BALANCING COOPERATION AND COMPETITION IN RETAIL PAYMENT SYSTEMS

LESSONS FROM LATIN AMERICA CASE STUDIES

November 2008

Study Coordinated by Mario Guadamillas
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1818 H Street NW
Washington DC 20433
Telephone: 202-473-1000
Internet: www.worldbank.org
E-mail: feedback@worldbank.org

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

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

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

The third document appearing in this Series is “Balancing Cooperation and Competition in Retail Payment Systems: Lessons from Latin America Case Studies” and has been prepared by a team of experts from the Bank’s Finance and Private Sector Development Unit and the Chief Economist Office under the Latin America and The Caribbean (LAC) Vice Presidency together with experts from Payment Systems Development Group of the Financial and Private Sector Development Vice Presidency. The Bank has been a very active player in the area of payment systems in the LAC Region for more than a decade, on a continuous and structured basis since 1998 with the launch of the Western Hemisphere Payments and Securities Clearance and Settlement Forum (WHF). The WHF has undertaken 25 country assessments from May 1999 to November 2008 and the Bank has helped with the implementation of payment systems reforms in most of the countries assessed. The overall objective being the development of more secure, efficient payments, remittances and securities clearance and settlement systems, capable of satisfying the needs of the local and regional markets. These reform efforts have been accompanied by the development of tools, methodologies and research studies that have contributed to knowledge dissemination.

“Balancing Cooperation and Competition in Retail Payment Systems: Lessons from Latin America Case Studies” presents the findings of four case studies in Latin America (Argentina, Brazil, Colombia and Mexico) that have explored the issue of cooperation and competition in different retail payments markets, such as the automated clearinghouse (ACH) and cards markets. The study includes an overview of the main issues and policy guidelines derived from the case studies but also from the accumulated expertise of the Bank around the world and available literature on the topic. Thus, the study defines a conceptual framework to better identify the issues involved and propose policy guidelines for the authorities and stakeholders to consider in advancing reforms in the area of retail payment systems and achieve the right balance for a cooperative infrastructure development among market competitors.

Pamela Cox
Vice President
Latin America and the Caribbean
World Bank Group

Michael Klein
Vice President
Financial and Private Sector Development
World Bank Group
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• Overview and policy paper: Mario Guadamillas.
• Argentina case study: Sergio Gorjón, Financial Sector Specialist in the World Bank’s LAC Region on secondment from the Bank of Spain.
• Colombia case study: Constantinos Stephanou, Senior Financial Economist in the World Bank’s Financial and Private Sector Development Vice Presidency.
• Brazil case study: Massimo Cirasino, Head of the Payment Systems Development Group, World Bank.
• Mexico case study: Tito Cordella, Lead Economist in the World Bank’s LAC Chief Economist Office.
• Main Trends in Payment Instruments and Infrastructure Usage: Jane C. Hwang, Consultant in the World Bank’s LAC Region.

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## ABBREVIATIONS AND ACRONYMS

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<tr>
<td>ABM</td>
<td>Asociación de Bancos de México</td>
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<td>ACH</td>
<td>Automated Clearing House</td>
</tr>
<tr>
<td>ACHC</td>
<td>ACH Colombia</td>
</tr>
<tr>
<td>AFPs</td>
<td>Administradoras de Fondos de Pensiones (Colombia)</td>
</tr>
<tr>
<td>ANSES</td>
<td>Administración Nacional de la Seguridad Social (Argentina)</td>
</tr>
<tr>
<td>ARPs</td>
<td>Administradoras de Riesgos Profesionales (Colombia)</td>
</tr>
<tr>
<td>ASBACE</td>
<td>Associação Brasileira de Bancos Estaduais e Regionais</td>
</tr>
<tr>
<td>ATM</td>
<td>Automated Teller Machine</td>
</tr>
<tr>
<td>BCB</td>
<td>Banco Central do Brasil</td>
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<tr>
<td>BCRA</td>
<td>Banco Central de la República Argentina</td>
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<tr>
<td>BdB</td>
<td>Banco do Brasil</td>
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<tr>
<td>BIS</td>
<td>Bank for International Settlements</td>
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<tr>
<td>BM</td>
<td>Banco de México</td>
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<tr>
<td>BOVESPA</td>
<td>Sao Paulo Stock Exchange</td>
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<tr>
<td>BR</td>
<td>Banco de la República (Colombia)</td>
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<tr>
<td>CCF</td>
<td>Cajas de Compensación Familiar (Colombia)</td>
</tr>
<tr>
<td>CCI</td>
<td>Cámara de Compensación de Interbanking (Argentina)</td>
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<tr>
<td>CEC</td>
<td>Cámaras Electrónicas de Compensación (Argentina)</td>
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<tr>
<td>CEC</td>
<td>Centre for Exchange and Clearing (Belgium)</td>
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<tr>
<td>CEDEC</td>
<td>Sistema de Compensación Electrónica de Cheques (Colombia)</td>
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<tr>
<td>CEF</td>
<td>Caixa Econômica Federal (Brazil)</td>
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<tr>
<td>CEMLA</td>
<td>Centro de Estudios Monetarios Latinoamericanos</td>
</tr>
<tr>
<td>CENIT</td>
<td>Compensación Electrónica Nacional Interbancaria (Colombia)</td>
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<tr>
<td>CGAP</td>
<td>Consultative Group to Assist the Poor</td>
</tr>
<tr>
<td>CIMPRA</td>
<td>Comisión Interbancaria de Medios de Pago de la República Argentina</td>
</tr>
<tr>
<td>CIP</td>
<td>Câmara Interbancária de Pagamentos (Brazil)</td>
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<tr>
<td>COELSA</td>
<td>Compensadora Electrónica S.A. (Argentina)</td>
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<tr>
<td>COMPE</td>
<td>Centralizadora da Compensação de Cheques e Outros Papéis (Brazil)</td>
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<td>CPSS</td>
<td>Committee on Payment and Settlement Systems</td>
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<tr>
<td>CPMF</td>
<td>Contribuição Provisória sobre Movimentação Financeira (Brazil)</td>
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<tr>
<td>CUN</td>
<td>Cuenta Única Nacional (Colombia)</td>
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<tr>
<td>CVM</td>
<td>Comissão de Valores Mobiliários (Brazil)</td>
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<tr>
<td>DECEVAL</td>
<td>Depósito Centralizado de Valores de Colombia</td>
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<tr>
<td>DDA</td>
<td>Débito Direto Automático (Brazil)</td>
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<tr>
<td>DIAN</td>
<td>Dirección de Impuestos y Aduanas Nacionales (Colombia)</td>
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<td>DNS</td>
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<tr>
<td>DOC</td>
<td>Documento de Credito (Brazil)</td>
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<td>DvP</td>
<td>Delivery versus Payment</td>
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EAPS  Euro Alliance for Payment Schemes
EC  European Commission
EFTs  Electronic Funds Transfers
EPC  European Payments Council
EPS  Empresas Promotoras de Servicios de Salud (Colombia)
EU  European Union
FIMPE  Fondo de Infraestructura de Medios de Pago Electrónicos (Mexico)
GDP  Gross Development Product
ICBF  Instituto Colombiano de Bienestar Familiar (Colombia)
IF  Interchange Fee
INEGI  Instituto Nacional de Estadística, Geografía e Informática (Mexico)
IT  Information Technology
LAC  Latin America and the Caribbean
LTOSF  Ley para la Transparencia y Ordenamiento de los Servicios Financieros (Mexico)
MEP  Medio Electrónicos de Pago (Argentina)
MHCP  Ministerio de Hacienda y Crédito Público (Colombia)
MICR  Magnetic Ink Character Recognition
MIF  Multilateral Interchange Fee
MPS  Ministerio de Protección Social (Colombia)
MSF  Merchant Service Fee
OFT  UK Office of Fair Trading
PILA  Planilla Integrada de Liquidación de Aportes (Colombia)
PSE  Proveedor de Servicios Electrónicos (Colombia)
POS  Point of Sale
RBA  Reserve Bank of Australia
RSFN  Rede do Sistema Financeiro Nacional (Brazil)
RTGS  Real Time Gross Settlement System
RVA  Rede Verde e Amerela (Brazil)
SAMA  Saudi Arabia Monetary Agency
SDE  Secretaria de Direito Economico (Brazil)
SEAE  Secretaria de Acomplhamento Economico (Brazil)
SEBRA  Servicios Electrónicos del Banco de la Republica (Colombia)
SENA  Servicio Nacional de Aprendizaje (Colombia)
SEPA  Single Euro Payments Area
SEPSA  Servicios Electrónicos de Pago S.A. (Argentina)
SF  Superintendencia Financiera (Colombia)
SIC  Superintendencia de Industria y Comercio (Colombia)
SIIF  Sistema Integrado de Información Financiera (Colombia)
SILOC  Sistema de Liquidação Diferida de Ordens de Crédito Interbancárias (Brazil)
SIPS  Systemically Important Payment Systems
SIPROC  Sistema de Processamento de Bloquetos de Cobrança (Brazil)
SITRAF  Sistema de Transferência de Fundos (Brazil)
SOI  Servicio Operativo de Información (Colombia)
STR  Sistema de Transferencia de Reservas (Brazil)
SUIFP  Sistema Unificado de Inversiones y Finanzas Públicas (Colombia)
SWIFT  Society for Worldwide Interbank Financial Telecommunication
SWIPS  System Wide Important Payment Systems
TecBan  Tecnología Bancária (Brazil)
TEC  Transferencia Especial de Credito (Brazil)
TED  Tranferencia Electronica Disponivel (Brazil)
WB  World Bank
WHF  Western Hemisphere Payments and Securities Clearance and Settlement Forum
The extent to which accessibility and affordability of finance can be expanded is in part a function of the level of cooperation and competition in the financial system. Access to finance and efficiency of financial intermediation considerations have become increasingly important as policymakers seek to broaden the ‘reach’ of formal financial systems. Thus, it is necessary to understand the relative importance and drivers of costs, risks and market power in the provision of various types of financial services (e.g. deposits, loans, payments etc.).

Contestability (defined as competitive behavior) includes factors such as greater access to financial infrastructure (e.g. payment systems), presence of a broad range of financial institutions – including foreign, less segmentation of activities across financial sectors. Financial systems in most Latin American countries have experienced a process of rapid concentration. However, the traditional structure-conduct-performance paradigm is no longer adequate to explain the actual level of competition; higher concentration does not necessarily mean less competition and competitive behavior needs not hinge on price competition only. Policymakers need to understand how these issues affect the level of cooperation and competition in order to derive suitable policy responses.

As mentioned, one of the key factors of access is financial infrastructure. In this regard, transaction costs can be mitigated through cooperation by private sector providers in the establishment and operation of financial infrastructure taking advantage of economies of scale, scope and network externalities. The study of the retail payments market structure is key to understand how economies of scale, scope and network externalities may affect users and providers behavior. Payments service providers often compete directly in the provision of retail payments instruments and services to end-users but they also cooperate in shared payment networks. However, there are coordination failures that do not make always possible to cooperate introducing inefficiencies and duplications. On the other hand, cooperation may result in collusive behavior by players that have a dominant position in the payments infrastructure.

In essence, the focal point is the trade-off between cooperation and competition, and the potential impact of oversight and regulatory intervention. In this context, the appropriate role of oversight and regulation, or more generally, the need for government intervention to maximize social welfare, has been debated. Thus, it is important to identify what are the policy issues and regulatory implications stemming from cooperation versus competition in retail payments.
Domestic financial infrastructure, institutional and legal frameworks affect financial institutions’ strategies so that competition and cooperation dynamics are best analyzed at a disaggregated level. Thus, the study has included four specific case studies (Argentina, Brazil, Colombia and Mexico) in different retail payment markets. Building on these case studies, the available theoretical knowledge and the Bank’s expertise in payment systems the study provides some policy guidelines on how authorities can optimize social welfare through payment systems cooperation and competition policy.

The study includes seven independent but highly interrelated papers:

• A Policy Brief – Balancing Cooperation and Competition in Retail Payment Systems.
• An overview and policy paper – Balancing Cooperation and Competition in Retail Payment Systems: Overview and Policy Issues.
• The Argentina case study – Cooperation versus Competition in Argentina’s Automated Clearing House (ACH) Market.
• The Brazil case study – Cooperation versus Competition: Efficiency Issues in Brazil’s Retail Payment Systems.
• The Colombia case study – Cooperation versus Competition in Colombia’s Automated Clearing House (ACH) Market.
• The Mexico Case Study – The Role of Interchange Fees in Mexico’s Retail Payment System: from Theory to Practice.
• A statistical trends paper – Main Trends in Payment Instruments and Infrastructure Usage in Selected Latin American Countries.

The Policy Brief is the core link among the rest of the papers presented in this study and summarizes the

main findings of the whole studies through a series of sequential questions:

• Why is retail payments efficiency and innovation key to economic and social development?
• What is the combination of payment instruments usage that can be considered socially optimal?
• To what extent are efficiency, access and innovation determined by cooperation and competition among market players?
• What are the main drivers of cooperation and competition?
• What are the lessons learned from LAC country studies?
• What are the main policy implications?

The Policy Brief also includes policy guidelines derived from the theoretical analysis, the Bank’s expertise in the area of payment systems and the lessons from the four case studies.

The overview and policy paper, Balancing Cooperation and Competition in Retail Payment Systems: Overview and Policy Issues, analyzes the market structure and dynamics of retail payments markets that define behavioral patterns different from the situation were a multitude of firms engage in perfect competition with free entry. Environmental, legal and legacy issues, governance, access and pricing are analyzed as key drivers of cooperation and competition in different retail payments markets. Policy response is undertaken through the oversight function over payment systems and cooperation among authorities. The paper presents some of the policy-making complexities about these markets in a context of increasing involvement of authorities around the world.

The Argentina case study, Cooperation versus Competition in Argentina’s Automated Clearing House (ACH) Market, analyzes cooperation and competition issues in
Argentina’s Automated Clearinghouse Market (ACH). Argentina is characterized by the co-existence of four distinct ACH platforms with, in theory, overlapping markets. In addition, the RTGS system played a role in the context of small-value payments during the crisis. This latter aspect along with historical reasons, non-trivial switch costs and widespread uncertainty about the real size of scale effects is found to explain the relatively low level of direct competition between the various ACH platforms; a circumstance that is further enhanced by the remarkable absence of a well-founded and sound oversight framework. The authors discuss the implications of these findings, and conclude with the identification and brief elaboration of some potential policy options to reform this market.

The Brazil case study, Cooperation versus Competition: Efficiency Issues in Brazil’s Retail Payment Systems, analyzes the efficiency implications of competition versus cooperation in Brazil’s retail payments infrastructure along two distinctive market dimensions: i) the degree of interoperability in the ATM/POS networks and, ii) the level of fragmentation of the processing infrastructure. It is found that, in spite of recent efforts, interoperability in the cards market still remains low therefore giving rise to relevant efficiency concerns. Similar conclusions are drawn from the lack of fully integrated payment arrangements for other low-value payments. The authors discuss the impact of these findings, and identify briefly a number of policy lessons that could help explain the roots of the problem and define a potential way forward.

The Colombia case study, Cooperation versus Competition in Colombia’s Automated Clearing House (ACH) Market, analyzes cooperation and competition issues in Colombia’s Automated Clearing House (ACH) market. The market is characterized by the co-existence of two distinct ACH platforms, one of which is operated by the central bank. Although the presence of two ACH platforms has increased contestability, it is found that direct competition is inhibited by some discriminatory business practices. In addition, oversight arrangements to ensure the right balance between different policy objectives are complex because of the multiplicity of relevant policy makers and the lack of adequate institutional coordination mechanisms. The authors discuss the implications of these findings, and conclude with the identification and brief elaboration of some potential policy options to reform this market.

The Mexico case study, The Role of Interchange Fees in Mexico’s Retail Payment System: from Theory to Practice, analyzes issues of the determination of interchange fees in the Mexican cards market. Mexico’s market for bank retail payment cards at point of sales remains underdeveloped both with respect to international standards and vis-à-vis other emerging economies in the region. Is this because of the anticompetitive effect of high interchange fees (IFs)? To answer this difficult question, the authors first provide an in depth discussion of the economics of IFs. This allows drawing some general lessons on how IFs might affect competition and the development of an effective retail payment system. Then, the authors focus on the Mexican experience with IFs setting, looking at the main trade-offs regulators face, and discuss the policy challenges ahead.

The statistical trends paper, Main Trends in Payment Instruments and Infrastructure Usage in Selected Latin American Countries, looks into the current status and evolution of payment instruments and infrastructure usage within selected Latin American countries and comparison with selected countries from the Commit-

\footnote{This study uses the term interchange fee for the cards markets as defined in the CPSS glossary; that is, fee applied for a network organization and paid by the card issuing institution to the acquiring for the cost of deploying and maintaining ATMs and POS. For the ACH market the study uses the term interbank fee, that is, the one applied among ACH participants (normally banks) to balance costs (mostly associated with cash handling) of reaching clients (through bank branches) in different geographical areas. This interbank fee is normally applied on top of the fee for the infrastructure use.}
tee on Payment and Settlement Systems of the Bank for International Settlements. Statistical figures highlight an overall increase in the use of payment instruments. Cash continues to be an important instrument and its use has increased in most Latin American countries due to crises or financial transactions tax. Electronic instruments are replacing cheques as a major payment instrument but at a slow pace, cheques are still very relevant in many countries in terms of volume. In addition, a view into the infrastructure and institutional arrangements emphasizes the need for public policy analysis with regards to cooperation and competition in the system.

Finally, the study includes an annex on market structure and characteristics of ACHs in selected countries that present useful information for comparative purposes, especially for the case studies of Argentina, Brazil and Colombia.
1. WHY IS RETAIL PAYMENTS EFFICIENCY AND INNOVATION KEY TO ECONOMIC AND SOCIAL DEVELOPMENT?

Payment systems and instruments are significant contributors to the broader effectiveness and stability of the financial system, in particular to the confidence in money and to the functioning of commerce. Hence, the efficient and safe use of money as a medium of exchange in payment transactions is an essential function of the currency and, moreover, it is also a foundation of the trust people have in it.

For these reasons, the efficiency and safety of payment systems (large and low-value ones) are of interest to central banks and other public authorities. Payment system oversight is a task that central banks undertake to ensure public confidence in money. The scope of the oversight function (e.g., large-value payment systems, securities settlement systems, retail systems, payment instruments) varies among countries. However, there is an increasing attention, beyond safety issues and systemically important systems, to the efficiency of retail payment systems and their role for the public confidence in money and the economy.

Lack of efficiency and innovation in retail payment systems may have important costs. 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 1 percent of its GDP. This is mainly explained by the realization of economies of scale in the provision of electronic payments, the overall increase in the total number of payment transactions, savings in back-office operations as well as by the impact of the technological change in terms of lower telecommunication and processing costs.

However, in many countries around the world the role of cash and cheques is still strong, acting mostly as preferred payment instruments for smaller and face to face transactions. The socially optimal combination of payment instruments differ from country to country given the particular features of the nation-specific production function (e.g., the balance between fixed and variable costs) and the varying pricing strategies applied by commercial banks and other payment services providers. Yet, pricing policies by banks and regulatory actions by public authorities are usually visible drivers steering user’s preferences.

This Policy Brief looks at the forces shaping retail payments markets. Drawing on an overview of the main issues and four case studies from across Latin American countries (Argentina, Brazil, Colombia and Mexico) and the expertise of the World Bank in payment system projects, it offers a set of policy implications for public authorities to explore in their efforts to balance cooperation and competition in retail payment systems in order to bridge the infrastructure gap enhancing economic and social development.

2. WHAT IS THE COMBINATION OF PAYMENT INSTRUMENTS USAGE THAT CAN BE CONSIDERED SOCIALLY OPTIMAL?

The socially optimal combination in each country depends on user’s preferences that can vary not only among countries but also within countries for different types of transactions. It also depends on the socioeconomic structure of the country and environmental factors (e.g., size, demographics, rural versus urban, etc.).

