEX 5: KEY ELEMENTS OF A STRATEGIC NATIONAL PAYMENT SYSTEMS DEVELOPMENT PLAN

(from CPSS “General Guidance for National Payment System Development, January 2006”)

The CPSS “General Guidance for National Payment Systems Development” report states six key elements of a NPS development plan. These are presented below:

Components of a Strategic Development Plan

- A vision of a desired end state over the planning horizon that articulates the consensus view of key stakeholder groups regarding the high-level objectives, guiding principles, properties, benefits, risks and costs of the future payment system.
 - A statement of the roles, commitments and responsibilities of the key public and private sector stakeholders in the development process.
 - Observable milestones that can be measured against critical and objective success factors.
 - A presentation of the conceptual design of the planned infrastructure for retail payments systems, which could include the relation to the existing system with reference to its structure, key characteristics, functionality, and potential for further expansion and re-engineering as future financial developments warrant.
 - A statement of the implementation strategies, which includes the specific implementation priorities and procedures, along with timelines, budgetary allocations and financing schemes, critical milestones, and observable measures of achievement for public progress reports.
- A description of: the procedures for ongoing co-operation and coordination among the relevant stakeholders; the processes for resolving conflicts and disputes that arise during program implementation and thereafter; and the procedures for communicating progress and achievement over the implementation period.

ANNEX 6: SADC’S GUIDE TO DEVELOPING A STRATEGIC FRAMEWORK FOR PAYMENT SYSTEM MODERNIZATION¹⁰⁶

The *Guide to Developing a Strategic Framework for Payment System Modernization*, was developed by the South African Development Committee (SADC), Payment System Project Team with the following objectives: to provide developing countries with a systematic approach to modernizing their national payment systems (NPS); and to serve as a means of enhancing payment system skills in developing countries.

The guide identifies that NPS reform should be seen from multiple perspectives, follow a strategic process for reform and be supported by various support structures. These three dimensions are depicted in the below figure.



The SADC guide further discusses three methodologies for implementation:

Pure strategic approach: The pure strategic approach focuses on the future by designing the ideal NPS. The approach assumes that everything is possible and that there are no constraints or limitations. Problems in the current NPS are not allowed to influence the design of the ideal system. This approach is often referred to as a “blank paper” or “blue sky” approach. There are no fixed checklists, guidelines, or models.

Model-based approach: The model-based approach investigates the modernization models adopted by other countries. A fact-finding team will generally visit different countries to learn from their experiences. Models from different countries are collected and studied, demographic features of different countries are analyzed, and the most compatible model is adopted and adapted for local circumstances.

Operational approach: The operational approach is driven by the desire to resolve problems that require

immediate attention in the current NPS. Funds and effort are expended on enhancing the efficiency of the current system. At worst, this approach may even lead to the automation of a manual system, without first considering users’ needs and requirements.

The guide states that the three approaches are not mutually exclusive, and that a country can: i) use the strategic approach to address the present and future needs of all NPS users by identifying the characteristics and critical success factors of the ideal NPS; ii) use the model-based approach to learn from other countries with systems similar to the envisaged NPS, or; iii) use the operational approach to resolve the most serious problems in the current NPS so that the system can meet the minimum user requirements of timeliness, security and reliability;

Combining these three approaches in this manner ensures that the most pressing problems in the current NPS are resolved in a time-bound manner and that the envisaged NPS takes into account the unique con-

¹⁰⁶ SADC 2002.

ditions, circumstances and requirements of the local environment. In this way the envisaged NPS will not be unduly influenced by inappropriate external models. Short-term problems are therefore resolved within a long-term vision of the NPS and the modernization process is not derailed through short-term expediency.

ANNEX 7: M-PESA IN A NUT SHELL¹⁰⁷

M-PESA was developed by mobile phone operator Vodafone and launched commercially by its Kenyan affiliate Safaricom in March 2007. M-PESA (“M” for mobile and “PESA” for money in Swahili) is an electronic payment and store-of-value system that is accessible through mobile phones. To access the service, customers must first register at an authorized M-PESA retail outlet. They are then assigned an individual electronic money account that is linked to their phone number and accessible through a SIM card-resident application on the mobile phone. Customers can deposit and withdraw cash to/from their accounts by exchanging cash for electronic value at a network of retail stores (often referred to as agents). These stores are paid a fee by Safaricom each time they exchange these two forms of liquidity on behalf of customers. Once customers have money in their accounts, they can use their phones to transfer funds to other M-PESA users and even to non-registered users, pay bills, and purchase mobile airtime credit. All transactions are authorized and recorded in real time using secure SMS, and are capped at \$500.