There is an increasing trend in the use of cash in some countries (see Graph 1). Use of cash in some G-10 countries has been steady in the latter years between 3 and 6 percent of GDP, with the exception of Japan that has traditionally presented a high level of cash in circulation, between 14 and 17 percent of GDP. Latin American countries present an increasing trend (in part motivated by the establishment of financial transaction taxes) though levels have been similar to those of G-10 countries, except in the case of Argentina with an increase from about 4 percent to 9 percent from 2001 to 2006, mainly caused by the financial sector crisis.

The usage of various non-cash payment instruments varies among countries (see Graph 2). In terms of volume, cheques still represent an important percentage in the American Continent despite the reduction of their systemic importance as demonstrated by their lower relevance in terms of value. Some G-10 countries still keep a high use of cheques (e.g., Canada, UK, US) though there is an increasing trend in the usage of electronic payment instruments, mainly credit transfers, cards and direct debits (the latter especially in European countries).

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1 In addition, for the case of Europe, Capgemini Consulting has proved that advancing in the modernization of the retail payments market (the so-called SEPA project) could have a significant market potential of up to 123 million in benefits over six years; a figure that could yet rise even further (up until 238 million) should banks be successful in using SEPA as a platform for the automation of business process linked to the business chain (e.g. e-invoicing).
GRAPH 1

Bank Notes and Coins as a Percentage of GDP

Graph showing the percentage of GDP occupied by bank notes and coins for various countries.


GRAPH 2


Graph showing the average percentage use of various payment mediums for different countries.

3. TO WHAT EXTENT ARE EFFICIENCY, ACCESS AND INNOVATION DETERMINED BY COOPERATION AND COMPETITION AMONG MARKET PLAYERS?

The extent to which efficiency and other important policy objectives such as access to financial services are attained in retail payments systems is partly determined by a complex interplay of cooperation and competition efforts among market players. This interplay is influenced by the relative importance and drivers of costs, risks and market power in the provision of various types of payment services.

Although the dividing lines among payments services are not always clear, the sequence of payment operations can be decomposed generally into:

- **Access services** which provide the payor with the opportunity to select a payment instrument of choice.
- **Messaging services** which transmit payment information in a format that complies with the accepted standards for the entry of that information into the clearing and settlement system.
- **Specific clearing services** and arrangements for the processing of payments that vary by the type of payments instrument and the systems’ architecture.
- The **settlement services** provided by a settlement bank (e.g., the central bank) which discharge the payment obligation and provide finality to the process.

There is increasing centralization of operations as the payment moves from its instrument access stage to the settlement stage due to the natural monopoly features in the provision of some of these services. For this reason, it is not at all uncommon to see payment platforms being developed through cooperation among competitors. Indeed, payments service providers often compete directly in the provision of retail payments instruments and services to end-users but they also cooperate in shared payment networks (‘upstream cooperation combined with downstream competition’). Balancing cooperation and competition is not easy, there may be coordination failures that do not make always possible to cooperate introducing inefficiencies and duplications. On the contrary, cooperation could lead to collusive behavior among payment system providers affecting the accessibility and affordability of retail payment services.

Market structure in retail payment systems 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.
- **Network externalities** in messaging, clearing and settlement services are produced by complementarities of users and/or products and compatibility of products.

Competition takes place at two different levels:

- **Competition across retail payment instruments** (e.g., cheque vs. electronic transfers).
- **Competition across payment system providers for the same payment instrument:**
  - among platforms (e.g., different credit card providers) and:
  - within platform between service providers (e.g., cards issuers versus acquirers).

The retail payment markets are also influenced by a number of dynamics. Some of these are specific to the end users (buyers and merchants), some are specific to the platforms (networks), and some depend on the intermediaries (for example, in the case of card payments, the buyers’ card issuers and the merchants’ acquirers):
• **Switching Costs** at the platform level (for platform participants), at the cross-product level (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 to each participant by adding more participants, the utility is maximized if everybody participates in one single network.

• **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 instruments, and merchants accept several types of instruments. This “multihoming” also takes place within one type of instruments (e.g., credit cards). Often, however, the consumers favor one card over another, i.e. their usage is “sticky”.

Many recent innovations in retail payment systems have been largely supplied by non-banks. Non-banks have proven very successful in enhancing existing payment solutions, improving payments system efficiency and, further, fruitfully identifying and servicing new niche markets.

As in other economic sectors (e.g., telecommunication, energy), market structure, competition and dynamics in retail payments determine behavioral patterns that differ from the situation where a multitude of firms engage in perfect competition with free entry. Economies of scale/scope and network effects have resulted in natural monopoly features that cause a high concentration of payment platforms, sometimes ending up in vertical integration. If this is a positive or negative result is unclear and 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

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**FIGURE 1: RETAIL PAYMENT MARKETS AND DRIVERS OF COOPERATION AND COMPETITION**

<table>
<thead>
<tr>
<th>Payment instruments (vehicle to transfer value):</th>
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</thead>
<tbody>
<tr>
<td>• Cash</td>
</tr>
<tr>
<td>• Non-cash (paper-based, paperless)</td>
</tr>
<tr>
<td><strong>Payment services:</strong></td>
</tr>
<tr>
<td>• Access</td>
</tr>
<tr>
<td>• Messaging</td>
</tr>
<tr>
<td>• Clearing</td>
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<tr>
<td>• Settlement</td>
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<table>
<thead>
<tr>
<th>Market conditions</th>
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</thead>
<tbody>
<tr>
<td>• Market structure</td>
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<tr>
<td>• Market dynamics</td>
</tr>
<tr>
<td>• Competition at different levels:</td>
</tr>
<tr>
<td>• Across instruments</td>
</tr>
<tr>
<td>• Among and within platforms for the same instrument</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Behavioral patterns:</th>
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<tbody>
<tr>
<td>• No perfect competition (e.g., two sided markets)</td>
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<tr>
<td>• Concentration of platforms:</td>
</tr>
<tr>
<td>• Take advantage of economies of scale/scope</td>
</tr>
<tr>
<td>• and network externalities</td>
</tr>
<tr>
<td>• May hamper product differentiation</td>
</tr>
<tr>
<td>• No conclusive evidence on access, pricing and</td>
</tr>
<tr>
<td>innovation</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Main drivers of cooperation and competition:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Environmental, Legal and Legacy factors</td>
</tr>
<tr>
<td>• Governance</td>
</tr>
<tr>
<td>• Access</td>
</tr>
<tr>
<td>• Pricing</td>
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<table>
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<tr>
<th>Policy Response</th>
</tr>
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<tbody>
<tr>
<td>• Oversight and Cooperation</td>
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</table>
products. However, centrally-agreed common features can sometimes hamper product and/or service differentiation and innovation at the individual service provider level. A key question is what factors should the authorities and key stakeholders consider in balancing cooperation and competition in retail payment systems? (see Figure 1).

4. WHAT ARE THE MAIN DRIVERS OF COOPERATION AND COMPETITION?

Some payment services may be more efficiently provided under competitive conditions (access) versus other that may show natural monopoly features (messaging, clearing and settlement). Vertical integration or joint provision of some of these services by competitors may generate conflicts of interest among them resulting in inefficient governance, access or pricing structures. In markets with similar characteristics (e.g., telecommunication), authorities have resorted to services provision separation by type of service. Those having a natural monopoly feature being provided by entities different from those competing with the final client. In the retail payment systems area this approach does not seems to be a feasible alternative due to the close relation of retail payment services with the core retail banking activity.

However, authorities may resort to oversight and regulation to deal with conflicts of interest and balance cooperation and competition. This approach has been recently followed by many central banks and competition authorities and other relevant bodies around the world (see Box 1). In particular, through oversight and regulation authorities are able to introduce market corrective measures. These should be targeted to the main drivers of cooperation and competition (environmental, legal, legacy, governance, access and pricing) to achieve the defined policy objectives. Lack of oversight and regulation most surely will end up in sub-optimal availability and affordability of payment instruments (see Section 6).

Network cooperation and competition is highly influenced by environmental, legal and legacy issues. In deciding the design features of a given payments network, banks and all other relevant players are typically laying the grounds of the industry’s future competition game. Therefore, the final strategic approach chosen is likely to come as a result of the combined influence of such diverse factors as the structure of the banking industry, socio-legal, political and macroeconomic (e.g., high inflation) considerations, demographic dimensions, etc.

Governance of the infrastructure has a significant impact on cooperation and competition. Non-proprietary, transparent and open standards that do not impair interoperability can help shift competition to more classic variables such as pricing, distribution channels, brand, customer service and core value propositions. Self-regulation can help keep the infrastructures aligned with the changing needs but ensuring neutrality, objectivity and contestability normally requires a closer public scrutiny of the self-regulatory scheme.

Gaining access to messaging, clearing and settlement services is of capital importance for the ultimate success of new entrants in the market. Retail payment instruments and services are a critical part of today’s banks portfolio strategies. The increasing role played by non-banks makes access considerations even more important nowadays. Players with a dominant position in one infrastructure may have the incentive to create barriers for access to new entrants. Moreover, access requirements should be defined as to ensure that all participants enjoy the same level of financial soundness and are able to cope properly with the technical and operational requirements. Two-tiered membership participation models and certain types of decentralized clearing structures may sometimes be a solution to ensure sound access to the infrastructure, but under certain circumstances they may also create access barriers.
## Box 1. Some Recent Financial Sector Inquiries about Retail Payment Systems

<table>
<thead>
<tr>
<th>Country – Institution</th>
<th>Year</th>
<th>Main Payments Systems-Related Findings</th>
<th>Conclusions / Proposed Remedies</th>
</tr>
</thead>
</table>
| Australia – Reserve Bank of Australia and Australian Competition and Consumer Commission | 1999-2000 | • Cost-based methodologies suggest interchange fees should be much lower than current levels  
• No surcharge' rules are undesirable because they suppress important cost signals to end-users  
• Access restrictions for international credit card schemes lack transparency and objectivity  
• Competitive pressures in card payment networks have not been sufficiently strong  
• Incentives structure has encouraged growth of credit cards at the expense of other payment instruments, such as debit cards and direct debits | • The interests of end-users of card payment services need to be more directly engaged in the pricing process  
• Conditions of entry to card payments networks need to be more open than at present  
Measures taken subsequently:  
• Elimination of ‘no surcharge’ and ‘honor all cards’ rules on merchants  
• Establishment of cost-based benchmark (‘standard’) for calculating interchange fees for all payment cards  
• Establishment of transparent access regime  
• Greater disclosure on interchange fees and access |
| European Commission (EC) | 2005-07 | • Fragmented infrastructures along national lines  
• In general, payment card issuing is less concentrated and more profitable than acquiring, and this is magnified by high interchange fees  
• Significant competition issues in the payment cards market, with entry barriers stemming from network and standardization requirements, regulatory policies, and cooperative arrangements | • Antitrust enforcement on access barriers, discriminatory rules, fee structures and governance arrangements in some payment card networks and in clearing and settlement systems  
• Regulatory and self-regulatory measures, such as the establishment of a pro-competitive Single Euro Payments Area (SEPA) and new EC Directives, can address other competition barriers |
| Ireland – The Competition Authority | 2005 | • The structure of the clearing system has inhibited new banks offering services  
• Ireland’s continued high reliance on paper transactions (such as cheques) raises costs | • Facilitate new members joining payment clearing system  
• Improve corporate governance structure of the payment system and increase transparency  
• Promote more efficient payment system |
| Netherlands– Dutch National Bank (Wellink report) | 2002 | • Payments market is characterized by efficient infrastructure, but it is dominated by a few large banks and a single interbank processor (Interpay)  
• Consumer usage cost is largely unrelated to actual use of payment services  
• Interpay’s special position raises concerns about tariff setting and access conditions | • Greater transparency and governance of Interpay  
• Banks should introduce a choice of different tariff structures to consumers as alternative to current package  
• Central bank to intensify oversight of payments systems and to offer settlement accounts to non-banks if required  
• Creation of ‘consulting group on payment services’ to share information and discuss payments market changes |
| South Africa– National Treasury and South Africa Reserve Bank (Falkena report) | 2004 | • Dominance of big banks in the payments system, related to concentrated deposits market  
• Entry restrictions and payment processing procedures (including mutual governance arrangements) undermine competition, especially in serving low-income individuals  
• A big challenge is to develop the payments system so that it caters for the unbanked | • Extend interoperability and transparency of access requirements to payments system  
• Promote competition by allowing second/third-tier banks and entry of foreign banks  
• Competition Commission should investigate possibility of complex monopoly in operation of payments system  
• Bank and payment regulators should be required to consider the competitive impact of their regulation |
| Sweden– Swedish Competition Authority | 2006 | • Smaller banks have a cost disadvantage in giro and direct account transfers, and in ATM access  
• ‘Infrastructure clubs’ create potential conflicts of interest due to mutual governance structure  
• Customer switching across banks is currently limited, costly and complex | • Commercial management of the payment system infrastructure should be separated  
• Rules should be developed to ensure appropriate terms of access to payment systems  
• Government should introduce measures (including for payments) making it easier for consumers to switch banks |
| UK– Treasury (Cruickshank report) | 1999-2000 | • Concentrated (and unregulated) market structure and mutual governance model create artificial and discriminatory barriers to network access, lack of price transparency and of effective competition across payment schemes, high cost to retailers for card use (interchange fees), slow clearing cycles, excessive charges (e.g. ATMs), and lack of innovation  
• Ineffective (competition law) framework  
• Lack of competition attributed to network effects that cannot be resolved solely by the “dynamics of the marketplace” | • Introduce new policy framework to address problems  
• Set up independent payment systems commission  
• Government should avoid creating regulatory distortions by un-necessarily restricting access to payments systems, and should be intelligent consumer of payment services  
Measures taken subsequently:  
• Starting in November 2003, Office of Fair Trading (OFT) given enhanced role in payment systems for four years  
• Establishment of Payments Systems Task Force in 2004, chaired by the OFT, to focus on payments issues  
• 2006 Competition Commission inquiry into store cards confirms competition problems and proposes remedies |
| USA– Federal Reserve (Rivlin committee) | 1997-1998 | • The Fed plays a major role in the markets for cheque collection services and ACH transactions  
• Per its pricing and cost recovery principles, the Fed does not subsidize cheque collection services  
• Growth of ACH hampered by several constraints | • The Fed should remain a provider of both cheque collection and ACH services in order to enhance efficiency, effectiveness, convenience and access  
• The Fed should play a more active role and work closely with users and providers of the payments system |
The complexity of pricing structures in retail payment systems may be used by some participants to gain a competitive advantage. Membership fees accommodate charges depending on the type of participation, activity level, market share, assets, and prospective contribution to the expansion of the current network. In addition to entry fees, participants are normally subject to usage fees. This complexity may increase switching costs for the participants and their clients, negatively affecting rivalry. Float income earning and cross-subsidization of payment services is furthermore a common practice in retail payment systems. Thus achieving a neutral and socially optimal level of fees in retail payment systems is not a trivial matter. For example, in relation to the cards market, interchange fees are typically fixed to serve as a complex balancing mechanism that aims at maximizing the network overall profits.

5. Lessons learned from LAC country studies

ARGENTINA

This case study has analyzed cooperation and competition issues in Argentina’s Automated Clearing House (ACH) market. The market is characterized by the coexistence of four ACH platforms with, in theory, overlapping markets as well as by an increasingly salient role of the RTGS system in the context of small-value payments. Interestingly, an implicit specialization of the various platforms seems to have taken place, thus catering for the needs of specific market segments.

A. What are the main drivers of cooperation and competition in ACH market in Argentina?

A.1. Environmental Issues, Legacy and Governance

• Two low-value and two large-value clearinghouses are operating in Argentina. Unlike many other countries, the distinction between large and low-value systems is mainly based on the length of the settlement cycle. Thus, the term large-value is used only to define infrastructures where settlement occurs within 24 hours. Longer processing cycles are typically associated with low value transactions.
  • ACH S.A. and the Compensadora Electrónica S.A. (COELSA) are the low-value infrastructures. Both are privately-owned companies. ACH has 24 stockholders and additionally 23 users. The ACH features a broad regional coverage as it was originally founded by banks outside the Buenos Aires area. COELSA has 21 stockholders and 17 clients. Conversely to the previous case, COELSA initially provided clearing services only for banks located in the Buenos Aires region.
  • Large-value clearinghouses also play a role in the execution of retail payments. In the absence of a formal threshold for discriminating low and large value payments, Interbanking and Provincanje (commonly referred to as a large-value clearinghouses) have also the potential to accept payments of a small size. Nowadays, Interbanking has 10 stakeholders and 36 bank customers, and it was established in 1996 as the result of a merger between Datacash and Newnet (bank-owned companies specialized in the provision of e-banking services to corporate customers). Initially, Interbanking had 15 stakeholders but successive mergers in the market and capital reductions led to some consolidation in the ownership structure. Provincanje is owned by 15 banks of which 80 percent are private banks.
  • Some prices (e.g., interbank fees) are established by the Interbank Committee for Payment Instruments in Argentina (Comisión Interbancaria de Medios de Pago de la República Argentina, CIMPRA) for both ACH S.A. and COELSA.
  • In order to enhance the financial soundness of the clearinghouses a collateral pool and other risk control measures have been put in
place by a Committee of the Clearinghouses (Comité de Cámaras) comprising representatives from all the four clearinghouses, the BCRA and CIMPRA.

A.2. Access
• Members of the clearinghouses can be financial entities and other institutions, public or private, explicitly authorized by the BCRA. The BCRA is also a member of the ACH S.A. for the clearing of cheque transactions. In any case, as a general rule, no entity may control directly or indirectly more than 33 percent of the company.
• In principle, the rules of the clearinghouses do not prevent non-banks from becoming participants in the national payment system. To this date, however, very few institutions aside from banks have applied for participation and most of them are represented by a direct participant instead. Among the few exceptions are the Postal Office and the National Social Security Administration (ANSES).

A.3. Pricing
• Common payment products (direct debits, cheques, credit transfers) are subject to coordinated pricing policies at the CIMPRA level. Cost recovery criteria prevail over other considerations. Instead of allocating the decision-making process on interbank fees to the governing bodies of each ACH, banks have opted for a collective price determination in the CIMPRA.
• Nonetheless, discernible differences among the various small-value clearinghouses are reported to exist regarding the pricing of processing services. In the case of COELSA, fixed monthly fees as well as per transaction ones are levied on all members. On the opposite, ACH S.A. charges each and every single participant a flat fee, regardless of the volume of transactions.
• Large-value clearinghouses apparently apply their own “proprietary” pricing structure substantiated by platform-specific features.

A.4. Oversight and Cooperation
• The BCRA has a limited-scope oversight function over the four clearinghouses focusing on operational aspects. The Gerencia de Control de Sistemas de Compensación approves the operation of the clearinghouses and conducts yearly inspections of them. The BCRA has established specific operational requirements (e.g., capacity, security, contingency plans, etc.). Also the Gerencia de Auditoría Externa de Sistemas looks at some aspects related to the participation in the payments system by financial institutions. Finally, the Gerencia de Sistemas de Pago is in charge of the oversight in general and cooperation with other entities (e.g., through CIMPRA).
• BCRA’s principal tools for the practical exercise of its oversight function are regulation and moral suasion, in particular in the context of the CIMPRA. BCRA’s regulations have proven a fairly useful tool to provide a formal endorsement and to ensure a wide adoption of industry-supported agreements regarding the structure and future evolution of the national payment systems infrastructure.
• Under the present arrangements, the operational and business layers of payment products (i.e. the interbank rules, practices and standards for the execution of a given payment as well as the commercial framework which enables the authorization, clearing and settlement of said transactions) are regulated independently from the technology platform on which the clearing and settlement process are expected to take place. Therefore, all clearinghouses shall, in principle, be ready to handle the same set of retail payment instruments.
In 1995, the CIMPRA was launched as a forum to help provide private sector input on the modification and modernization of existing payment media, the creation of innovative instruments, and the improvement of clearing and settlement systems.

B. What are the key issues?
• The factual impact on competition of multiple ACHs along with a regulatory/technical framework tailor-made to foster rivalry has, however, fallen short of expectations. Small and large-value ACHs have clearly opted to position themselves in the market differently, hence developing and leveraging, for the most part, from a distinctive product portfolio.
• Market segmentation due to historical reasons and, to some extent, non-trivial switching costs for banks may further explain the perpetuation of the present landscape.
• A reported lack of conclusive evidence on the existence of increasing returns to scale and other prominent scale effects in the core business of the clearinghouses substantiates the delayed process of consolidation.
• Moreover, the proliferation of a vast range of services in the clearinghouses other than processing and netting may be an indication of an excessive fragmentation of the retail payments market, i.e. a critical mass may be hardly obtainable at individual level due to a limited market size and a multiplicity of competing infrastructures.
• Weak legal foundations, diversity of relevant policymakers and limited scope and institutional coordination mechanisms have stalled the practical exercise of an effective oversight function.
• However, cooperative arrangements (with a limited scope) for the payment systems between the central bank and relevant stakeholders do exist in Argentina (e.g., CIMPRA). Moreover, the BCRA has recently made clear its commitment to step up its oversight responsibilities and, in so doing, to define a plan that helps upgrade the National Payment System.

C. What are the main policy implications?
• In order to take advantage of economies of scale/scope and network externalities authorities and market players could consider consolidation of platforms. The particular strategy, however, needs to be carefully planned as some potential outcomes (e.g., the likelihood of market conduct problems, a greater operational risk concentration, etc.) do have significant downsides. A greater emphasis on central bank oversight and payment systems regulation could help reduce these risks.
• Establishment of institutional mechanisms to promote coordination and information sharing between the various parties: a role that CIMPRA can play.
• Empower the BCRA to consistently address key payment systems issues, thus further acknowledging the relevance of retail payments in supporting economic activity and creating trust in the currency.
• In this last regard, the formalization of a cooperative framework among regulators and other relevant players should be given a high priority.

BRAZIL
This case study has analyzed the implications of cooperation and competition issues in Brazil’s retail payments infrastructure on two market dimensions: interoperability and infrastructure fragmentation. Idiosyncratic features and the still-evolving institutional framework have restricted interoperability in distribution channels of certain payment services (ATMs, POS and bank correspondents) and further contributed to a segmented retail clearing infrastructure. Although the current institutional set-up is driven by competition and has facilitated innovation, it has adverse efficiency
implications leading to segmented infrastructures that have reduced the exploitation of scale/scope economies and of network externalities.

A. What have been the main drivers of low interoperability and infrastructure segmentation in Brazil?

A.1. Environmental Issues, Legacy and Governance

- During the hyperinflation of the late Eighties and early Nineties, banks were experiencing, on one hand, a demand from costumers for faster services available at any time, and, on the other hand, significant returns on their holdings of government securities, that were adjusted to the inflation. This allowed for huge investments in technology and introduced the perception in commercial bank management of the competitive advantage that a broad network could have vis-à-vis the clients.

- These high initial investment costs to set up the infrastructure (in part caused by the prohibition until 1993 to acquire IT solutions from foreign providers) might have been per se another factor inhibiting interoperability and creating segmentation, even after price stability was achieved. In more recent years, market providers consider that additional and costly IT investments and changes in their business model would be needed in order to reach a compatible infrastructure.

- Low level of bank concentration might also have diluted the benefits and increased the (actual or perceived) costs of cooperation. This, coupled with the asymmetric market structure (few large and many small banks) and the high geographical overlap in networks between the main banks (focus on urban areas), may help explain the unwillingness of large banks to open up their networks to competitors, particularly small ones.

- Inadequate access to financial services, the high interest rates and the customers’ poor financial culture have been historically some of the principal impeding factors affecting the use of modern payment instruments (e.g., cards, direct debits). In more recent years, however, the usage of electronic payment instruments is increasing at very high rates, signaling a change in consumers’ behaviours.

- The high informality rate of the economy has also posed traditionally difficult challenges to the industry and the policy-makers.

- The ATM market is primarily dominated by larger banks. All large banks operate their own proprietary ATM network, while some smaller banks share ATMs in order to benefit from economies of scale. Tecnologia Bancária (TecBan) and Rede Verde e Amerela (RVA) are the only non-proprietary shared ATM networks in Brazil. In recent months, agreements are being established between large banks (e.g., Caixa Economica Federal and Banco do Brasil) and large banks are also taking an active role in TecBan.

- The need to protect the card networks (in particular ATMs) from frauds and other external attacks forced banks to invest heavily. In most cases, each bank adopted specific solutions, which makes more difficult and costly to achieve interoperability.

- Vertical integration and provision of similar product/services are distinctive features of the largest players in the POS market: Redecard and VisaNet. Both companies are in charge of managing the affiliated network of merchants, of capturing, transmitting, processing and conducting the settlement of transactions resulting from the use of card transactions and of developing related or connecting business to any of the aforementioned items. Alongside the international brands, in recent times other players have started to gradually gain momentum in the market (e.g., Hipercard, regional cards).

- The fragmentation observed nowadays in the Brazilian fund transfer infrastructure derives
from the complex path of reform of the Brazilian payments system. To the two existing clearinghouses, *Centralizadora da Compensação de Cheques e Outros Papéis* (COMPE) and TecBan, in 2002 another clearinghouse was added, the *Câmara Interbancária de Pagamentos* (CIP), parallel to the launch of the central bank’s RTGS system (*Sistema de Transferencia de Reservas*, STR). Instrument-based specialization and diverse functional clearinghouses have provided a rationale for the perpetuation of a multifold retail payment infrastructure.

- For some retail payments processing platforms, governance arrangements seem not to have addressed coordination failures properly, thus preventing non-banks from achieving a stakeholder status, thwarting the assignment of shares or partially limiting the accumulation voting rights.

### A.2. Access

- The pursuit of sustainable network-based competitive advantages has proven a recurrent and rational strategic behavior. For example, the reluctance of incumbent players to open up the market to competitors and other historical reasons have pushed back the development of a direct debit scheme. Also, hurdles to establish agency relationships do exist, i.e. correspondent networks with non-bank agents remain proprietary to individual banks and cannot be accessed by customers of another bank.

### A.3. Pricing

- Disagreements over interchange fees may have thwarted reciprocal accords. For example, the fee structure for using ATMs belonging to other banks can be prohibitive, which explains the low proportion of shared transactions in “open access” ATMs.
- Also, several middle-sized card issuers have disputed the validity of the pass-through levels of merchant discount fees. These issuers claim that current allocation of rents extracted from the merchants at the POS is, on average, about 300 basis points below the standard international levels. As interoperability would possibly imply a greater competition in the marketplace, this aspect might reveal a source of conflict that would need to be solved as a pre-condition to muster a stable interconnectivity agreement across the various networks.

- In addition, the differential pricing between competing clearing and settlement infrastructure may have impacted negatively innovation (e.g., direct debit) as well as slowed down the migration towards more efficient, electronic payment instruments. One underlying issue may be the lack of an overall normalization of more modern payment instruments in the customer-to-bank domain. This situation has prevented full end-to-end automation from happening and thus, interbank fees for some of these instruments lie paradoxically well above the ones applied to traditional paper-based products. Tax regulation adds to the complexity of the problem by creating exemptions for cheques and permitting charges over electronic instruments.

### A.4. Oversight and Cooperation

- The concerns raised by the low levels of interoperability and infrastructure segmentation in Brazil have already triggered some reaction by the central bank (*Banco Central do Brasil*, BCB), with the issuance of a circular aimed at foster cooperation in the retail sector.
- The BCB also signed a memorandum of understanding with the main anti-trust authorities to act jointly in this segment of the financial sector.

### B. What are the key issues?

- The consequences of low interoperability are overlapping coverage and inefficiency. In particular, low interoperability complicates the exploitation of economies of scale and positive
externalities. The cost of deploying and maintaining ATMs might also have adversely affected the capillarity of bank ATM networks, with the rural, lower-income and less populated parts of Brazil being at a comparative disadvantage.

- Lack of interoperability is obstructing the modernization of the retail payment systems and its potential benefits are being misplaced. A better allocation of the productive resources in the economy would immediately follow a greater degree of interoperability in the POS market. A study from the BCB indicates that a more intensive usage of electronic-based instruments can produce a potential saving to the country of 0.7 percent of the GDP per year. Such result stems from the economies of scale in the provision of electronic payments, the global increase of payments transactions, and the progressive lowering of telecommunication, software and processing costs.

- Economic efficiency in the provision of payment services is under-optimized by the lack of integrated payment arrangements. Multiple and not necessarily interrelated actors bring in an added layer of complexity to the retail payments landscape in their condition as operators of different infrastructures.

C. What are the main policy implications?

- A more active stance of the BCB in overseeing retail payment systems is starting to activate the development of interoperable networks and diminish infrastructure segmentation.

- Against this background, the central bank should consider the establishment of a working group or forum with representatives of all stakeholders’ groups.

- In particular, sufficient time and adequate resources should be devoted to the issue of standardization, seeking both sector and cross-industry cooperation.

- In addition, the BCB could further strive to team up with other authorities with a view to promote interoperability. The recent memorandum of understanding between the BCB and antitrust authorities is an important step in this regard.

- Bankers associations have a bigger role to play to foster cooperation in the banking sector. In fact, there is a clear need for a rationalization of the roles played by different stakeholders in the settlement infrastructure. Despite firm direction from the BCB (occasionally providing some conflicting signals in different pieces of regulation aimed at different objectives) and long-lasting discussions at the industry level, the future evolution of the settlement infrastructure for retail payments is still unclear.

- If these measures prove to be ineffective, the BCB might have to use “harder” regulation to foster the achievement of the public policy objectives. This might include setting up a tight deadline for the interoperability of networks and for the creation of a unified retail clearinghouse. If forced to do so, the BCB would certainly maintain its traditional stance to minimize interference in the market and ensure that perceived costs of its regulation by financial institutions be not passed unfairly to final consumers.

COLOMBIA

This case study has analyzed cooperation and competition issues in Colombia’s Automated Clearing House (ACH) market. The market is characterized by the coexistence of two ACH platforms, one operated by the central bank (Compensación Electrónica Nacional Interbancaria, CENIT) and the other one by the banking sector (ACH Colombia, ACHC). Although the presence of two ACH platforms has increased contestability, it is found that direct competition is inhibited by some discriminatory business practices. In addition, oversight arrangements to ensure the right balance between dif-
ferent policy objectives are complex because of the multiplicity of relevant policy makers and the lack of adequate institutional coordination mechanisms.

A. What are the main drivers of cooperation and competition in the ACH market in Colombia?

A.1. Environmental Issues, Legacy and Governance

• ACHC’s current shareholding structure stems from the original allocation of shares between the two pre-existing private ACHs and by subsequent merger and acquisition activity. Fourteen banks, one trust company (fiduciaria) and one cooperative are the current shareholders. ACHC’s statute does not accept non-banks as new members (only the trust company and the cooperative stay as members for historical reasons).
• CENIT’s operations are based on the legal foundation for central bank (Banco de la República, BR) involvement in the payments system, Central Bank Law 31/1992 (Ley Orgánica del Banco de la República). CENIT’s governance corresponds to the BR.

A.2. Access

• CENIT members currently comprise all banks, two financial corporations, two financial cooperatives, the National Treasury in the Ministry of Finance (Ministerio de Hacienda y Crédito Público, or MHCP), securities depository DECEVAL (Depósito Centralizado de Valores de Colombia), and all non-bank information operators.
• ACHC primarily serves commercial banks (except state-owned Banco Agrario) and effectively acts as their ‘back office’ for funds transfers purposes, leaving each bank to run its own business and set client fees as it deems appropriate.
• Banco Agrario, which has the largest branch network in Colombia and focuses particularly on rural areas, has chosen to work only with CENIT allegedly due to disagreements with other banks over the setting of interbank fees when using ACHC.

A.3. Pricing

• Revenue growth in the ACH market has been driven by three main factors: i) banking market concentration and the degree of internalization of payment orders; ii) the evolution of government payments modernization efforts; and iii) the structure of the Colombia’s social protection system. The cost structure of both ACHs is characterized by significant economies of scale and scope in their core business.
• The revenue/cost drivers and ownership have influenced the respective pricing policies. ACHC’s pricing policy aims to ensure self-sufficiency by covering costs, financing any new investments without having to resort to external funding sources (no debt on its balance sheet), and providing dividends to shareholders whenever possible. CENIT aims to charge users on a cost-recovery basis (including opportunity and indirect costs).
• The structure and method of determining interbank fees differs between the two ACH platforms. Although interbank fees do not accrue to ACHC and CENIT, both of them act as conduits for notifying such fees to all members and for their collection. However, while recipient members individually define such fees and communicate them to CENIT, it is the ACHC’s Board of Directors that determines fees based on the recommendations of a committee drawn mostly from Board members (Comisión de Tarifas).
According to its regulations, CENIT only permits a low single interbank fee for direct debits. Its interbank fee structure for direct credits is based on one of two approaches: either a flat fee per transaction or a 'scaled' fee (tarifa escalonada) based on the geographical location of the recipient’s bank branch. The flat fee has been adopted by small and mid-sized Colombian credit institutions, while the 'scaled' fee is used by the bigger banks that can leverage their large branch networks. By contrast, ACHC’s interbank fees are based on a two-tier pricing structure.

Finally, it is worth noting that, while CENIT’s pricing policy (both ACH and interbank fees) is publicly available via the BR’s website, ACHC does not disclose its prices on the justification that its only clients are banks.

A.4. Oversight and Cooperation

The function of retail payment systems oversight per se has been only partially implemented through a complex intertwine of different authorities’ roles. Supervisory responsibility for low-value payments systems lies primarily with the Superintendencia Financiera (SF), although it mostly focuses on safety issues. Competition issues in low-value payments systems have recently been taken up by the Superintendencia de Industria y Comercio (SIC). While the BR monitors and participates in the payments system as part of its role in preserving financial stability, it has not been responsible for retail payments systems oversight. Although there are various initiatives relating to retail payments, there are no formal institutional coordination mechanisms.

B. What are the key issues?

Although the presence of two ACH platforms has increased contestability for some market participants, this has been limited by discriminatory business practices. One manifestation of partial market segmentation is distinct ACH access and pricing policies, which can be partly attributed to different governance arrangements.

Multiplicity of relevant policymakers and absence of adequate institutional coordination mechanisms have hindered the development of an effective oversight function. Oversight is also hindered by the lack of explicit government objectives and by the relatively minor involvement of the BR.

C. What are the main policy implications?

As it is common in retail payments, multiple public policy objectives to maximize social welfare in this market require certain trade-offs to be made. Policy-making in this area is also made more complex by the multiplicity of relevant policy makers. Two high-level policy options to modify the current status quo, driven by different overarching objectives, have been identified. The policy options are:

• Strengthening of competition between ACH platforms. Potential advantages of this option would include lower operational costs and thus better pricing for end users as a result of stronger incentives to become more efficient (X-efficiency), as well as greater product innovation and access (including for non-bank financial institutions) stemming from increased contestability; and

• Consolidation into a unique ACH platform. The major advantage of this option would be potentially lower operational costs by leveraging economies of scale, which would presumably be reflected in lower overall pricing. This option would almost certainly create some dislocation irrespective of how it is implemented. Strong governance arrangements and a robust oversight and antitrust framework would therefore be essential preconditions for the successful realization of this option.
Irrespective of the preferred option, there are two additional policy measures that could be taken to improve the functioning of the ACH market:

- Enhancing transparency in the functioning of the ACH market would be a relatively straightforward way to dispel mistrust and further promote competition. There is a strong case for greater public disclosure of the operating arrangements of ACH platforms (i.e. shareholder structure, decision-making mechanisms, pricing and access policies etc.).
- Strengthening of oversight arrangements, particularly via the establishment of robust institutional coordination mechanisms. A stronger oversight framework would prevent potential regulatory gaps and promote a comprehensive approach to developing a more efficient and accessible electronic payments systems infrastructure.

MEXICO

This case study has analyzed the issue of interchange fees (IFs) in the cards market in Mexico. In recent years the Central Bank of Mexico (Banco de México, BM) has devoted increasing attention to the structure of the credit and debit card payment system. Some measures have already been undertaken to promote greater competition (e.g., introduction of new transparency rules for banks’ charges, removal of restrictions to access, abolition of the IF for electronic fund transfers). Despite such measures, the market for payment cards remains somehow underdeveloped. The industry’s view is that IFs are needed to balance the interests of issuers and acquirers within card networks. In this context, and in order to get a better understanding of whether the current situation requires forms of direct regulatory intervention, this case study looked at the role that IFs play in the credit and debit cards industry (see Box 2 for a theoretical discussion on IFs).

A. What are the main drivers of cooperation and competition in the Mexican cards market?

A.1. Environmental Issues, Legacy and Governance
- The cards market is dominated by the banks. Several store chains issue credit cards as well, but these are not general acceptance cards. Almost all issuers of general acceptance cards are banks. All acquirers are banks, and all issuers and acquirers participate in an interconnected four party system with two switches.
- In the last few years, several banks have entered both the issuing and acquiring markets. The concentration on both sides of the markets has decreased, although it continues to be high. The main issuers are also the main acquirers, and in about one third of the total number of transactions, the issuer is also the acquirer (“on/us”).
- The Bankers’ Association (Asociación de Bancos de México, ABM) governs the pricing structure of credit and debit cards market establishing IFs and other pricing rules. Thus, the current development of the card market in Mexico has been strongly influenced by the rules and regulations set both by banks and card associations.

A.2. Access to Payment Instruments
- Retail payments rely heavily on cash. Among non-cash payments, cheques were the most important instrument until very recently. Although the number of both credit and debit cards has grown, most operations with cards are still cash withdrawals, especially with debit cards. However, the number of card payments at POS has increased significantly in the last few years. In turn, the number of POS and of payments at POS is low when compared with countries of similar development.
- Although card payments are more efficient than cash payments in many transactions, in the early part of this decade they were used in
relatively few establishments. The BM identified IFs at point of sales (POS) as a possible cause for the scant use of payment cards, and thus became interested in the mechanism that banks use to set these IFs. See Box 2 for a brief description of the discussion on IFs at the international level.

A.3. Pricing

- The ABM sets the domestic IFs for the four-party system, and major card international brands have a very limited role. In 1993, IFs were set as a multilateral charge flowing from acquiring to issuing banks. The scheme dependence on merchants’ transaction value seemed especially unsuitable to promote the POS network development. The scheme was also applying same fees for credit and debit operations. Until mid 2004, the levels of IFs remained almost unchanged.

- The ABM realized that the IF scale was not supporting either the network development or the use of cards at POS and has been applying some changes reducing the average IF and differentiating IFs for credit and debit cards. In 2005 the ABM presented a new methodology to balance the weighted issuing and acquiring banks’ profits and IFs are then adjusted for several business categories.

- Despite some problems, the BM recognized important advantages in the proposal. It further reduced the IF scales for credit and debit card payments and, since IFs for debit card payments were reduced by a larger extent than for credit cards, the lower costs for debit card transactions reached merchants. Also, the proposed scale is based on type of merchant rather than on merchants’ transaction value.

- Also, the ABM originally adopted the “no surcharge rule”, the “honor all cards rule”, and the “only issuers may become acquirers”. These rules, however, have been changing since the early 1990s in part as a response to regulators’ concerns and demands.

A.4. Oversight and Cooperation

- In Mexico, the Central Bank Law establishes among the main functions of BM “promoting the sound development of the financial system and fostering the proper functioning of payment systems”. The same law gives BM powers to regulate payment systems. To accomplish this mandate, the BM seeks to promote efficient payment systems.

- In 2004, the Mexican Congress issued the Law for Transparent and Orderly Financial Services (Ley para la Transparencia y Ordenamiento de los Servicios Financieros, LTOSF). This law, which was amended in 2007 gave BM explicit power to assess competition in the banking industry and to regulate retail payments systems, in particular, IFs. In the last few years, the BM has taken several measures: (1) making banks’ charges more transparent; (2) removing any restriction to market participation and entry; and (3) using moral suasion to influence fees.