Customer registration and deposits are free. Customers then pay a flat fee of around US\$0.40 for person-to-person (P2P) transfers and bill payments, US\$0.33 for withdrawals (for transactions less than US\$33), and US\$0.13 for balance inquiries. Individual customer accounts are maintained in a server that is owned and managed by Vodafone, but Safaricom deposits the full value of its customers’ balances on the system in pooled accounts in two regulated banks. Thus, Safaricom issues and manages the M-PESA accounts, but the value in the accounts is fully backed by highly liquid deposits at commercial banks. Customers are not paid interest on the balance in their M-PESA accounts. Instead, the

foregone interest is paid into a not-for-profit trust fund controlled by Safaricom (the purpose of these funds has not yet been decided).¹⁰⁸

In their working paper, “Mobile Money: The Economics of M-PESA.” William and Suri,¹⁰⁹ estimated that M-PESA had reached nearly 40 percent of the adult population in Kenya after a little more than two years of operation, and that now, approaching only the fourth anniversary of its launch, it is used by more than two-thirds of households. Part of this success is due to a rapidly expanding network of M-PESA agents, who now number over 23,000.

¹⁰⁷ Mas and Radcliffe 2010.

¹⁰⁸ For more detailed accounts of the M-PESA service, see Hughes and Lonie (2009) for a historical account, Mas and Morawczynski (2009) for a fuller description of the service, and Mas and Ng’weno (2009) for the latest accomplishments of M-PESA.

¹⁰⁹ William and Suri 2011.

ANNEX 8: GLOSSARY

The following list of terms is not exhaustive; only the most relevant terms used throughout this report are defined. Some of the definitions were taken directly from the CPSS Glossary.¹¹⁰ In some cases, the definition provided in that Glossary was adapted (those terms are marked with “*”). Terms not included in the CPSS Glossary, or terms that have a different meaning in other contexts and which are relevant for the purposes of this report are also defined herewith.

Term	Definition
3D-Secure	An XML-based protocol used as an added layer of security for online credit and debit card transactions. This enables multi-factor authentication even for transactions where the issuer and acquirer are different institutions. It was developed by Visa to improve the security of Internet payments and is offered to customers as the “Verified by Visa” service. Services based on the protocol have also been adopted by MasterCard, under the name MasterCard SecureCode, by JCB International as J/Secure, and by American Express as SafeKey.
Acquirer	The entity or entities that provide services to the card acceptors (merchants) related to, clearing and settlement of the accepted transactions. In general the services include receiving and processing the data relating to the transaction for authorization, clearing and settlement, though some provide only services for only clearing and settlement. Some acquirers also hold(s) deposit accounts for card acceptors (merchants).
Agents	An entity that provides certain retail payment services on behalf of a retail payment services provider. The type of service provided by the agent could vary from direct processing of transactions like disbursing cash or accepting deposits, to ancillary non-transaction related services like collection of documents or addressing customer service queries, among others.
Authorization	The process of receiving and recording the issuers’ confirmation of accepting the liability for a transaction. Typically associated with card payments. Authorization is typically processed through the exchange of messages between the initiator and the issuer of payment instrument being used. See also offline authorization.
Automated Clearing House (ACH)*	An electronic clearing system in which payment orders are exchanged among financial institutions, primarily via magnetic media or telecommunications networks, and then cleared amongst the participants. All operations are handled by a data processing center. An ACH typically clears credit transfers and debit transfers, and in some cases also cheques. See also clearing/clearance.
Automated Teller Machine (ATM)	An electromechanical device that permits authorized users, typically using machine-readable payment cards, to withdraw cash from their accounts and/or access other services such as balance inquiries, transfer of funds, or acceptance of deposits. ATMs may be operated either online with real-time access to an authorization database or offline.
Automated Transfer System (ATS)	An integrated payment system that combines Real-Time Gross Settlement and ACH-style deferred net settlements into one common platform.
Bilateral Netting	An arrangement between two parties to net their bilateral obligations. The obligations covered by the arrangement may arise from financial contracts, transfers or both. See also Multilateral Netting.

¹¹⁰ CPSS 2003(b).