- Additionally in November 2004, the Federal Government set the Electronic Payments Infrastructure Fund (Fondo de Infraestructura de Medios de Pago Electrónicos, FIMPE). The FIMPE is a private, non-profit-making trust fund formed by acquirers. It aims at promoting and extending access to the electronic payments through the POS network among small and middle size business, as well as to increase consumers’ usage of them.

B. What are the key issues?

- Given the importance of IFs in determining payments instruments usage is there a practical set of “rules of thumb” that can be developed
to reach a socially optimum payments instruments usage?

- There is also an open question about the impact of IFs changes on both the merchant service fees (MSFs) that acquirers charge to merchants and the benefits provided by issuers to card holders.
- What is the relative importance of IFs determination versus other measures in order to promote a broader use and availability of payment instruments.

C. What are the main policy implications?

- Card systems are two-sided markets, and the price structure really matters in cards systems. The balancing act that results from a careful reallocation of costs between the two sides of the market is fundamental to maximize network externalities.
- There is an asymmetry between the two sides. The fact that retailers internalize some fraction of consumers’ benefit (because the better quality of service offered to consumers by the option to pay by card makes their stores more attractive) implies that they are less resistance to high fees than cardholders. But this is not necessarily bad for social welfare. A skewed price structure where one side of the market (retailers) pays more than the other may be socially efficient.
- Card system operators and bank associations may sometimes have an interest in inflating credit cards IFs. Empirical evidence suggests that higher IFs often result in higher profits for banks (especially for credit cards). This comes from the fact that price reactions to changes in IFs seem to be asymmetric.
- IFs are needed even in mature payment card systems. The need to subsidize membership to internalize network externalities disappears when networks mature and cover a large fraction of potential users. However, payment networks are dominated by usage externalities. Even if all consumers hold cards, they need to be encouraged to use them. Price elasticity of card usage by consumers seems to be much higher than that of card acceptance by merchants.
- Substitutability between credit and debit cards needs to be considered when determining the IFs level. Some preliminary studies indicate a need for capping the difference between credit and debit IFs, in order to discourage the socially inefficient behavior of “convenience users”. In any case, any cost based regulation of IFs needs a fairly complete understanding of this substitutability and the incentives of payment card networks to inflate the difference between credit and debit IFs.
- IFs discussion should be placed in the context of the broader retail payment objectives of achieving a socially optimal usage of payment instruments. In addition, it should be taking into account that some payment instruments also provide other services than payment (e.g., credit cards).

6. Policy Implications

Retail payment instruments and circuits are crucial for the development of a market economy and to build a more inclusive financial system. The standard setters and implementation agencies have already provided a useful framework to guide reforms of retail payment instruments and circuits. In particular, the CPSS identified a set of overall strategic goals and objectives for retail payment systems and the World Bank has elaborated a comprehensive Reform Agenda (see Box 3). This framework identifies efficiency and reliability as the general public policy objectives for retail systems. In addition, at least three important policy goals should be considered:

i) Achievement of a socially optimal use of payment instruments.
ii) Deployment of an efficient infrastructure to support payment services.

iii) Affordability and ease of access to payment instruments and services.

In part, the achievement of these goals is related to an adequate balance between cooperation and competition. The main results from the study summarized in this Policy Brief show that some payment services present natural monopoly features (messaging, clearing and settlement) while others (access) benefit from broad and deep competition. Thus, the intuitively and often mentioned statement “cooperation in the upstream market and competition in the downstream market” could be considered a general guideline in balancing cooperation and competition. However, this statement needs to be qualified. The four guidelines below provide a set of tools to help authorities to ade-

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**BOX 2. DISCUSSION OVER IFs IN CARDS MARKETS**

- The interchange fee (IF) is an inter-bank transfer that occurs every time a card payment is realized in an open network. This transfer typically (but not always) flows from the acquirer to the issuer. It reallocates the total cost of the card payment between the two providers (issuer and acquirer). This fee can be set bilaterally by the two banks or globally at the level of the association of banks. In this case it is known as a multilateral interchange fee (MIF).

- In a four party system the payment service is provided jointly by two providers (the issuer of the card and the acquirer of the payment) to the two users (the cardholder and the retailer). There are also proprietary cards that are provided by closed (or three party) systems. By definition, the question of IFs is only relevant for four party systems.

- The levels of IFs and their determination mode vary a lot across countries and across systems, but they are often collectively determined at the network level. The collective determination of IFs, as well as rules such as the “honor-all-cards” or the “no surcharge rule,” have been challenged by retailers associations, antitrust authorities and regulators.

- There is some variation (over time and across systems) in the official doctrine of the card networks, but they essentially view IFs as a way to ensure a “fair” allocation of costs between issuers and the acquirers. Accordingly, a card network is a joint venture between a large number of banks, and that such a joint venture can only function properly if each participating bank gets a fair share of both the costs and the benefits.

- Merchants’ associations claim that IFs are just an artificial way to put the burden on them. They argue that, for commercial reasons, retailers are somehow forced to accept cards even if merchant services charges are higher that the benefit they (the merchants) obtain.

- Networks and merchants are not the only ones to have strong views about IFs, public authorities also do. Indeed, the price structure of card networks has lately become the object of scrutiny of several Regulators, Competition Authorities, and Courts of Justice around the world. While there is no unanimity among Competition Authorities about how to “deal” with IFs, and whether they should be regulated, the dominating doctrine is that card issuers incur costs for some activities that do not benefit (directly) their customers but benefit instead the customers of the acquirers (the retailers). Therefore IFs are viewed by these Competition Authorities as a “justifiable” fee that remunerates these services and compensates the issuers for the costs incurred on behalf of the customers of acquirers. However, regulators are also worried that networks may set excessively high IFs that--by setting a floor to merchant fees--may be instrumental to extract monopoly rents.
adequately balance cooperation and competition and achieve the broader retail payment system objectives and goals, ensuring that the institutional framework (e.g., legal, environmental issues), governance, access and pricing of the infrastructure are aligned with the mentioned objectives and goals.

**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 on 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.
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.4

- 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 on access and pricing) to moral suasion and policy dialogue, from antitrust 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 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.

- The public authorities should use Payment Councils, industry associations groups and similar bodies as important cooperative tools.

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BOX 3. RETAIL PAYMENT SYSTEMS GOALS AND REFORM AGENDA

CPSS Public Policy Goals

Legal and regulatory framework: 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.

Market structure and performance: policies relating to the efficiency and safety of the retail payments should be designed, where appropriate, to foster market conditions and behaviors.

Standards and Infrastructure: polices relating to the efficiency and safety of retail payments should be designed, where appropriate, to support the development of effective standards and infrastructure arrangements.

Central bank services: 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.

World Bank Reform Agenda (Defined by the Payment Systems Development Group)

The following remarks, stemming from the experience of the reforms implemented in developed countries can be seen as an agenda for developing countries to improve payment system arrangements in a given jurisdiction and across countries:

• Central banks and all stakeholders in the retail arena must work together in a clear strategy to promote the intensive use of retail electronic payment instruments and reduce the importance of cheques.
• Central banks should take a leadership role to achieve the necessary agreements among banks and other participants so that there is at least one ACH operating in the country that is able to process modern payment instruments such as credit transfers and direct debits.
• Central banks should coordinate efforts under way in order to achieve a system that encompasses all relevant players and that processes as many services as possible, avoids duplications and operates on a full scale.
• Central banks and other relevant government agencies should foster coordination and communication to ensure that collection and disbursements of the public sector institutions that are major players in the payments system be processed electronically and in a timely manner.
• Central banks, in coordination with other authorities, should ensure customers protection and foster a safe and efficient provision of remittances services in line with the CPSS-WB General Principles for International Remittance Services.

In sum, central banks and other regulatory authorities should act as catalyst for the development of market solutions:

• Fostering cooperation among market participants and integration/interoperability among circuits and expand access to financial services.
• Raising awareness of the general public on new instruments and circuits.
• Promoting the intensive use of electronic payments e.g. integrating government and business payments in the retail system infrastructure.
• Encouraging the use of high security and technological standards to increase reliability and efficiency.

Direct intervention (regulation, operational role) should be considered in presence of:

• Strong coordination failures (e.g. inability of the market to develop appropriate arrangements to process electronic payments, failure to reach agreements to perform efficiently payments at cross border level).
• Strong information asymmetries (e.g. benefits of security devices such as the microchip on cards, actual cost of paper based transactions).
ABSTRACT: Lack of efficiency and innovation in retail payment systems may have important costs for the economy, up to 1 percent of GDP according to some estimates. The extent to which efficiency and innovation is attained in retail payment systems is partly determined by a complex interplay of cooperation and competition among market players. This paper analyzes the market structure and dynamics of retail payments markets that define behavioral patterns different from the situation were a multitude of firms engage in perfect competition with free entry. Environmental, legal and legacy issues, governance, access and pricing are analyzed as key drivers of cooperation and competition in different retail payments markets. Policy definition is undertaken through the oversight function over payment systems and cooperation among authorities. The paper presents some of the policy-making complexities about these markets in a context of increasing involvement of authorities around the world. The paper also includes policy guidelines derived from the theoretical analysis, the Bank’s expertise in the area of payment systems and the lessons from four case studies in Latin America.

KEYWORDS: clearing and settlement, retail payments, payment instruments, cooperation, competition, efficiency, innovation, economies of scale and scope, network externalities, governance, access, pricing, oversight, technology, central banks.
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1 INTRODUCTION

Payment systems and instruments are significant contributors to the broader effectiveness and stability of the financial system, in particular to the confidence in money and to the functioning of commerce. Indeed, the origin of commercial and central banking as well, can be traced to the payment function.\(^1\) What it is now known as commercial banking started to develop as a response to the needs of commerce to execute payments in an efficient and safe way. Transferring of balances over accounts (cashless instruments) is normally a more efficient and safe way to execute payments than cash, as long as the bank providing the payment services is robust and reliable. A prerequisite for these gains is the confidence in the bank delivering the services and in the system as a whole.

Confidence in money as a medium of exchange and unit of account gradually became a policy matter. As the link to a commodity with an intrinsic value became weaker, it became increasingly important to underpin confidence in money via legislation, regulation, supervision and oversight. A two-tier system gradually emerged, comprised of central bank money and deposit bank money. Confidence in central bank money was achieved under the guarantee of the State (legal tender). However, the major part of the stock of money consists of liabilities of deposit banks (see Figure 1). Thus, it is important that economic agents also fully trust the deposit money. Economic agents should not have to devote resources to investigate the soundness of the deposit money. Homogeneity and confidence

\[\text{FIGURE 1: RELATIVE IMPORTANCE OF CASH TO BANK MONEY IN SELECTED COUNTRIES}\]

Source: BIS CPPS Statistics on Payment and Securities Settlement Systems in Selected Countries

\(^1\) See, for example, Kindleberger (1987) and Padoa-Schioppa (1992).
in deposit bank money are achieved by convertibility at a fixed, one-to-one, exchange rate between deposit bank money and central bank money. But there is not automatic guarantee that this is the case. Convertibility rests on confidence gained in the market and supported by regulation, supervision and oversight.\footnote{During the 19th century a series of banks failures happened in an environment of free operation, multiple note issuers and the absence of a "government sponsored" lender of last resort function. See Kevin Down (1992) and Risto Herrala (1999).}

For a better functioning of commerce, market forces in the early periods of banking activity motivated private cooperative arrangements (predecessors of central banks) as the execution of a payment instruction between two customers who had accounts in different banks gave rise to an interbank claim. The banks could achieve efficiency gains by pre-depositing a certain amount of their reserves with each other or using a system of credit among them versus transferring commodity money corresponding to every single payment. A netting mechanism would be used then to require settlement in commodity money only occasionally. With the change from commodity money to fiat money and the reduction in reserve ratios, the efficiency gains had to be counterbalanced by arrangements for underpinning confidence. This is the origin of the settlement (and also lender of last resort) function of central banks. Thus, the central banks developed gradually as a complement and service provider to commercial banks in the payments transmission and liquidity management.\footnote{For information on the dates of creation and circumstances of some central banks see Goodhart (1989).}

Hence, the efficient and safe use of money as a medium of exchange in payment transactions is an essential function of the currency and, moreover, it is also a foundation of the trust people have in it. For these reasons, the efficiency and safety of payments\footnote{By contrast to large-value or wholesale payments, retail payments are mainly consumer payments of low value and urgency. Indeed, in some countries and/or regions such as, e.g., the EU a quantitative distinction exist with the establishment of a formal threshold of 50,000 ($72,000).} (large and low-value ones) are of interest to central banks. Payment system oversight is a task that central banks undertake to ensure public confidence in money. The scope of the oversight function (e.g., systemically important systems, securities settlement systems, retail systems) varies among countries.\footnote{See Bossone and Cirasino (2001).} However, there is an increasing attention, beyond safety issues and systemically important systems, to retail payments issues as well as efficiency as crucial elements of the public confidence in money.\footnote{See Bossone and Cirasino (2001).} Efficiency is addressed in one of the ten core principles for systemically important payment systems. Furthermore, the General Guidance for National Payment System Development\footnote{See Bossone and Cirasino (2001).} incorporates efficiency considerations in many of the guidelines and includes a guideline to expand the availability of retail payment services (guideline 11) as a key infrastructure element. Guideline 11 states the following: "extend the availability and choice of efficient and secure non-cash payment instruments and services available to customers, businesses and government by expanding and improving retail payment infrastructures\footnote{See 2008 World Bank Global Survey on Payment and Securities Settlement Systems.}\".

Lack of efficiency in retail payment systems may have important costs for the economy. 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 1 percent of its GDP\footnote{See Central Bank of Brazil (200) and Humphrey et al. (2001). Indeed, for a sample of 12 European countries, Humphrey et al. (2003b) were further able to estimate the size of the savings in banks’ operating costs to be around US$32 billion over the period 1987-1999 (as reflected in the reduction by about 24 percent in the ratio of operating costs to total banking assets).}. This is mainly explained by the realization of economies of scale in the provision of electronic payments, the overall increase in the total...
number of payment transactions, a greater reliance on cost-efficient ATMs to deliver certain depositor-related services as well as by the impact of the technological change in terms of lower telecommunication and processing costs. However, in many countries around the world the role of cash is still strong, acting mostly as a preferred payment instrument for smaller transactions. In regions such as the EU, the extensive use of cash for payments is believed to have an opportunity cost of 50 billion (about US$72 billion), to be mainly borne by banks. Nevertheless, the optimal product mix maximizing cost-efficiency may, however, differ from country to country given the particular features of the nation-specific production function (e.g., the balance between fixed and variable costs) and the varying pricing strategies applied by its commercial banks.

The extent to which efficiency and other important policy objectives are attained in retail payments systems is partly determined by a complex interplay of competition and cooperation among market players. It is necessary to understand the relative importance and drivers of costs, risks and market power in the provision of various types of payment services. In this regard, transaction costs can be mitigated through cooperation by private sector providers in the establishment and operation of financial infrastructure taking advantage of economies of scale, scope and network economies. For this reason, it is not at all uncommon to see payment platforms being developed through cooperation among competing services providers. Indeed, as McAndrews and Rob (1996) state, the starting point is “the fact that payments service providers often compete directly in the provision of retail payments instruments and services to end-users but they also cooperate in shared payment networks (‘upstream cooperation combined with downstream competition.’)” However, there are coordination failures that do not make always possible to cooperate introducing inefficiencies and duplications. In addition, cooperation could lead to collusive behavior among payment system providers affecting the accessibility and affordability of retail payment services.

In sum, there are a range of open questions in the area of cooperation and competition in retail payment systems such as: i) does upstream cooperation affect downstream competition?; ii) under what circumstances is public intervention warranted and how?; iii) what are the governance and oversight implications of multiple public policy objectives in retail payments? Recent developments of the Industrial Organization (IO) economic literature can help to answer some of these questions. In addition, the CPSS has published policy goals and minimum and possible actions regarding retail payment systems and the World Bank has elaborated a comprehensive reform agenda for retail payment systems’ reform but there are no specific guidelines on issues related to cooperation and competition. Indeed, it is a very complex task as domestic payment system infrastructure and institutional and legal frameworks affect financial institutions’ strategies. Thus, competition and cooperation dynamics are best analyzed at a disaggregated level. The rest of the paper is organized as follows:

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13 With available data for the US Bauer and Hancock (1995) and Bauer and Ferrier (1996) were able to estimate that technological change was responsible for a reduction by about 10 percent per year in the cost of ACH transfers since 1989 and of about 8 percent annually in Fedwire processing costs during the first half of the 1990s.

14 European Payments Council estimates based on their own calculations (i.e. 85 percent of all payment transactions in the EU in the year 2004 were carried out in cash) and figures on the total cost of cash for the society as reported in several academic studies. For more information, see EPC’s, 2004, “Response to the EC Communication on a New Legal Framework for Payments in the Internal Market.”

15 Indeed, achieving an efficient payment instruments portfolio in a given country is not a trivial issue. Along with cost aspects (e.g. need for additional investments to support expanded volumes, combined effects of economies vs. diseconomies of scale, efficiency gains from improving the handling of traditional payment instruments, etc.) other factors -often very hard to quantify- need to be taken into account such as convenience and/or safety of the various alternatives as well as opportunity costs.

16 See CPSS (2003a). Also CPSS (2006) indicates the need to find the right balance between cooperation and competition under Guideline 7 (promote market development).
• Section 2 includes a brief analysis of the main elements of retail payment systems (instruments, services, processes and key players) in order to better understand the economics of cooperation and competition in retail payment markets.
• Section 3 analyzes the economics of retail payment systems including a description of the market structure and dynamics and relevant behavioral patterns.
• Section 4 presents the main drivers of cooperation and competition (environmental, legal and legacy issues; governance; access and pricing).
• Section 5 discusses main policy implications and some guidelines the authorities and key stakeholders should consider in dealing with the challenges previously identified.
• Finally, Appendices I and II describe in more detail payment instruments and processes. Appendix III presents a summary of policy-makers actions in this field.

In addition, this paper is complemented by four separated case studies addressing different markets and issues in selected Latin American countries. In Argentina the co-existence of different ACHs is examined.\(^7\) In Brazil, the case study is focused on efficiency issues in retail payment systems (interoperability and infrastructure segmentation).\(^8\) In Colombia, the study is related to the co-existence of a public and a private ACH.\(^9\) Finally, in Mexico, the interchange fees and the credit card market are the subject of the research.\(^10\) The diversity and scope of these case studies clearly illustrate the complexities of cooperation versus competition issues in retail payments. All of them have been very useful to identify some of the key issues discussed later in this paper. Finally, the overall study has been complemented with statistics on main trends of payment instruments usage.\(^21\)

2 MAIN ELEMENTS OF RETAIL PAYMENTS SYSTEMS

2.1 INSTRUMENTS

Retail payments systems are essentially a network of competing and complementary services that facilitates transactions involving the exchange of a means of payment in return for goods, services, real and financial assets. These systems include instruments, rules, institutions, and technical processes that facilitate the transfer of value to discharge the payment obligations, and that govern the intermediary agents involved, form the architecture of the payments system. Payments instruments basically convey relevant information regarding the transfer of monetary value from one party in a transaction to the other. Such information may, for example, include the face value of the payment, the identity of the parties and their intermediaries, the transaction date, and the value or settlement date. In principle, these instruments and their processing systems should be generally low-cost relative to the value transferred per item, provide a high degree of confidence in the authenticity of the value transferred, and are generally acceptable as evidence of value received.

The most elementary instrument is *cash* in the form of coin and notes, which are used for a multiplicity of small-value transactions. While there is a variety of *non-cash payment instruments*, cheques are still commonly used (see Figure 2). ‘Paperless’ payments instruments describe a range of vehicles used to transfer payment information and monetary value in an electronic financial book-keeping system through some form of electronic communications device. *Direct funds trans-
I. BALANCING COOPERATION AND COMPETITION IN RETAIL PAYMENTS SYSTEMS

Retail systems include both debit transfers and credit transfers to move monetary value from the payor’s deposit account to the payee’s account. Payment cards, which are substitutes for cash and cheques as payment media, include credit and charge cards, debit cards, and stored-value cards and are used mostly in small-to-medium-value transactions. Appendix I presents a more detailed description of each of these payment instruments.