Term	Definition
Business Correspondent	An entity that provides direct transaction services on behalf of a principal, typically a bank. The transaction services include cash withdrawal and deposit from/into an account maintained with the principal, loan disbursements, loan re-payment, bill payment services, etc. In many countries, agents and business correspondents are used interchangeably. See also agents.
Card payment	Payment transactions using payment cards as the payment instrument.
Charge Card*	A type of payment card indicating that the holder has been granted a line of credit. It enables him to make purchases but does not offer extended credit, the full amount of the debt incurred having to be settled at the end of a specified period. The holder is usually charged an annual fee. Also called Travel and Entertainment card.
Cheque	A written order from one party (the drawer) to another (the drawee, normally a bank) requiring the drawee to pay a specified sum on demand to the drawer or to a third party specified by the drawer. Cheques may be used for settling debts and withdrawing money from banks. Referred to as Check in some countries. See also bill of exchange.
Cheque Truncation	Process of replacing the exchange of paper cheques as part of the clearing process with exchange of their images or digital substitutes instead.
Chip Card*	Also known as an IC (integrated circuit) card. A card containing one or more computer chips or integrated circuits for identification, data storage and/or special purpose processing used to validate personal identification numbers (PINs), authorize purchases, verify account balances and store personal records. In some cases, the memory in the card is updated every time the card is used (e.g. account balance is updated).
Clearing / Clearance	The process of transmitting, reconciling and, in some cases, confirming payment orders or security transfer instructions prior to settlement, possibly including the netting of instructions and the establishment of final positions for settlement. Sometimes the term is used (imprecisely) to include settlement.
Clearinghouse	A central location or central processing mechanism through which financial institutions agree to exchange payment instructions or other financial obligations (e.g. securities). The institutions settle for items exchanged at a designated time based on the rules and procedures of the clearinghouse. In some cases, the clearinghouse may assume significant counterparty, financial, or risk management responsibilities for the clearing system. See also clearing/clearance.
Contactless card*	Payment card where the IC chip bearing account details can be read by a suitable proximate card reading terminal without requiring physical contact.
Correspondent	The entity holding accounts of another institution for providing payments and other services to that institution. See also correspondent banking and business correspondent.
Correspondent Banking	An arrangement under which one bank (correspondent) holds deposits owned by other banks (respondents) and provides payment and other services to those respondent banks. Such arrangements may also be known as agency relationships in some domestic contexts. In international banking, balances held for a foreign respondent bank may be used to settle foreign exchange transactions. Reciprocal correspondent banking relationships may involve the use of so-called nostro and vostro accounts to settle foreign exchange transactions.

Terms	Definition
Credit Card*	A type of payment card, indicating that the holder has been granted a line of credit. It enables the holder to make purchases and/or withdraw cash up to a prearranged ceiling; the credit granted can be settled in full by the end of a specified period or can be settled in part, with the balance taken as extended credit. Interest is charged on the amount of any extended credit and the holder is sometimes charged an annual fee. See also Payment Card, Charge Card, Prepaid Card and Debit Card.
Credit Transfer	A payment order or possibly a sequence of payment orders made for the purpose of placing funds at the disposal of the beneficiary. Both the payment instructions and the funds described therein move from the bank of the payer/originator to the bank of the beneficiary, possibly via several other banks as intermediaries and/or more than one credit transfer system.
Cross-Platform Interoperability	A situation of full interoperability. See interoperability.
Debit Card	Payment card where the funds are debited in full for every transaction. Some issuers of debit cards could provide an overdraft feature, allowing the payer to use the card even without sufficient balance in the underlying account.
Debit Transfer	A payment order or possibly a sequence of payment orders made for the purpose of collecting funds from the payer and placing at the disposal of the payee. The payment instructions move from the bank of the payee/originator to the bank of the payer, possibly via several other banks as intermediaries and/or more than one debit transfer system.
Electronic Funds Transfer system	Another term for an Automated Clearinghouse, but unlike an ACH could also be for clearing of payments within an institution.
Electronic Purse / ePurse*	Same as Electronic wallet.
Electronic Wallet*	E-Money product, where the record of funds is stored on a particular device, typically in an IC chip on a card or mobile phone.
E-Money*	E-money is a record of funds or value available to a consumer stored on a payment device such as chip, prepaid cards, mobile phones or on computer systems as a non-traditional account with a banking or non-banking entity. E-Money products are further differentiated into network money, M-Money, electronic purse, electronic wallet and network money.
E-Payments	Payment instructions that enter a payments system via the Internet or other telecommunications network. The device used to initiate the payment could be a computer, mobile phone, POS device, or any other device. The payment instrument used could be an E-money product, payment card product, credit/debit transfer or other innovative payment products.
Financial Inclusion	The availability of basic financial products to meet the payment, savings, credit, insurance and investment needs of a society at a reasonable cost.

Terms	Definition
Infrastructure-level Interoperability	A situation where the infrastructure is fully interoperable in terms of being able to accept payment instruments of other schemes. See also Interoperability
Innovative payment products	In general terms, these products involve the payer maintaining a pre-funded account with an institution, not necessarily a banking or financial institution and drawing down this pre-funded account to make payments to participating payees and person-to-person transfers through a network of business correspondents, at participating merchants, or through conventional retail payments infrastructure such as ATM and POS terminals. The payment instruction to draw down the pre-paid funds could be initiated through the Internet, mobile phone, or specific payment cards issued for this purpose. E-Money products are one type of innovative payment products.
Internet Banking	Banking services that customers may access via the Internet. The access to the Internet could be through a computer, mobile phone, or any other suitable device.
Internet payment	A type of E Payment. Payment instructions which enter the payment system via the Internet. The device used to initiate the payment could be a computer, mobile phone or any other device. The payment instrument used could be an E-Money product, payment card product, or direct credit transfer, among others.
Interoperability	A situation in which payment instruments belonging to a given scheme may be used in platforms developed by other schemes, including in different countries. Interoperability requires technical compatibility between systems, but can only take effect where commercial agreements have been concluded between the schemes concerned.
Issuer*	Institution that issues the payment instrument. Typically used to refer to the institution issuing a payment card or E-money instrument.
Large-value Payment	Payments, generally of very large amounts, which are mainly exchanged between banks or between participants of financial markets and that usually require urgent and timely settlement.
Mobile Payments	A type of E-Payment, where the payment instrument used is an M-Money product. Also known as M-Payment.
Mobile Money	E-money product where the record of funds is stored on the mobile phone or a central computer system, and which can be drawn down through specific payment instructions to be issued from the bearers' mobile phone. Also known as M-Money.
Multi-Factor Authentication	Authentication mechanisms typically use a combination of three factors to ensure that the person participating in a transaction is the person who he claims to be. These factors are: i) something a person has, such as a payment card; ii) something a person knows, for example a password, PIN number, token, etc.; and, iii) something a person is, typically a biometric information like fingerprint, but could also be non-biometric like keystroke patterns. Authentication systems that use more than one of these factors are called multi-factor authentication systems. Those that use two—something a person has and something a person knows—are specifically referred to as two-factor authentication mechanisms. It needs to be noted that in some contexts, inclusion of out-of-band authentication could also constitute multi-factor authentication.

Terms	Definition
Multilateral Netting	An arrangement among three or more parties to net their obligations. The obligations covered by the arrangement may arise from financial contracts, transfers or both. Multilateral netting of payment obligations normally takes place in the context of a multilateral net settlement system. See also Bilateral Netting.
Netting	An agreed offsetting of positions or obligations by trading partners or participants. Netting reduces a large number of individual positions or obligations to a smaller number of obligations or positions. Netting may take several forms that have varying degrees of legal enforceability in the event of default of one of the parties.
Network Money	E-money that is transferred via telecommunications networks such as Internet.
Offline Authorization	Authorization processed by exchanging financial messages between a card reader and chip card without exchange of online financial messages with the issuer of the card. See also Authorization.
Online Banking-enabled Payment (OBeP)	Payment transaction using a standard banking account, with the transaction being authorized by the payer's bank at the time of transaction, typically through introducing a standard Internet banking authentication as part of the payment transaction. In general, in this step the payer's institution also provides an authorization and a commitment to honor a subsequent direct debit for this or alternatively committing to process a credit transfer. The payment transaction is then processed as a direct debit from the payer's account or a credit transfer by the payer's bank.
Out-of-band Authentication	Authentication mechanisms where a different channel than the one used for the transaction is used to conduct authentication or in some cases to conduct an additional authentication. For example, in an Internet banking transaction, sending a one-time password to a person's mobile phone and requiring that password to be entered for completion of the transaction; or, in the course of a mobile phone-initiated transaction, triggering an automated call to the persons registered landline phone and seeking confirmation of the transaction.
Paper-based Instruments	Payment instruments that require physical exchange between payer and payee and also require manual clearing.
Payment Card	Payment product where the payer is provided with a physical card with required account information encoded in a magnetic stripe and/or on an embedded IC chip. The information on the magnetic stripe or IC chip being read/accessed by an appropriate device of the payee triggers an authorization request to ensure availability of funds in the payers account. Cards issued by retailers for use within their premises or at a limited set of locations are not included in this definition.
Payment Card Company	A company that owns trademarks of payment cards (credit, debit or prepaid cards) and may also provide a number of marketing, processing or other services to institutions issuing its cards. Also called card company.