There is not a single combination of payments instruments usage that can be considered optimal among countries. The socially optimal combination in each country depends on user’s preferences that can vary not only among countries but also within countries for different types of transactions. Pricing structures should incorporate users’ preferences in order to achieve a social optimal combination. In any case, the socially optimal combination is difficult to determine and achieve due to complexities, for example, credit cards incorporates both a payment and a credit function. The choice of payment instrument has been analyzed from the perspective of the consumer by various authors. Daniels and Murphy (1994) find that the increased availability of new technologies, particularly ATMs, has lowered household demand for currency. Duca and Whitesell (1995) find that credit card ownership reduces checking account balances and money fund balances. Boeschoten (1998) uses a number of variables to explain the choice of payment instrument and finds that the amount to be paid dominates. Yet, pricing policies by banks and regulatory actions by public authorities are usually visible drivers steering user’s preferences.22

2.2 SERVICES

Although the dividing lines among payments services are not always clear, the sequence of payment operations can be decomposed generally into access services, messaging services, clearing services, and settlement services. The inverted pyramid nature of this process (Figure 3) indicates an increasing centralization of operations as the payment moves from its instrument access stage to the settlement stage due to the natural monopoly features in the provision of some of these services. For this reason, it is not at all uncommon to see payment platforms being developed through cooperation among competitors.

Access services provide the payor with the opportunity to select a payment instrument of choice. These services are generally provided by deposit-taking institutions, although there are other service providers as well. In addition to access to cheque payments, there is a range of access modes - especially in electronic modes - to a variety of other retail payments instruments (e.g. ATMs, mobile devices, phone banking services, etc.). Users gain access to retail electronic payment instruments either directly through proprietary systems of individual deposit-taking institutions or via agency arrangements with financial service, telecommunications and data processing organizations that, in turn, have arrangements with deposit-taking institutions.23 The major retail direct funds transfer systems, including telebanking and home computer services, are proprietary systems of individual deposit-taking institutions.

Messaging services transmit payment information in a format that complies with the accepted standards for the entry of that information into the clearing and settlement system. For most retail transfers, payment information is processed for entry into the clearing services and are transmitted through standard telecommunications lines to link the computer networks of the payor’s and the payee’s deposit taking institutions. These lines are normally dedicated and typically subject to strong security measures to prevent tapping and to ensure integrity of the messages that flow through them. However, wholesale payments, particularly interbank payments which require greater speed and security, use specialized messaging services.24 In some large-value payments systems, messaging services may be provided by dedicated communications and data processing systems operated by the system operator.

Specific clearing services and arrangements for the processing of payments vary by the type of payments instrument and the institutional architecture. In general, however, clearing systems are designed: i) to match and verify the accuracy of payment information; ii) to calculate the interbank payment obligations of members for submission to the settlement agent; and iii) to transmit the settlement information to the settlement agent. The function of a common processing arrangement is to standardize processing and accounting procedures in order to improve the efficiency and speed of inter-institution transfers. The clearing systems for retail and wholesale payments may be separate. Retail payments, which refer generally to small-to-medium-sized payments, are characterized by high-volume, low-value individual payments. The initial clearings of retail payments may be handled by a specialized clearinghouse, which accumulates and possibly nets the

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23 For example, a lockbox provider which operates as a special postal address used solely for the purpose of collecting cheques written by consumers for bill payments. Depending on the terms and conditions of the specific agreements, in-house staff at the lockbox processing location may further take up the tasks of verifying and processing those documents, thus speeding up the clearance process of payments.

24 A well-known example are the services offered by Society for Worldwide Interbank Financial Telecommunication (SWIFT). This cooperative society, established under Belgian law and owned by its member institutions, operates a worldwide financial messaging network that ensures the secure and reliable exchange of messages between banks and other financial institutions.
I. BALANCING COOPERATION AND COMPETITION IN RETAIL PAYMENTS SYSTEMS

The settlement services provided by the settlement bank discharge the payment obligation and provide finality to the process. These services include: the verification of available funds in the system participants’ settlement accounts; the transfer of settlement value from the payor institution’s settlement account to the payee institution’s settlement account; and the notification of participating direct clearers of completed settlement. The payment is only then finalized if sufficient settlement balances are available. Typically, large-value payment systems use the central bank as a settlement institution, thus profiting from central bank money as a risk-free and reliable settlement asset. By contrast, commercial bank money settlement is more common to retail payments arrangements given their lack of systemic importance. Nevertheless, as they grow larger in size and volumes, it is often the case to see retail payment systems further settling in central bank money.

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25 The Centre for Exchange and Clearing (CEC) in Belgium may be a good example. Since 1974 it has been the central node for channeling payment transactions between issuing and receiving banks, averaging 3.9 million payments a day in 2006. In addition to serving as a centralized communication network for the exchange of payment-related data among its members, the CEC does further clear a single net balance each day for each member bank. This one is later settled via the current account held by those institutions or their settlement banks with the central bank. The National Bank of Belgium is the lead overseer of SWIFT under an international cooperative arrangement among G10 central banks.

26 However, retail systems may present system-wide importance (SWIPS). SWIPS are systems where a failure or disruption within such systems is unlikely to cause systemic instability but could lead to widespread disruptions due to its large user base, thereby affecting public confidence in payment systems more widely.
2.3 PROCESSES

Payments Processes differ by the type of instrument and system used for clearing and settlement. Processes range from a simple cash transaction, in which the payor obtains cash through a debit on the deposit at its bank, makes the payment, and the payee deposits the cash to obtain a credit on its deposit at its bank to more complicated processes for cheque payments, direct debit transfers, credit card payments, debit card payments, mobile-payments, etc. Non-cash payments instruments involve substantial processing of payments instructions to complete the value transfer. Different processes present, however, several common functionalities with respect to information exchange (e.g. authentication, verification and authorization), but the underlying instrument-specific messaging technologies make possible to perform these functions in many different ways. Typically, it is through the creation and development of shared infrastructures —such as ACHs, ATMs and POS— that these various payment processes end up evolving in different directions. For a more detailed description of payment processes see Appendix II.

2.4 KEY PLAYERS

The key parties involved in retail payment systems are end-users, payment system providers and the authorities. In retail payment systems, customers (i.e., consumers and enterprisers) are the end-users of the services. The banking sector has traditionally been and still is the main payment service provider even though some new services providers are now emerging. Central banks, financial supervisors and competition authorities are the main regulators in the payment service field.27 The role and prominence of non-traditional competitors in the provision of retail payment services has been enhanced with the growing use of electronic payments. Among other factors, innovation and the outsourcing to non-bank players of numerous activities in the payments process (e.g. data processing, instrument and infrastructure provision, network services, etc.) stand as the main reasons for the mounting involvement of non deposit-taking institutions in the payments markets.28 Furthermore, in some regions competition authorities and several other public institutions have already expressed their interest to review current legislation and access conditions to the payments market.29 This initiative aims to ensure that entities other than banks are not excluded from taking an active role in the market on the basis of the application of disproportionate requirements to the nature and the size of the risks such bodies may entail in the course of their business. Hence, banks and non-banks are increasingly showing a significant degree of interdependence in the well-functioning of payment systems, thus potentially posing a whole new set of challenges to policy-makers.

3 THE ECONOMICS OF RETAIL PAYMENTS SYSTEMS

3.1 MARKET STRUCTURE AND DYNAMICS

The retail payments markets provide an opportunity for economies of scale20 in messaging, clearing and

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27 Securities regulators and supervisors are also key players of the payment and securities settlement systems but are outside the scope of this paper as it only covers payments settlement.

28 See Bradford, Davies and Weiner (2003), Sullivan (2007) and Reichwein et al. (2007) for an in-depth discussion on the role of non-banks in payment systems under a European and a US perspective.

29 One telling example is the Directive 2007/64/EC of the European Parliament and of the Council of 13 November 2007 on payment services in the internal market whose Title II on payment service providers leaves little room to apply restrictive rules on effective participation in other payment systems. Such an approach does further aim at minimizing the risk of regulatory arbitrage quite often associated with new nonbank payment schemes being set up outside traditional regulatory frameworks.

30 I.e. a decline in average production costs of payment services attributable to an increase in the size of operation of any one product: e.g. wire transfers.
settlement services due to the fixed costs of the infrastructure. The up-front, fixed costs of setting up the network are substantial. This creates both barriers to entry and challenges regarding how to recoup initial capital investments. The up-front costs create the typical “chicken and egg” problem: the system will only be popular once it is used, and it makes economic sense to build the network if one can be reasonably certain that it will be popular. How much the networks attempt to make up for initial investments varies from less than full cost recovery (cross-subsidy) to planned growth cost recovery (recover enough to undertake future investments) to profit. Internet based payment services may change the scale dynamics, since an appropriate payments protocol over the internet would not require capital investments on the network side. A similar situation would arise for payment protocols using other existing networks (such as telephone networks).

Retail payments markets also provide an opportunity for economies of scope in clearing and settlement as well as in messaging services due to technology flexibility. Different payment instruments can rely on the same infrastructure. For example, cash distributors and point of sale terminals typically use the same communication links. Some payment card networks process transactions from other networks, depending on downtime and available capacity. Moreover, ACH services are often set in such a way that a single processing facility can be used to manage the traffic arising from several types of competing payment instruments (e.g. credit transfers, direct debits, cheques, etc.). However, evidence of significant economies of scope among cashless payment instruments as well as among the former and cash is not clear-cut. Recent empirical studies have found that, in selected payment systems, synergies from the provision of multiple services may not give rise to cost advantages relevant enough to overcome the advantages of scale economies.

Network externalities in messaging, clearing and settlement services are due to complementarities of users and/or products and compatibility of products. The more participants in a payments network, the higher the utility to the users. There are also complementarities between the underlying financial services (e.g., credit cards) and the network. For example, accessing such financial services through using a card with merchant terminals is likely to increase utility and usage, as is interoperability (commercial compatibility) between networks. Standards are another way to ensure network benefits. These can be technical standards (how systems operate), business standards (a standardized legal and contractual framework), and standards regarding interoperability. The risk of standardization is that they may be extended to the product market, which can cause collusion. In practice, the use of standards varies with the type of network. The card industry uses it often; other retail industries use it less.

The retail payment markets are also influenced by a number of dynamics. Some of these are specific to the end users (buyers and merchants), some are specific to the platforms (networks), and some depend on the intermediaries (for example, in the case of card payments, the buyers’ card issuers and the merchants’ acquirers).  

- **Switching Costs.** Both theory and empirical findings indicate that switching costs exist at the cross-product level (among payment instruments) and within the same type of product. Switching costs for the consumer may prevent

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11 Scope economies in a payments platform arise due to cost savings stemming from different services/payment instruments sharing common processing and communications infrastructures as well as support staff and back-office facilities.

12 As stated in the previous footnote, the fact that the same communication infrastructures can be used as transmission channel for various types of instruments gives rise to economies of scope in messaging services, too. This so happens, in spite of the fact that message standards may remain differentiated among each one of the available payment instruments/services.

13 See Ferrier and Bauer (1996) and Adams et al. (2002).

14 See Kemppainen (2003) for a thorough analysis of these dynamics.
the adoption of better technologies and social optimization. For example, if the consumer faces no cost difference between using a cheque as opposed to using an electronic payment, and the consumer initiates the payment (i.e., decides on the instrument), the aggregate social cost can be substantial. In the case of credit cards, the merchant and user side (and, certainly, also the network side) are exposed to switching costs. The core value proposition to the users on both sides is the existence of the network, not a future potential technology. This may lead to path dependence (see below) in national payment networks. New development becomes restricted by existing infrastructure and customer base.

- **Path Dependence.** Network externalities impact how firms and networks choose technology. As is the case with other industries, in payment systems the legacy of previous developments, often determined by transient conditions, does typically influence present choices and outcomes. Thus, a slew of small events during the initial stage of development and diffusion can easily create a feedback loop leading to inertia. This way, the industry’s accumulated installed base will become increasingly important as a determinant of choices regarding investment in complementary infrastructures and/or instruments, further locking those into the selected technology. This phenomenon is, time and again, tied to first-mover dominance in the industry deriving from a given structure of the service providing sector and influenced further by national payment traditions and the legislative environment. Path dependence becomes visibly a problem when developing international links between systems, as well as standards and analytical frameworks, and it means that policy analysis and recommendations must take place at the country level. As internationalization continues, the effects of convergence may overtake the effects of divergence in said fields. An up-to-date example of these effects is nowadays most likely to be found in Europe. There, locally-based solutions and different country implementations of similar payment products had rendered cross-border interoperability of national schemes very hard to achieve. It is only recently, motivated by the Single Euro Payments Area (SEPA) project, that all major stakeholders have become actively engaged in a cooperative process with the aim of overcoming many of these hurdles and so, contribute effectively to bringing all these payment systems together for the benefit of their users.

- **Tipping points.** The history of retail payment systems has shown that sometimes 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 to each participant by adding more participants, the utility is maximized if everybody participates in one single network. Theoretically, interlinking networks would yield the same utility, but since there are economies of scale, the average cost may be lower when there is only one network in operation. At the equilibrium, the cost to the consumer does not reflect the cost to the network, as the network can engage in monopolistic pricing. Navigating the tipping points is a central element in public policy formulation in retail payments.

- **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 instruments, and merchants accept several types of instruments. This “multihoming” also takes place within one type of instruments: for example, consumers tend to have more than one credit card. Often, however, the consumers favor one card over another, i.e. their usage is “sticky”.

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35 See David (1990) and Farrell and Saloner (1986).
Many recent innovations in retail payment systems have been largely supplied by non-banks. Thanks to their exclusive access to interbank payment systems, banks have historically played a key role in the provision and development of new payment services. However, this landscape is now shifting and a growing involvement of non-traditional payment service providers in the outsourcing of non-core functions by the banking sector can be attested. In their role as technical service providers, non-banks have benefited from the improvements in information processing and the associated changes in computing technology. Thus, non-banks have proven very successful in enhancing existing payment solutions, improving payment systems efficiency and, further, fruitfully identifying and servicing new niche markets. According to Hall’s (2007) estimates for the US market, in the last ten years the large majority of new entrants in the payment business have come from 6 major sectors, including oil, machinery, information or computer services. Similar trends can be also observed in Europe where Carat (2002) reports that about 40 percent of booming payment systems in Europe have been launched by near-banks either as a stand-alone initiative or in partnership with banks.

Market structure and dynamics are an important determinant of the level of competition and cooperation. Competition takes place at two different levels:

i) **Competition across retail payment instruments** (e.g., cheque vs. electronic transfers). Using multiple payment instruments to transfer monetary claims between the payor and the payee is growingly becoming common in many countries and regions. Financial innovation has greatly expanded the range of services and products currently available to the banking customers, thus exposing them to broadened portfolio which exhibits both complementary and substitutability characteristics. Income, age, personal preferences (e.g. convenience, budgeting, control over the payment, security, etc.), the nature of the underlying transaction, demographic and product-specific features in addition to several supply-side influences are usually factored in to help explain the rationale behind a consumer’s choice of one instrument over another. Hence, the payment decision-making process for any consumer turns out to be of a complex and diverse nature.

ii) **Competition for the same payment instrument**:
- Competition among platforms (e.g., different credit card providers). Consumer and corporate customers are often provided with a number of similar payment products and services which, again, can typically be serviced by different competing platforms. Such circumstance along with the underlying market structure and the nature of the arrangements governing these platforms (e.g. not-for-profit versus for-profit entities) may display an ample array of cost/price-allocative and welfare-distribution effects and further have an impact on the other two levels of competition.
- Competition within platform between service providers (e.g., between different cards issuers and/or acquirers). Regardless of whether downstream firms (i.e. payment service providers which, traditionally, have been largely banks) are or are not stakeholders of upstream payment platforms, they usually compete at the retail level in the provision of products and services to the same final consumers.

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36 These include a number of factors such as, e.g., marital status, number of children, education, relative prices, the existence of rewards programs or cash back bonuses (typical for cards), easiness of use and access, etc.
customers. Take, for example, a shared cards network jointly owned by a group of participating banks. In principle, all of its members are in a position to supply their current and potential customers with the very same range of core products, easily identifiable under a common brand. That is, the basic product has become a commodity, but single payment service providers still compete for their share of the market on a differentiated product offering built around value added propositions.

In sum, market dynamics can generate:

i) tendency of the network to grow (e.g. tipping, critical mass);
ii) lock-in to obsolete instruments, standards or technologies (e.g., switching costs, excess inertia, path dependence); and
iii) fidelity to a single provider (e.g., multihoming and stickiness).

3.2 RELEVANT BEHAVIORAL PATTERNS

The elements described above make the economics of competition in retail payment markets different from the situation where a multitude of firms engage in perfect competition with free entry. Some retail payment systems largely exhibit features of so-called two-sided markets, thus exposing policymakers to an entirely different market structure and dynamics, as indicated in the section above. In most countries, payment arrangements provide a formal network of competing and complementary services facilitating transactions that involve the exchange of a means of payment in return for an asset. Payment infrastructures offer a sound platform to enable interactions between mutually dependent end-users but they are, furthermore, characterized by the fact that the volume of transactions is usually affected by the price structure and not just by its overall level. This is explained by the presence of network externalities that the system is then properly able to internalize via the convenient allocation of relative prices.

Network externalities and relatively high fixed costs (that generate economies of scale and scope) inherent to electronic payment systems often trigger cooperation in upstream markets. The utility of a given payment instrument increases the greater the number of counterparties willing to accept it (i.e. membership externality). Vice-versa, the size of current and potential holders of a payment instrument has a strong bearing in the ultimate decision of other market players to widely accept these same instruments (i.e. usage externalities). Building up a network for the processing of such payment products usually entails high up-front and maintenance costs, thus creating a business case only when recouping initial capital investments is likely. Therefore, platforms are normally developed through cooperation among service providers (or direct provision by a public entity) so as to potentially ensure a large enough customer base within a reasonably short time frame.

As in other economic sectors (e.g., telecommunication, energy), network effects in the provision of payment services have resulted in a remarkable high concentration of platforms. Practical examples can be found everywhere around the world. Once an infrastructure has been established and a critical mass of users has

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39 Hence, as Rochet and Tirole (2004) put it “a necessary (but not sufficient) condition for a market to be two-sided is that the Coase theorem does not apply to the relation between the two sides of the market.” Therefore, in a two-sided market the price structure is no longer neutral.

40 Typically, high start-up costs of electronic-based processing platforms arise from their relative capital intensity. Indeed, according to Bauer and Ferrier (1996) in the Federal Reserve payment system the cost share of communication, transit, and building expenses is estimated to be 23 percent for cheques, 38 percent for ACH, and 54 percent for wire transfers. Moreover, the cost share for labor is, respectively, 49 percent, 21 percent and 14 percent.

41 Concentrating the system leads to higher network externalities. It also makes it easier for each owner to achieve critical mass through own transactions. The downside is that decision-making and raising capital may be more difficult.
been reached, it is usually very difficult for any other competing initiative to succeed in the launch of a new facility in spite of the fact of initial investments still being affordable. Against this background, the effective level of competition is better assessed in terms of access criteria for participation in the actual system as well as based on the observed scalability shown by the latter. Hence, competition in downstream markets may yet be fair if non-incumbent institutions with innovative products and/or services can enter the system easily and at a reasonable cost. The same holds true whenever the technical facility is quickly able to accommodate any new development.

Concentration does frequently end up in the vertical clustering of the processing facilities, on the one hand, and the scheme management function on the other hand. In many retail payment systems it is now a common practice to have the underlying payment instrument bundled with the provision of a technical infrastructure for its processing. Vertical integration of different industries in the supply chain is sometimes believed to have the positive effect of preventing double marginalization from occurring. This is observed to further contribute to a rise in both consumer surplus and industry profits. Notwithstanding the above, establishing a compulsory direct link between the actual products and certain infrastructures may also bring up the question of monopoly pricing and lack of choice. Indeed, literature also suggests that a formal separation of scheme and processing (especially, when it is a truly independent and for-profit undertaking that takes over operations) can have a potential to step up the rate of innovation.

Effective cooperation is likewise crucial for the setting of standards which, accordingly, will secure compatibility between the various products. Common standards are needed for complementarities to be fully exploited. Technical standards allow for a bilateral/multilateral interplay between participants in the system, further helping foster industry-wide adherence to a system as well as to benefit from lower development and operational costs in the processing of payments. Business standards moreover offer an appropriate framework of rights and obligations for the smooth operation of said systems. Standards may, however, best fulfill their mission when adequately enforced, preferably by contractual agreement, and in the absence of hurdles that may restrict interoperability.

However, centrally-agreed common features in the functioning of payment arrangements can sometimes hamper product and/or service differentiation at the level of individual banks. For a payment system to ensure a smooth and seamless exchange of data and financial flows, it is necessary to rely on a minimum set of shared technical standards and business rules. Most of the time, this common framework is developed jointly and it implies that members of the scheme have chosen to abide by certain rules that set down fixed execution times or specify underlying technical requirements, to

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**I. BALANCING COOPERATION AND COMPETITION IN RETAIL PAYMENTS SYSTEMS**

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42 Much of the existing literature on vertical integration highlights this reason among the classic motives for vertical merger of firms (see Perry, (1989)). According to their reading, when one or more vertically-related industries exhibit horizontal market power, non-competitive pricing at each industry’s level can lead to a situation where the aggregated profit is lower and the consumer price higher than that of an integrated industry. However, for such an outcome to be true, vertical integration must both increase social welfare and, above all, be profitable for the participating companies (as they voluntarily decide to merge). Often this last condition is only achieved when the upstream industry is a pure monopoly (see, Greenhut et al., 1976), a circumstance hardly to come across in real life.

43 In fact, competition authorities and other public bodies in several countries have brought forward the argument that separation of both tasks can help processors better identify potential business cases among any given group of users. In their opinion, processors will be thus able to develop solutions to address the needs of different client segments in a market-oriented way. Processing companies will moreover be liberated to engage in competition and/or cooperation with other service providers at domestic and/or cross/border level, thereby expanding their present reach. However, these same authorities further acknowledge that there are some risks in this approach: namely the fact that a strong monopoly position in the processing services industry combined with the for-profit nature of the firm could exhibit undesired consequences on competition and pricing. In addition, a detachment of scheme and processing in previously integrated platforms is also likely to be pricey given the necessary legal, relocation and staffing arrangements that will have to be made and the costs deriving from the loss of synergies.
name just a few. At times, upstream restrictions can set an effective cap to the extent private service offerings in downstream markets may deviate from certain core propositions common to all participants in the scheme. This is most frequently reflected by a low level of retail innovation outside the platform.

Platform competition displays conflicting evidence as to its final impact on the pricing structure and the innovation pace. In more traditional industries greater competition between service providers equals enhanced competitiveness in the whole economy, thus increasing welfare. Similar results could be observed in retail payment systems, hence making it feasible to benefit from lower total price levels. However, depending on the overall size of the retail payments market, multiple competing platforms may also entail unexploited network externalities and an underdevelopment of economies of scope and scale. In those circumstances, rivalry may further lead to significant efficiency losses through duplication of investments, excess capacity and lack of interoperability. In the long run, return to investments could lag behind expectations and, consequently, the adoption of improved technologies and the launch of new payment instruments could be seriously delayed. However, the opposite is also true and there are a number of cases competition has also proven equally welfare enhancing. Indeed, even in cases where there’s a single infrastructure service provider, excess inertia has showed up. For this reason, several factors such as the effective rate of multihoming and customers’ heterogeneous preferences would have to be monitored in order to gain a wider understanding on the real impact of platform competition.

4 Dirwers of CoOeration and CoMPetition: Environmental, Legal and Legacy Issues, Governance, Access, Pricing and Oversight

Some payments services may be more efficiently provided under competitive conditions (access) versus other that may show natural monopoly features (messaging, clearing and settlement). Vertical integration or joint provision of some of these services by competitors may generate conflicts of interest among them resulting in inefficient governance, access or pricing structures. In markets with similar characteristics (e.g., telecommunication), authorities have resorted to services provision separation by type of service. Those having a natural monopoly feature being provided by entities different from those competing with the final client. In the retail payment systems area this approach may not seem to be a feasible alternative due to the close relation of retail payment services with the core retail banking activity.

However, authorities may resort to oversight and regulation to deal with conflicts of interest and balance cooperation and competition. The existing balance of powers among the different stakeholders and the degree to which a structured approach has been adopted in relation to the design and the implementation of the change-management function of a retail payments system can often stir a vast array of potential outcomes out of the decision-making process. The preponderant role incumbents may play in the development of a given system and the potential to abuse from their dominant position; the fact that rules and/or conventions may underpin distorted charging practices; the lack of appropriate transparency arrangements as regards pricing and policies to be applied; and the rise of coordination failures impacting the rate of payments innovation are just a few examples of the complex tapestry of intertwined elements at the level of governance, ac-

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Guthrie and Wright’s (2003) theoretical model is useful to understand this paradoxical outcome. According to their findings, when consumers choose only to hold one card (or clearly opt to use one card preferably) competition between card schemes does not result in lower interchange fees. A competitive bottleneck arises as schemes tend to maximize the surplus they offer to cardholders in order to enjoy monopoly over such group.
cess and pricing with a bearing on the deployment of competitive, efficient and scalable payment systems.

The oversight and regulatory approach has been recently followed by many central banks and competition authorities and other relevant bodies around the world (see Appendix III). In particular, through oversight and regulation authorities are able to introduce market corrective measures. These should be targeted to the main drivers of cooperation and competition (environmental, legal, legacy, governance, access and pricing) to achieve the defined policy objectives (see Figure 4). Lack of oversight and regulation most surely will end up in sub-optimal availability and affordability of payment instruments (see Section 5).

4.1 ENVIRONMENTAL, LEGAL AND LEGACY ISSUES

Network competition and cooperation is many times highly influenced by environmental, legal and legacy issues. In deciding the design features of a given payments network, banks and all other relevant players are typically laying the grounds of the industry’s future competition game. Therefore, the final strategic approach chosen is likely to come as a result of the combined influence of such diverse factors as the structure of the banking industry, socio-legal and political considerations, demographic dimensions and many others. A greater or lesser degree of market concentration, a well-established tradition of cooperation in payment system issues as well as the size of the prospective costs to be borne in order to develop a technical platform have proven crucial to the adoption of diverging courses of action. So has the role of the central bank and other authorities, too. An illustrative example is provided by the now defunct EFTPOS UK project which, in its origins, surfaced as an industry-wide initiative to develop a debit card scheme with one central processing centre to which all banks would belong. Despite its undisputed potential and the large investments made on developing a pilot scheme, conflicting interests and building mistrust among financial institutions did, in the end, impair its success, thus leaving the UK market for quite some time with two physically and operationally distinct EFTPOS networks.
4.2 GOVERNANCE

Governance of the infrastructure has a significant impact on competition.45 Joint private ownership is most common to retail payment systems.46 Whilst truly reflecting its cooperative nature, this may further raise concerns as regards to access and pricing. Efficiency-related reasons, namely economies of scale and scope, along with various factors such as the country’s institutional and financial structure as well as the development stage of an economy may explain the choice of ownership. In addition, mutual governance can help overcome underinvestment situations that derive from supply interdependencies while positively exercising an influence on user’s expectations about the future size of the network. However, privately-run infrastructures (especially, when dominated by a small group of larger banks) can be more prone to establishing strategic barriers to entry in the system and, more, they may clearly pose a threat of a wide-scale abuse of market power. Also public sector owned and operated infrastructures raise the issue of a level playing field and the role of central banks as operators vis-à-vis overseers.

Governance structure of the design, implementation, review and update process of standards can also have a significant impact on competition. Non-proprietary, transparent and open standards that do not impair interoperability can help shift competition for the market to more classic variables such as pricing, distribution channels, brand, customers’ service and core value propositions. In addition, such standards have a potential to enhance platform competition, thus leveling out some of the non-competitive market advantages incumbent payment service providers may have over newcomers. However, careful attention should be paid to the way the standardization process is taking place. Slow delivery of standards due to long bargaining process, lock-in effects into obsolete solutions connected with high transition costs of moving to new and improved technologies and/or path dependency effects stemming from the installed base of network facilities are likely to show up in relation to retail payment systems. All these factors may give rise to a number of unwanted effects over the dynamics of competition and innovation.

Cooperative governance often ends up having a strong bearing on innovation rates as well. The fact that a system’s decision-making process may lie in the hands of a small group of incumbent players, which additionally are competitors amongst each other at the downstream level, can lead to conflicting investment outcomes. Network externalities justify coordinated investment planning, but the process through which agreements are reached is likely to be influenced by individual bank’s internal cost-benefit analysis. Since banks feature quite varying cost-structures, the appeal of investment decisions regarding upgrades or changes is normally perceived differently by each single player. Therefore disincentives may arise to carry on innovations which could clearly provide a global benefit for end users or peers.

Self-regulation can help keep the infrastructures aligned with the changing needs of their user community. However, ensuring neutrality, objectivity and contestability does require a closer scrutiny of the rules produced. Shared ownership naturally leads to a high degree of self-regulation within retail payment systems. Typically, the participants in the facility are those who know better what the real demands, interests and expectations of their customers are like. Hence, members of a given payment platform are seemingly in a much favorable position to make superior choices. Nevertheless, unbalances

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45 In this context, the term governance refers to all aspects and general arrangements of ownership and decision-making regarding the development and updating of payment-related standards.
46 Due to the outsourcing of the operations of retail payment systems to third-party providers, this ownership model is rather applicable to a mid-office entity, i.e. an organization that further takes the responsibility for the contracting, coordination and monitoring of the various direct services providers that compete for this service contracts. This is observed in many developed systems as well as in some developing systems in India or Eastern Europe.
in the perception of network versus competition effects can easily impact the decision-making bodies’ conduct. Therefore, a regular monitoring of incumbent’s ex-ante and ex-post behaviors by competent authorities (i.e. overseers and competition authorities) could be critical to help deter paramount players from adopting discriminatory views when delivering rules and/or subjectively assessing adherence applications.

In sum, dynamic efficiency of a given scheme does heavily rely on the effectiveness of governance arrangements. Payment systems traditionally serve the interests of a large and often heterogeneous community of users who, normally, are excluded from the decision-making process. However, as acknowledged in the Core Principles for Systematically Important Payment Systems, CPSS (2001), it is important for efficient payment arrangements to continually take into account the needs of its users against the structure as well as the stage of development of its respective markets. Governance arrangements to some payment systems explicitly encourage the participation in their management bodies of users and other key stakeholders along with the actual owners of the scheme. This, in turn, offers a unique framework for the exchange of ideas so that all parties can engage in a constructive dialogue about the future of the system. Such an arrangement, when properly implemented is proven to help ensure an alignment of the interest of the various actors as well as the wider support of the strategic initiatives adopted.47

4.3 ACCESS

Gaining ample access to messaging, clearing and settlement services is of capital importance for the ultimate success of new entrants in the market. Sector-specific competitive parameters and dynamics have turned the provision of retail payment instruments and services into a critical part of today’s banks portfolio strategy. In many countries, the size and geographical distribution of the branch network along with reliable distance-banking facilities, access to credit and debit cards as well as credit transfer products have been identified as key factors for building up a long-term and profitable bank-customer relationship. In order to offer sound, reliable and efficient payment solutions, payment providers need to be an active part of processing and clearing circuits, thus ensuring the timely transfer of funds between economic agents.

In most cases, retail payment systems grant incumbents the right to issue a binding opinion on prospective participants’ request for membership. This may be explained by the fact that many systems are owned and run by the banks themselves (directly or indirectly), thus allegedly warranting incumbents a right to act in their condition as board members and not as competitors in the market. Furthermore, some systems (most notably, when based on a network of bilateral arrangements) do also require the sponsorship from an incumbent before ever considering to sort out a new application.48 However, such comprehensive decision-making power can somewhat be constrained by developing and applying a set of objective and publicly available access criteria, and by further ensuring that the structure of the board always includes independent members that serve as a balancing force.

Accessing the system may be further restricted through overall provisions of the broader legal framework. Non-bank institutions are systematically considered

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47 For an engaging and practical discussion on how altering governance arrangements to include household and business customers can help promote innovation and improve payment systems see Milne (2007) on the UK and EU payment governance initiatives.

48 Obtaining a sponsorship is frequently a challenge for any future participant. The fact that incumbents may take advantage of this empowerment to restrict competition is not the only stumbling block prospective participants may encounter. Indeed, sponsoring a new entrant is often also burdensome for the incumbent too, as it is expected to support and guide its mentee through a fairly lengthy and resource-intensive process. In some countries, however, a voluntary tutoring system was introduced that includes compensation payments from the joining bank to its tutoring institution.
As part of the reform process of credit card schemes in Australia, in 2003, the Reserve Bank approved and published an Access Regime on the participants in each of the three card payment systems designated at the time: Bankcard, MasterCard and Visa. By developing and applying the proposed guidelines, the Reserve Bank explicitly pursued to promote efficiency and competition in the provision of credit card payment services to both merchant and cardholders. Thus, a general and harmonized access regime was issued which helped ensure that membership criteria would not unduly discriminate.

The regime recognizes the need to preserve the financial safety of the system. Thus system rules require participants to be authorized deposit-taking institutions under the supervision of the Australian Prudential Regulation Authority. It is interesting to note, however, that system participants can take the form of “specialist credit card institutions” or SCCIs: a special class of prudentially regulated financial institutions which are primarily engaged in the issuing and/or acquiring business.

Furthermore, the system can in no way impose fees, charges or penalties on members because of their institutional status or their choice of the banking business neither can it prevent participants from freely embarking on one or several of the above-mentioned card-related activities. Finally, the assessment criteria for participation must be made publicly available.

In a similar fashion, with a view to ensuring a level playing field for all payment systems and with the goal of further fostering access of new payment service providers to the market (and, hence, to broaden consumer’s choice), the proposed European Parliament and Council Directive on Payment Services in the internal market also addresses the issue of membership.

It first acknowledges the importance of any payment service provider being granted access to the services of technical infrastructures of payment systems, thus favouring a non-discriminatory treatment of competing authorized payment institutions and credit institutions in the access to and use of the services offered by the technical facility. This includes applying the same price conditions unless differences in costs induced by the payment service providers justify otherwise.

Nevertheless, the European Parliament also sees the need to establish appropriate requirements in order to ensure the integrity and the stability of those same systems, thereby requesting prospective participants to present evidence on the adoption of internal arrangements sufficiently robust to protect them and the remaining participants against the impact of shocks.

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1Designation is a formal process by which a given payment system is placed under the scope of the Reserve Bank of Australia’s Payment Systems Act of 1998. Designation implies that the payment system is henceforth subject of a special oversight regulatory regime designed to address public interest issues.

2On April 2006, following an announcement by Bankcard to discontinue service in the first half of 2007, the Payment Systems Board adopted the decision to revoke its designation as well the Access Regime previously granted to the scheme.

3This rule was introduced to prevent schemes from placing penalties on members that concentrated on acquiring instead of issuing, as had previously been the case. By eliminating this restriction, the Reserve Bank of Australia tried to correct the imbalances arising in the bargaining powers of issuing and acquiring institutions, thus, in their view, creating pricing distortions at the level of interchange fees.
“non-eligible” to become direct members in a retail payment system. These limitations normally aim at securing that all participants enjoy the same level of financial soundness and that they will be able to cope properly with the technical and operational requirements participating in the system will entail. Sometimes the rules of the system may not specify any such condition, but given its ancillary nature they typically expect participants to hold accounts at a central bank. Thus, in the end, it is the central banks’ rules that may shut out non-banks from taking part in formal retail clearing and settlement arrangements. In addition, prospective participants may also find it hard to start offering account-based payments to their customers whenever the affiliation to the national banker’s association is seen as a prerequisite for joining a system. Due to the prominent role of national banker’s associations as owners of and/or advisors to retail payment systems, newcomers are compelled to adhere first to such an organization should they later want to take stock of the national payment infrastructure. Some authorities have intervened to ensure fair access to payment systems (see Box 1).

Indirect participation may help overcome some of the practical obstacles smaller banks and niche players may be faced with when trying to enter a payment system. Agency arrangements between clearing members and non-clearing members of a payment system are a common form of participation for many suppliers of payment services. Some systems have developed guidelines to ensure that contracts warrant objective third party access to smaller actors and that the interests of indirect members are further safeguarded. However, most frequently terms and conditions of these arrangements are negotiated on a bilateral basis and fall out of the scope of overseers. Furthermore, indirect members are prevented from expressing their views on the design and functioning of the system, and they often do not have access to a wide range of information. They also run the risk of having business-sensitive information exposed to their counterparties. This, along with the fact that direct members are free to agree on a case-by-case basis the tariffs for indirect access, offers a wide range of opportunities to potentially distort competition. Indeed, agency charges may not always reflect properly the actual costs a clearing member incurs for the provision of the said services to a third party, thereby either narrowing the scale of payment instruments his customer is able to offer to its own clients or impacting the terms under which those services are to be further supplied.

4.4 PRICING

Prices and fee patterns regarding the access and use of retail payment systems play a crucial role in recovering costs and holding back competition. Joining fees in different retail payment systems frequently present an intricate patchwork of alternatives. No rates and/or flat rates are sometimes the two most basic options available to members, but it is often the case that charges for participation apply. These can be recurrent or one-off, and every now and then they imply becoming shareholder. Membership costs are frequently subject to a dual pricing strategy, thus accommodating charges depending on the type of participation (e.g. direct vs. indirect, principal member vs. affiliate/associate), activity level, market share, assets, cost incurred by existing members and/or prospective contribution to the expansion of the current network (e.g. number of cards issued or POS/ATMs deployment). In addition to entry fees, participants are normally subject to usage fees (and at times also to license fees, which may or may not be linked in some way to the participant’s annual turnover). Processing fees commonly benefit from discounts as volumes take up. Occasionally, per transaction fees are replaced by annual or monthly dis-

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49 This section analyses pricing considerations from the perspective of the systems’ participants and not the final user. Of course, these pricing considerations have a direct impact on final pricing of payment instruments.
bursements and fees may further vary depending on the underlying type of instrument or the time of submission of a payment order. However, in certain cases, fees are calculated in such a way that they can effectively deter competitors from entering and/or discourage future growth. Moreover, fees paid to message carriers may well wind up being somewhat relevant, too. Finally, interchange fees could further distort competition not only as a result of collusive behavior but as long as they create incentives to favor the use of certain payment instruments (i.e. those with higher interbank charges) over other, perhaps, more efficient ones.

The complexity of the tariff structure in retail payment systems critically augments switching costs for both the participants and their clients. Switching costs classically represent a key obstacle to rivalry. They comprise, but are not only made up of the relative prices on products and services as well as the necessary investments that have to be completed in order to upgrade or change a hardware/software component and acquire the appropriate training in the former elements. Often infrastructures disclose very little information on the effective costs of participation. On different occasions, information is indeed available but it does hardly reflect the reality of the market as prices for clearing services end up usually being negotiated between the parties. Thus, customers are no longer able to efficiently perform a cost-benefit analysis of the services they receive.

Float income earnings and cross-subsidisation of payment services via indirect pricing are still a common practise with a strong influence in the final choice of a payment instrument. The functional design of a retail payment system may allow both the payee’s and/or the paying bank to benefit from interest earnings on the funds channelled for a short period of time. The size and significance of float may differ from instrument to instrument and between diverse processing platforms and is further affected by the magnitude of the interest rate. Float structure can have an impact on a bank’s decision to join a given network, the commercial and pricing strategies later applied to the provision of payment products to final users and, in some circumstances, it may also be responsible to hold up innovation. Implicit charges to end-users part away customer charges and system’s fees, thus perhaps alleviating direct market pressures on the clearing platform to quickly evolve in order to realize additional cost-efficiencies. Rules on value-dating and additional restrictions to withdraw paid-in funds on the date of settlement can moreover have a significant effect on the efficient allocation of financial resources in the economy.