Terms	Definition
Payment Card Switch	<p>A payment card switch is defined as a mechanism that connects various institutions allowing interchange of payment cards transactions of participating institution cardholders at other participating institution merchants, ATMs and other card acceptance devices. A payment card switch is typically used for routing authorization and authentication-related messages between participating institutions, and can also generate and distribute clearing and settlement files. In some settings, the individual institutions could themselves have payment card switches to connect their own ATMs and POS terminals to their own internal card processing systems, and these payment card switches are then connected to a central inter-institution payment card switch. Payment card switches are also beginning to be used for processing of card transactions initiated through other channels like internet and mobile phones. This is often used interchangeably with payment card network but there are important differences. A switch in general refers to the technical infrastructure whereas a payment card network encompasses operational arrangements, payment products, rules, procedures, acceptance brands etc. and essentially is a payment system. Also referred to as switch or payment switch.</p>
Payment Instruction	<p>An order or message to transfer funds (in the form of a monetary claim on a party) to the order of the beneficiary. The order may relate either to a credit transfer or to a debit transfer.</p>
Payment Network	<p>A payments system that connects various member institutions enabling interoperability of payment instruments issued by a member at other members' acceptance infrastructure. Commonly used to refer to payment card systems like Visa and Master Card. This is at times used interchangeably with Payment Card Switch or Switch, but there are important differences, please see the definition of Payment Card Switch for a description of the differences.</p>
Payment Order	<p>Same as payment instruction.</p>
POS Terminal*	<p>This term refers to the use of payment cards at a retail location (point of sale). The payment information is captured either by paper vouchers or by electronic terminals, which in some cases are designed also to transmit the information. Where this is so, the arrangement may be referred to as "electronic funds transfer at the point of sale" (EFTPOS). In the latter case, the terminal reads the account information from a payment card's magnetic stripe and/or embedded IC chip and in some cases also accept cardholders PIN entry; prepares a transaction authorization request based on transaction; transmits the authorization request to the acquiring institution; receives the authorization response; displays transaction completion status; and prints a transaction record.</p>
Prepaid card	<p>Payment card provided in exchange of prior deposit of funds specifically for use through this card product.</p>
Real Time Gross Settlement	<p>The continuous (real-time) settlement of funds or securities transfers individually on an order-by-order basis (without netting).</p>
Retail Payment*	<p>A payment that meets at least one of the following characteristics; (i) the payment is not directly related to a financial market transaction; (ii) the settlement is not time-critical; (iii) the payer, the payee, or both are individuals or non-financial organizations; and (iv) either the payer, the payee, or both are not direct participants in the payments system that is processing the payment. This definition of retail payment includes person-to-person, person-to-business, business-to-person, business-to-business, person/business-to-government, and government-to-person/business payments.</p>

Terms	Definition
Retail Payments System	A system comprising the technical infrastructure, participants, instruments, arrangements for clearing and settlement, business relationship arrangements such as bank-customer relationships, rules, procedures, the applicable legal framework, and governance arrangements that, put together, provide the overall environment within which retail payments are posted, authorized, processed, cleared, and settled.
Settlement	An act that discharges obligations in respect of funds or securities transfers between two or more parties.
Stored-value Card*	Stored-value cards are a type of E-Money product that do not involve a deposit of funds into an account. Rather, the prepaid value is instead stored directly on the card in the embedded IC chip.
Stored-value Product	E-Money products which employ specialized software on a chip card, mobile phone or any other personal computing device and which can typically be used to transfer electronic value via telecommunications networks, Internet, or using technologies like Near Field Communication (NFC), RFID, Bluetooth etc.
Time-critical payment	A payment transaction that needs to be executed by a specified time.
Two-Factor Authentication	See Multi-factor Authentication.

ANNEX 9: REFERENCES

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