4.4.1 Pricing Considerations of ACH Markets

Under certain circumstances, Ramsey pricing of different ACH services could possibly reveal positive scale effects on such payment infrastructures. In spite of the deployment of cheaper and more cost-efficient platforms for the processing of electronic payments, some

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50 It should be further highlighted that some systems charge also exit fees to participants which, in fact, can create significant switching costs.

51 E.g. a volume-based charging structure was introduced in the CHAPS and CCCL UK systems to convert fixed costs into variable costs for member banks. Following this cost-allocation mechanism, every participating institution would see its payment obligation raise the larger the volume of payments processed on its behalf (i.e. its relative share in the aggregated transaction volumes of the system). As the OFT explains: “in general such tariff structures will lead to inefficiency, since they will result in the effective marginal cost for a bank exceeding the true marginal cost of processing additional transactions. This will dampen individual bank’s incentives to process additional transactions [...].” However, there is an upside to this mechanism, namely the fact that smaller players could further benefit from smaller entry costs.

52 This document distinguish between “ACHs” and “Payment Cards” markets due to their different nature and pricing structure, although transactions in both markets are normally cleared through a clearinghouse.

53 Ramsey-pricing techniques are commonly used to assign fixed and common costs in large networks, such as, electrical utilities, telecommunications, etc. Originally developed by Ramsey (1927), these inverse elasticity pricing rule (also known as the Bouteux-Ramsey rule) essentially implies raising individual prices above marginal cost on those classes of customers with inelastic demands versus those other classes with more elastic demands: i.e. inelastic customers end up paying a higher markup over marginal cost than those other customers with far greater elasticity of demand. Thus, Ramsey pricing is a second-best solution whose basic goal is to recoup the fixed costs from those customers who have the fewest alternatives, while minimizing the distortion associated with prices in excess of marginal costs.
countries still rely strongly on more traditional paper-based formulas. A way to expanding the demand and use of more efficient payment instruments could be to apply an appropriate discriminatory pricing policy (e.g. allocating higher prices on the parties and services less responsive to price stimuli). This should be preceded by a thorough analysis of the underlying price elasticity of demand for a given set of ACH services and estimates on cost elasticity. By combining both these elements, policy-makers could have a chance of striking a balance between lower unit revenues (stemming from lower fees) and increased payment volumes, so avoiding the running a loss-making business. Certainly, the effectiveness of such a measure requires a prior and good understanding of the marginal costs enshrined in each ACH service as well as of their relation to per-item fees. Furthermore, product-specific demand elasticity will have to be carefully determined to prevent mistaken strategies from being put forward.

Cheque related revenues, stemming mainly from the use of float, can create distorting price incentives that prevent a widespread use of ACH payments. Cheque float is the interest earned by a cheque writer between the time the instrument is received as means of payment and the time the payment is finally settled. This time lag allows the payor to benefit from interest in the funds on which the cheque is written (or, put it differently, it profits from a short-term, interest-free loan). The relevance of float is linked to the length of the processing cycle (usually longer for cheques than for ACH processing due to manual handling and physical exchange of paper instruments), interest rate, the value of the cheque and the volume of on-us transactions (which, again, depends on the concentration ratio of the banking industry and on how much decentralized the economic activity is in a given country). However, it should be noted that float is a zero sum game at the system level and also some banks perceive gains from float, thus, this potential float benefit may be a perception more than a real fact. Other significant and inelastic sources of cheque revenue such as, e.g. non-sufficient funds related fees may further impact ACH penetration rates.

4.4.2 Pricing Considerations of Payment Cards
Markets: instruments and devices

The range, availability, features and degree of acceptance of alternative payment instruments are key determinants of the price structure of a card system. Demand-interdependencies due to the complementary nature of the issuing and acquiring business are also present in payment card systems, hence influencing the profit-maximizing price. The optimal pricing model will depend on the elasticity of demand in both markets which, once again, is likely to be affected by the size of substitution effects between cards and other products (e.g. cheques, cash, etc.). The latter is obviously impacted by local market structure, relative costs and customer’s attitudes and habits.

Trends in usage multi-homing (actual and/or potential) in the payment cards industry can affect price equilibria. The easiness and willingness of cardholders to substitute across competing platforms and the degree to which retailers accept cards issued by different platforms can enhance competition in payment schemes, hence putting downward pressure on prices in both ends. However, resulting price equilibrium and structure may not necessarily turn out to be a welfare maximizing one. Indeed, in those cases where asymmetric pass-through of costs to end-users happens to

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4 For a detailed analysis on the economic incentives to use different payment instruments, see Humphrey and Berger (1990). Using 1987 data, both authors came to the conclusion that the average amount of float earned per cheque in the U.S. more than offset the cost advantage of ACH migration.

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5 A recent U.S. based study by IBM Consulting and Celent revealed that in addition to non-sufficient funds related fees (which featured the largest gross-profit margin, i.e. 90 percent) banks capture significant percentage of revenues deriving from fees on depositing cheques, lockbox fees charged to billers for collecting their cheque payments, chequebook sales and other special actions (e.g. stop-payment orders).
A central part of the current debate regarding competition policy for payment networks is related to interchange fees. An interchange fee is a fee from the acquiring bank to the issuing bank in payment card networks, in other words from the seller side to the buyer side. Interchange fees are generally set in order to maximize usage of, or profit to, the network, although it is unclear what the ideal fee should be to achieve this goal. In some form, the fee exists in all payment card networks.  

**DETERMINANTS OF INTERCHANGE FEES**

Close-ended networks of payment cards make merchants provide more of the revenues than do buyers. Open-ended networks of payment cards achieve the same price differential between buyers and merchants through interchange fees, paid from the merchant's bank (passed on at least in full to the merchant) to the buyer's bank (passed on at least in part to the buyer). This fee is a balancing instrument more than a price for a service – the purpose is to attract an optimal mix of buyers and merchants. Other markets perform similar differential pricing between two sides, such as differential prices to advertisers and magazine buyers, differential fees to sellers and buyers at expos, and differential pricing of tickets to men and women at nightclubs (Rochet and Tirole, 2004).

Since, in general, the transfer of value is from merchants to buyers, a higher demand for payment services from buyers, an increase in price-cost margin from acquirers, and a higher utility to cardholders from the payment service will lead to lower interchange fees. With less pass-through of merchant discount (the price the merchant pays for the transaction) to the interchange fee, the fee decreases.

The interchange fees shift revenues from acquirer to issuer if one side is a more powerful member of the payments association (this will ensure a socially non-optimal level of interchange fees) or if one side of the market is more competitive than the other. If merchants compete and will want to provide payment options to attract customers, interchange fees will rise (Guthrie and Wright (2003), Rochet and Tirole (2002)). If there are alternative, competing payment networks, the effect on interchange fees becomes dependent on other variables. Theoretically, if merchants are non-strategic, interchange fees will remain as if there were one monopolistic platform (Rochet and Tirole (2003a)). If interchange fees are high because the issuer side is the stronger one, then competition between platforms should lower the fees. If buyers do not multihome (or their loyalties are sticky, as empirics show), however, one will need incentives to move them to use another card – in this case interchange fees may go up. The latter may, however, not be the case if card users are attracted in another way: e.g. by offering reward points.

**DETERMINING OPTIMAL INTERCHANGE FEES**

The interchange fee is at the core of the two-sided markets dynamics of payment systems: the structure of the pricing (not only the total pricing) affects the total use of the system. Some recent regulatory approaches have been to cap interchange fees at cost. Theory suggests that neither of these approaches is optimal, nor is a free-market approach (Evans and Schmalensee (2005)). The subsidizing of buyers means that buyers face lower costs for using payment services, which again increases the usage of such services. This may cause the use of payment networks to exceed the socially optimal usage level. An example is a situation where it is socially optimal to use cash for small purchases given the transaction costs incurred by a card payment, but where buyers face a zero (or negative) marginal cost for paying by card and as such use their cards for all purchases. At the end of the day, merchants will pass the extra costs of a transaction through to consumers in general, so the externality ends up being from card users to cash payers. At the current time, neither theory nor regulators have been able to determine what constitutes a socially optimal interchange fee. Understanding the determinants of such a fee would require country-level analysis. To further complicate this analysis, it should be noted that some cards provide services beyond payments, such as credit, affecting also the socially optimal interchange fee.

In any case interchange fees play an important role; they are necessary to make card systems work. Without interchange fees, payment networks could suffer from underproduction. Since users contemplating to join a network do not take into account positive externalities to others - the benefit to others from their joining – there would be under-participation from a social welfare perspective. These network externalities are central to the analysis payment systems.

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1 These issues are analyzed in detail for the Mexican cards market in Castellanos, Medina, Mendoco, Negrin, Sofia, Rochet, Cordella (2008).

2 Other retail systems may have other fee structures. These include two-part pricing, where part of the fee depends on the volume a user processes. This has the advantage of reducing “cream skimming” by participants that cause higher marginal costs to the system compared to the fees they pay. Another pricing structure is benefit flow pricing, where participants pay according to the benefit they receive from the transaction. This has the advantage of optimizing welfare for the totality of the participants.

3 Closed systems are proprietary networks, where one firm signs up merchants and buyers. Open systems are more complex, in that they allow banks to sign up end users and provide a platform for the banks to execute transactions. In the first case, the system controls pricing throughout, in the second case the system's ability to impact pricing may be more limited.
Achieving a socially optimal level of interchange fees in payment card systems is not a trivial matter (see Box 2). Interchange fees flowing from acquiring to issuing banks are said to be a complex balancing mechanism aimed at maximizing the output and/or the profit ratios of the network. This can be even more so relevant in an open payment system where intermediaries participating in the platform take independent pricing decisions regarding end-users in a competitive context. Under such circumstance, centralized interchange fee-setting is likely to have an effect, though limited, on the optimization of the size of the network. Indeed, as theory suggests, such an interchange fee may help highlight the right structure, but it’s the competitive interplay between banks that will finally lead to one or another retail fee level. Nonetheless, in those cases where a platform might able to apply a non-linear tariff structure, hence discriminating among different classes of transactions, the impact of interchange fees might be somewhat different. Furthermore, as literature shows, the manner in which costs are passed through to cardholders/merchants and the relative bargaining power of both sides of the market (along with the nature of competition) offers an opportunity to place the system’s interchange fee away from its social optimum, thus provoking a shift of revenues among the various groups of players.

5 POLICY ISSUES

As mentioned, oversight of retail payment systems is crucial to balance cooperation and competition issues and ensure adequate governance, access and pricing. The central bank should play a central role due to its stake on the confidence in money and functioning of commerce (see Bossone and Cirasino (2001). The scope of the oversight function (e.g., systemically important systems, securities settlement systems, retail systems) vary among countries. However, there is an increasing attention, beyond safety issues and systemically important systems, to retail payments issues as well as efficiency as crucial elements of the public confidence in money. Oversight issues are further analyzed in the section below that discuss in detail policy issues.

In the case of retail payments, multiple public policy objectives to maximize social welfare require certain
trade-offs to be made. In particular, the lack of an overarching objective – such as, for example, safety as is the case for large-value payments systems – means that there is a greater need to reconcile multiple public policy goals relating to safety and efficiency, reliability, competition, access and consumer/data protection. In particular, a common objective for many countries is to promote the use of a more efficient electronic retail payments infrastructure, while ensuring its safety and soundness for consumer confidence and the functioning of commerce.

Market complexities need to be recognized and analyzed in detail in order to adequately attain public policy objectives. As the aforementioned literature review and market practice illustrates, there are problems ‘operationalizing’ public policy objectives. For example, economic theory on two-sided markets provides no standard answer on the most effective pricing structure that would ensure dynamic efficiency; much depends on initial conditions and the broader institutional setup. The latter point is exemplified by the fact that different countries have taken distinct approaches to fostering competition within and across distinct retail payments platforms and instruments. Finally, the practice by relevant providers – particularly banks – of product bundling and account-based pricing obscures the true economics of this business, leading to non-transparent cross-subsidies between different types of users; this problem is compounded by the lack of relevant publicly available data.

Policy-making in this field is also made more complex by the institutional fragmentation of relevant policy makers as well as by the different and sometimes overlapping scope of their mandates. Given the diversity of public policy objectives, there exists a multitude of relevant policy makers. These include:

- central banks – they typically retain broad responsibility for oversight (and some regulation) of the payments system. In the past it was usually related to high-value payments but increasingly central banks are giving attention to oversight of retail payments.
- financial supervisors – they oversee the activities (including risk management) of banks and often of other payments services providers.
- Ministries of Finance – they are involved in payments systems initiatives in the public sector (e.g. electronic payments of salaries and social security benefits) and sometimes in relevant financial system regulation or anti-money laundering issues.
- competition and consumer protection agencies – depending on their mandate and powers, these entities are responsible for launching inquiries into anti-competitive practices and abuse of retail payment users.

As a result, coordination and information sharing among relevant entities represents a key public policy challenge. Thus, pointing out at the need for various authorities to work together through the whole process. Such cooperation, starting from the problem-definition phase, is likely to help identify and separate those areas where regulation may be the preferred option.

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94 According to “General guidance for national payment system development” published by the BIS Committee on Payment and Settlement Systems in January 2006, one of the guidelines for national payment system development consists of expanding the availability of retail payment services via improved infrastructures.

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

96 One such example – perhaps the most relevant one given the size of the market – can be found in the EU again. The SEPA initiative, which aims to create a standardized domestic payments market throughout the eurozone, is based on the shared vision of a more efficient and secure offering of harmonized retail payment products. Some recent findings by Capgemini Consulting (2007) reveal that SEPA holds a significant market potential of up to 123 million in benefits over six years; a figure that could yet rise even further (up until 238 million) should banks be successful in using SEPA as a platform for the automation of business process linked to the business chain (e.g. e-invoicing).

97 See Kemppainen (2003) for an overview.

98 See Guibourg and Segendorf (2004) for a discussion.
Cross-country approaches and governance models to-date remain diverse and shaped by historical experience and institutional set-up. Although the efficiency and safety of retail payments are of interest to central banks, the latter have very different patterns of involvement and policy mandates in this area. According to the CPSS, these can be classified into four types:

- **Operators** – for example, in clearing and settlement of some retail payments as well as in services provision to non-bank (typically public sector) customers.
- **Overseers** – for example, in ensuring the efficiency and safety of (primarily systemically important) payments systems.
- **Market catalyst/facilitators** – for example, by 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.
- **Users** – for example, by participating in retail payments systems owned and operated by external parties on its own behalf or on behalf of its (typically public sector) customers.

A review of recent inquiries into retail payments systems across different countries indicates some common themes (see Appendix III). These inquiries have been launched by different entities (competition authority, central bank or finance ministry) either to review broader competition issues in the financial system or to specifically address perceived payments systems problems. Irrespective of the entity that launched the inquiry, effective competition in retail payments systems – particularly for payment card interchange fees – appears to be a concern shared by many countries. In particular, an important finding for public policy purposes is that the current market structure and business models can sometimes have adverse effects. Examples include slowing down the development of electronic payments systems (Ireland) and of innovation (UK), restricting access to low-income individuals (South Africa), or resulting in a less efficient infrastructure (Australia) by not providing adequate signals/incentives to users regarding the real cost of different instruments. In addition, there are common remedial measures proposed in virtually all cases, which relate to better information disclosure and transparency, stronger governance (especially for mutually owned ‘infrastructure clubs’) and more open terms of access (including pricing structures) for retail payment networks. Stronger oversight of retail payments systems, as well as better coordination arrangements between the authorities and market participants, are also proposed in several inquiries.

The justification for intervention depends upon the specific public policy objectives that are pursued and upon evidence of perceived market failure. The balance between different public policy objectives depends largely upon initial conditions and country preferences. These factors help shape priorities in retail payments systems and determine the extent of policy activism (e.g. ‘pro-competitive bias’). In order to substantiate the need for public intervention in support of a better competition-cooperation nexus, evidence of the type and extent of market failure – such as externalities, coordination failures and information asymmetries – needs to be documented. As the inquiries show, a typical approach in such cases would be to analyze the retail payments market (i.e. legal and regulatory framework, industry structure and perfor-
mance, standards and infrastructure) via data collection and interviews, and to compare it to international peers. Depending on the specific market segment, such an analysis would include a review of competitive conditions in payments infrastructure versus services (i.e. competition in versus for the market). The potential costs of the identified market failure(s) – whether in terms of a more inefficient payments infrastructure or of unfair charging to specific user segments – should also be estimated.

The type of public intervention that should take (or has taken) place has to be assessed within a cost-benefit framework and considered in a dynamic context. There is a broad range of public policy options that can be deployed to resolve a perceived market failure relating to inappropriate levels of cooperation/competition in retail payments, including advocacy, antitrust enforcement, access/price regulation, and structural measures (e.g. government-owned service provision, or the separation of infrastructure from service provision). Choosing among those options requires an assessment of their perceived benefits (in terms of resolving the market failure) and costs (in terms of introducing other market distortions). The existing legal framework – in particular, the role of generic competition law versus sector-specific regulation – will likely be one of the determinants of any decision. Finally, in spite of differences between retail payments and other network-based industries (e.g. telecoms), there are lessons to consider such as, for example, the potential for a more pro-active, sector-specific regulatory stance. Also, these systems change rapidly and policy makers need to recognize this fact in deciding its interventions and the right moment to apply them. (Appendix III provides some examples of recent actions taken in this field by different policy-makers around the world).

In addition, stakeholders need to have appropriate channels to express their views on the design and evolution of retail payment systems. As indicated in guidance number 8 of the BIS General Guidance Report for National Payment Systems Development mechanisms for consultation among the principal stakeholders are crucial for the system to properly address the needs, capabilities and interests of the various parties involved in the system. Such involvement is especially required for cooperative initiatives, such as those for setting technical and operational standards thus, providing trust and a level of commitment that is critical for payment system development and is indispensable for implementing plans and setting up effective market arrangements. Impact assessments, on the other hand, help rationalize the review and policy-making process by outlining the cost-benefit relations and trade-offs implicit in the various options at hand.

Given the multitude of objectives and actors involved in retail payments systems, an oversight framework is required to at least ensure proper coordination and resolution of collective action problems. Such a framework does not necessarily mean that a single entity – such as a central bank, given its dominant role in national payment system development – should be entrusted with the attainment of all public policy objectives in retail payments systems. As the CPSS (March 2003) indicates, 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. In fact, some countries – for example, Australia (Payments System Board) and the UK (Payments Systems Task Force) – have begun to rely on specialized cooperative bodies to coordinate stakeholders and determine policy in this sector. Especially in such cases, the objectives, instruments and participants involved in oversight need to be clearly identi-
fied, while supporting legal and institutional arrangements need to be developed.

In conclusion, an analysis of public policy issues related to competition versus cooperation in retail payments systems needs to address some of the key issues mentioned above. Despite the substantial heterogeneity of cross-country business models, as well as the ambiguous academic literature and complex real world practices, there are some relevant policy implications that can guide policy makers. These guidelines are summarized in Box 3 and are placed in the broader context of the retail payments system reform goals and agenda (see Box 4).
Standard setters and implementation agencies have already provided a useful framework to guide reforms of retail payment instruments and circuits. In particular, the CPSS identified a set of overall strategic goals and objectives for retail payment systems and the World Bank has elaborated a comprehensive Reform Agenda (see Box 4). This framework identifies efficiency and reliability as the general public policy objectives for retail systems. In addition, at least three important policy goals should be considered:

i) Achievement of a socially optimal use of payment instruments.

ii) Deployment of an efficient infrastructure to support payment services.

iii) Affordability and easiness of access to payment instruments and services.

In part, the achievement of these goals is related to an adequate balance between cooperation and competition. The main results from the study summarized in this Policy Brief show that some payment services present natural monopoly features (messaging, clearing and settlement) while others (access) benefit from broad and deep competition. Thus, the intuitively and often mentioned statement “cooperation in the upstream market and competition in the downstream market” could be considered a general guideline in balancing cooperation and competition. However, this statement needs to be qualified. The four guidelines below provide a set of tools to help authorities to adequately balance cooperation and competition and achieve the broader retail payment system objectives and goals, ensuring that the institutional framework (e.g., legal, environmental issues), governance, access and pricing of the infrastructure are aligned with the mentioned objectives and goals.

**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. Interchage 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 on 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.

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.¹

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 on access and pricing) to moral suasion and policy dialogue, from antitrust 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 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.

BOX 4: RETAIL PAYMENT SYSTEMS GOALS AND REFORM AGENDA

CPSS Public Policy Goals

*Legal and regulatory framework:* 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.

*Market structure and performance:* policies relating to the efficiency and safety of retail payments should be designed, where appropriate, to foster market conditions and behaviors.

*Standards and Infrastructure:* polices relating to the efficiency and safety of retail payments should be designed, where appropriate, to support the development of effective standards and infrastructure arrangements.

*Central bank services:* 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.

World Bank Reform Agenda (Defined by the Payment Systems Development Group)

The following remarks, stemming from the experience of the reforms implemented in developed countries can be seen as an agenda for developing countries to improve payment system arrangements in a given jurisdiction and across countries.

- Central banks and all stakeholders in the retail arena must work together in a clear strategy to promote the intensive use of retail electronic payment instruments and reduce the importance of cheques.
- Central banks should take a leadership role to achieve the necessary agreements among banks and other participants so that there is at least one ACH operating in the country that is able to process modern payment instruments such as credit transfers and direct debits.
- Central banks should coordinate efforts under way in order to achieve a system that encompasses all relevant players and that processes as many services as possible, avoids duplications and operates on a full scale.
- Central banks and other relevant government agencies should foster coordination and communication to ensure that collection and disbursements of the public sector institutions that are major players in the payments system be processed electronically and in a timely manner.
- Central banks, in coordination with other authorities, should ensure customers protection and foster a safe and efficient provision of remittances services in line with the CPSS-WB General Principles for International Remittance Services.

In sum, central banks and other regulatory authorities should act as catalyst for the development of market solutions:

- Fostering cooperation among market participants and integration/interoperability among circuits and expand access to financial services.
- Raising awareness of the general public on new instruments and circuits.
- Promoting the intensive use of electronic payments e.g. integrating government and business payments in the retail system infrastructure.
- Encouraging the use of high security and technological standards to increase reliability and efficiency.

Direct intervention (regulation, operational role) should be considered in presence of:

- Strong coordination failures (e.g. inability of the market to develop appropriate arrangements to process electronic payments, failure to reach agreements to perform efficiently payments at cross border level).
- Strong information asymmetries (e.g. benefits of security devices such as the microchip on cards, actual cost of paper based transactions).
I. BALANCING COOPERATION AND COMPETITION IN RETAIL PAYMENTS SYSTEMS

A. Cash
The most elementary instrument is cash in the form of coin and notes, which are used for a multiplicity of small-value transactions. Because of its bearer form and the anonymity of payment, cash is typically used to discharge a small-value payment obligation of a payor in direct, face-to-face, transactions and with immediate transfer to the other party in a transaction.

B. Cheques
While there is a variety of non-cash payment instruments, cheques are still commonly used. Cheques transfer deposit balances between individual accounts held either in a single deposit-taking institution or in different deposit-taking institutions. They are typically used as a payment instrument in medium-to-large size transactions. Growing, banking communities in many countries are pushing in favor of upgrading their clearing and settlement systems as well as their legal frameworks to properly introduce cheque truncation\(^6\): a cost-savings procedure for the handling of cheques that essentially consists in replacing the physical movement of paper payment instruments within a bank, between banks or between a bank and its customer by electronic records of their content for further processing and transmission.

C. ‘Paperless’ payments instruments
Include a range of vehicles used to transfer payment information and monetary value in an electronic financial book-keeping system through some form of electronic communications device. Direct funds transfer systems include both debit transfers and credit transfers to move monetary value from the payor’s deposit account to the payee’s account.

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APPENDIX 1: PAYMENT INSTRUMENTS

A. Cash
Direct debits are generally payments pre-authorized by the payor, with the transfer process initiated by payment instructions from the payee. These payments are payable at a regular frequency for obligations such as rent or mortgage payments, organized savings programs, bill payments and tax payments.

Credit transfers are payments transferred on a pre-arranged basis directly into the payee’s account at a regular interval. The transfer is initiated by payment instructions from the payor to its bank to debit its account and forward the payment to the payee’s account at its deposit-taking institution. Credit transfers include such payment items as direct payroll deposit, regular government transfer payments, and bill payments by individuals. The credit transfer process proceeds only if the payor has sufficient funds in its account to make the payment and, in contrast to a cheque payment or pre-authorized debit, is described as a ‘credit-push’ transfer since the payor’s institution ‘pushes’ the value of the transfer through the system to the payee’s institution in order to credit the payee’s account.

Payments cards, which are substitutes for cash and cheques as payments media, include credit cards and charge cards, debit cards, and stored-value cards and are used mostly in small-to-medium-value transactions. Payment cards, which are used to initiate a payment, have an embedded magnetic stripe containing encrypted information relevant for the discharge of the payment obligation such as the card number, expiry date, security data, verification features and other service codes that identify the cardholder and card issuer and route the payment messages.

A newer generation of cards contains an electronic computer chip that provides more functionality, more information, larger storage capacity and greater security to the payment instrument.

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\(^{6}\) See, e.g. the Saudi Arabia Monetary Agency (SAMA) initiative to launch the largest cheque truncation project in the Gulf region or the recent passage of the Check 21 legislation in the US. Earlier examples of similar projects are also to be found all across the EU.
Credit cards provide the holder access to a pre-arranged, usually limited, line of credit with the issuer of the card. The card can be used as a payment instrument or as an access vehicle for a cash advance. As a payment instrument, the card authorizes the issuer to debit the credit-line account of the cardholder and transfer the value to the account of the vendor. The card is generally issued by a deposit-taking institution under license from a credit card service organization. When the payment is authorized by the card issuer, the issuing institution forwards the payment, which is backed by a guarantee from the collective membership of the credit card organization, to the vendor through its deposit-taking institution. The cardholder’s payment obligation is to the card issuer. Some retailers, such as retail oil companies and retail chain stores, issue credit cards or charge cards for ‘in-store’ use only, the so called “fidelity cards”. The credit cardholder’s payment obligation may be fully paid with some other payment instrument at no interest charge within a specified billing period (typically 20/30 days) or may be fully or partially rolled into a revolving credit liability. Charge cards are functionally similar to credit cards, except that there is often no set limit and the balance must be fully paid at the end of the billing period.

Debit cards are issued by deposit-taking institutions and are used either to access services, such as cash withdrawal and bill payment through automated teller machines (ATMs), or to make transaction payments directly and immediately to a vendor through point-of-sale (POS) terminals. The payment instructions are transmitted electronically through the access equipment to the payment network of the card issuer, which results in a real-time debit to the account of the cardholder and a credit to the vendor’s account at its participating institution. Even though the electronic accounting for these transactions is in real-time, the actual transfer of value between the financial intermediaries that hold the respective accounts of the two parties in the transaction is deferred until the end of the clearing and settlement cycle. The value of the payment is lodged in a ‘suspense’ account at the payor’s institution in the interval between real-time debit at the time of the transaction and the interbank settlement transfer. The payment to the merchant (payee) is recorded by its deposit-taking institution at the time of the transaction. However, because of the high frequency of payments received by a merchant, its deposit-taking institution will batch these payments to reduce processing costs, hold them temporarily in a suspense account, and post the accumulated credits to the payee’s account on a negotiated schedule during the day.

Stored-value cards have been described as electronic purses for e-money, which is an electronic record of value stored typically in a numerical ledger that can be debited and credited. E-money is essentially a cash substitute. The cardholder electronically transfers value, at least initially, from a deposit account, a credit card account, or through a currency exchange onto either a ‘magstripe card’ or a ‘smart card’ (a card with computer chip). The initial generation of stored-value cards was single-purpose or disposable magstripes, such as subway cards or telephone calling cards. However, the new generation of cards under development contains a computer chip that allows the ‘smart’ card to be used in a multiplicity of transactions with counterparties equipped with appropriate electronic transactions devices. The reusable smart card can be ‘loaded’ either at a bank’s branch over the counter, through an ATM or a specially equipped computer or telephone. Subsequent transactions electronically decrease or increase the monetary value stored on the card, when it is inserted in a reading and computing device, through a value transfer to or from a similar stored-value card of another party, or a deposit account. Although experiments with multi-purpose stored-value cards are under way, they do not yet account for any noticeable volume or value of payments.
Some simple examples of payments processes are presented below. Please note, that these processes vary significantly from one country to another and by the type of system described.

Cash Payments
In a simple cash transaction, the payor obtains cash through a debit on the deposit at its bank, makes the payment, and the payee deposits the cash to obtain a credit on its deposit at its bank. The most notable features of a cash payment are that settlement is immediate upon transfer of the cash instrument and that none of the parties are subject to financial risks. There are, however, security risks involved.

Cheque Payments
In a domestic cheque payment the banks involved are clearers. This process is clearly more complex than a cash payment. Most notably, net settlement is deferred until the end of the clearing and settlement cycle; the payee receives only provisional credit for the cheque deposit; and intraday credit is implicitly provided without limit by direct clearing members in a net credit position on their net settlement balances to those members in a net debit position. Also, messaging services are provided through the cheque transfer process and electronically through the ACH.

Credit Transfers
In contrast to other payment alternatives such as, e.g. direct debits, in a credit transfer the transaction is initiated (either electronically or via the delivery of a paper at a bank’s branch) by the ordering party who so pushes a payment from her deposit account. This way, it’s the payor who is exercising control over the account as well as over the timing of the final payment. Prior to the actual execution of a payment instruction on a given date, the payor’s bank has to carry out a number of validations including a compliance check with regulatory obligations (e.g., AML) as well as with

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**Credit Transfers (Basic Model)**

![Credit Transfers Diagram](image-url)
additional requirements set forth by the payor’s bank. Among those, the bank of the instructing party needs to make sure that its customer has appropriate financial coverage for the payment to happen, i.e. that sufficient funds are available in the customer’s account or that she is granted a credit to honor this obligation. In such a case, the order is debited on her account and the ordering bank can start the exchange of payment-related information with the bank of the beneficiary or any of its intermediaries. An interbank clearing and settlement between the different parties involved in the transaction will then follow over the agreed payment infrastructure, very much in the same fashion as is the case for cheques or direct debits. The transaction is said to be completed once the receiving bank has finally credited the above amounts on the beneficiary’s account. Particular developments/adaptations of the former, more general model are to be found in many countries in order to cater for the special needs of the various underlying commercial and/or financial transactions. One well-known example is the so-called direct credits which are typically used by employers to automate their payment of salaries or wages.

**Direct Debit Transfers**

The payment process for direct debit transfers such as pre-authorized bill payments is somewhat different than that for cheques with respect to the information flow. Pre authorized debits, recorded individually on magnetic tape, are entered into the system by the payee’s institution on the morning of day T. The originating tapes were delivered by the payee to its institution at an authorized ‘automated funds transfer’ point according to a predetermined lead-time for settlement. The tapes are delivered to the processing centre of the payee’s direct clearer at a regional settlement point and

![Diagram of Direct Debit Transfers (Basic Model)](image-url)
are exchanged bilaterally among directclearers in order for the payor’s bank to confirm the payment item and verify that the payor has sufficient funds in its account to cover the payment. From this point on, the process is similar to that for a cheque payment, with the payee’s direct clearer entering the payments online as debit items into the ACH for settlement. Figure 5 illustrates the payment flow.

Direct Debit Transfers (Basic Model)

Card Payments
The payment process for credit card transactions can be broken down into two stages: an authorization stage and a clearing and settlement stage. The authorization stage is typically an on-line (could be also off-line) process where the merchant (payee) seeks to get approval for the financial transaction underlying the commercial purchase. The merchant initiates the authorization process electronically through the point-of-sale device provided by its deposit-taking institution (the acquiring institution). The merchant’s identity is verified by its institution and the authorization request is routed to the issuing institution or to a delegated authorization platform (sometimes, the credit card association) over a communications network.

The former can happen via a centralized international authorization facility or, alternatively, it may take place over a proprietary or leased network in a given country. Data included in the authorization request are: the card number, the expiration date, merchant ID, name, location and type, acquirer and issuer ID, the transaction amount, currency, time and date as well as various security-related information (such as the billing address or the CVV in case of non-present transactions). As part of the authorization process the validity of the card is confirmed and, furthermore, a blacklist check is also performed in order to help prevent fraud.

The actual authorization and the data capture services and message connections via various communication networks are termed front-end processing services.

Once the card validation has been completed, the request for authorization is further channeled to an electronic bookkeeping system (usually, under the control of the issuer) for final approval or declination. At this point, the deposit-taking institution issuing the card ensures that the cardholder (payor) has sufficient credit under its limit to meet the payment obligation. If declined, both the payor (cardholder) and the payee (merchant) are informed about the outcome and asked to try a different payment method instead.

When approved, the merchant will be clear to re-present the transaction in order to receive the payment. This usually follows via the so-called Merchant Balancing or Batching Out step: a process of totaling the transactions and balances by card type and transmitting them to the Front-End Processor. The former actor matches the authorization data to the settlement data and finally transmits the card capture file to a Back-End Processor: i.e. the Front-End Processor’s counterparty on the issuing side.

Clearing and settlement occur after a number of compliance checks and risk management procedures have been completed. A payments platform such as Visa or MasterCard (or a similar arrangement) is typically involved at this stage which implies the sorting out of transactions, the completion of adjustments based on fees and deductions (e.g. chargebacks), the netting of bilateral positions and a final transmission of the resulting balances for settlement. Netted items will further be posted on the accounts held by the respective issuing/acquiring parties with a central bank or commercial banks. This phase where the delivery of financial accounting services for acquirers and issuers takes place as well as the preparation and submission

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70 Sometimes this procedure takes place in a decentralized manner (e.g. on-us transactions) and also sometimes these facilities are locally-based and run.
of clearing and settlement data into the interchange networks is known as back-end processing.

As regards final users, the payment is debited to the open-to-buy balance on the cardholder's credit account at its institution and the merchant's deposit account is then credited according to the defined scheduled as contractually agreed between the merchant and its deposit-taking institution. Debiting and crediting of final customers depends on business decisions taken by their respective institutions and are influence, among other factors, by the size of the parties and the bargaining power.

The overall authorization, clearing and settlement cycle for a debit card payment is not substantially different from that of a credit card purchases. Similar networks are being used for message circulation though, in some countries, off-line debit payments do rather rely on credit card’s POS infrastructure whilst on-line debits are operated on the ATM network. When an on-line debit card is presented at a POS, the authentication of the customer will follow over the PIN number. The amount of the sale is typically posted to the cardholder’s bank account at the time of sale. Moreover, for those cards, customers may also receive cash at the POS (where legislation so allows) because messaging between the financial institution and the retailer confirms funds availability. Conversely, an off-line debit transaction will require a customer's signature and will usually not be debited immediately, but within the same 2-3 day window as a credit card transaction. In a large number of countries, a vast array of debit card products has been developed locally. Thus, a significant share of the market is still in the hands of domestic card organizations which provide both a scheme and an underlying proprietary processing infrastructure. Sometimes, these local schemes are found not to be compatible with other competitors operating on an international scale.

Stored-Value Cards and E-Money Payments

According to the European Central Bank, e-money can be “broadly defined as an electronic store of monetary value on a technical device that may be widely used
for making payments to undertakings other than the issuer without necessarily involving bank accounts in the transactions, but acting as a prepaid bearer instrument.71

Thus electronic money has virtually the same features as a cash payment but with the addition of operating, legal, and possibly settlement risks. E-money instruments have been traditionally separated into card-based products (also known as multi-purpose cards or “e-purses”) and software-based products, and in both cases a record of funds available to the legitimate owner of the instrument exists in an electronic device.

Card-based products, as the BIS explains,72 facilitate small-value face-to-face retail payments and so play the role of a substitute for banknotes and coins. Network-based products are also designed to facilitate small-value payments via telecommunication networks, and may replace other types of cards for making micro payments on open networks. Although the card’s user is not required to enter any personal identification number to make a payment, the card terminal, which is provided by the merchant’s deposit-taking institution, does verify that the card meets the criteria for acceptance and has available funds for the transaction.

Under some e-money schemes, the value is transferred from the payor’s card to the merchant’s (payee’s) terminal at the time of the transaction and credited to the payee’s account at its deposit-taking institution during the clearing and settlement cycle of the day that the value on the terminal is downloaded into the account. When the card is ‘loaded’ by the holder from its deposit account, its deposit-taking institution debits its account for the full value of the transfer and holds the proceeds as part of a suspense account for the outstanding amount of e-money balances issued. The suspense account is debited in the daily clearing and settlement cycle in which the merchant downloads the value on its terminal into its deposit account.

However, not all e-money schemes operate in exactly the same fashion. In some cases, e-money products have been reported to allow value to be transferred directly from the smart card of one individual to that of another individual without processing the transfer through a financial institution. In addition, e-money products feature the same security risks for the holder as in the case of cash, namely the prospect of loss, theft or counterfeit of the card. Nevertheless, in schemes where accounting for individual transactions is available to cardholders, some security risks for cardholders in the event of lost or stolen cards may be reduced. Finally, unlike cash, the prospect of operational failures in relation to e-money products can impose additional risks on a cardholder.

From a regulatory point of view, issuance and operation of e-money products fall under some sort of legal framework in most regions of the world. However, the contents of said provisions show a high degree of heterogeneity, thus unequally addressing aspects such as the obligation to apply for a special license73, the subordination to prudential supervision and/or oversight as well as the compulsory nature of anti-money laundering laws and best practices.

71 See ECB’s Report on Electronic Money (1998). In purely electronic cash instruments, units of value are transferred between the chip on the card and the merchant’s terminal in different steps. First both the card and the terminal identify themselves to each other. If the validation is successfully completed, the amount of the purchase is then deducted from the card, encrypted together with the receiving chip’s identifier (the terminal does also feature a chip), and lastly transmitted to the merchant’s device. The acquiring terminal decrypts the transmission, adds value to its store and acknowledges the transfer.


73 Take, e.g. the case of Paypal. Under EU laws the company was initially designated as an electronic money institution by the U.K. Financial Services Authority back in 2002. Years after, the same company successfully applied for a regular banking license subject of supervision by the Commission de Surveillance du Secteur Financier in Luxembourg. In the U.S., depending on the jurisdiction it operates, Paypal features different types of licenses (e.g. money transmitter). For more information, see https://investor.shareholder.com/paypal/state_licenses.cfm
CARD-BASED E-MONEY PAYMENT¹

¹ The following diagram draws heavily on the functional architecture of the Mondex International e-cash product. Formally, the Mondex e-purse falls into the category of non-accounted pre-payment systems, which implies that no central record of the remaining balance on the card exists. Value is typically stored on the integrated circuit chip on the card and so it circulates from one chip to another with no need for a centralized clearing and settlement. Other structural arrangements (with recourse to a remote server) have also been developed such as the Visa Cash e-purse. For a detailed explanation of the various models and features of e-money products see Srivastava and Mansell (1998).
### APPENDIX III: RECENT FINANCIAL SECTOR INQUIRIES ABOUT RETAIL PAYMENTS SYSTEMS

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<tr>
<th>Country – Institution</th>
<th>Year</th>
<th>Mandate</th>
<th>Approach</th>
<th>Main Findings</th>
<th>Conclusions / Proposed Remedies</th>
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<tr>
<td>Australia – Treasury (Wal- lis report)</td>
<td>1996-97</td>
<td>Analyze forces driving change in the financial system and recommend ways to improve current regulatory arrangements</td>
<td>• Identify forces driving change in the financial system and discuss their effect&lt;br&gt;• International comparisons of financial system performance&lt;br&gt;• Market research on financial consumer behavior of Australians</td>
<td>• Electronic channels for payments and financial services delivery are increasingly taking advantage of networks&lt;br&gt;• There is considerable potential for increased efficiency in the payments system, especially from substituting electronic forms of clearing and settlement for cheques&lt;br&gt;• Increased contestability in the payments system is possible without jeopardizing systemic stability&lt;br&gt;• As participant in, and regulator of, the payments system, the Reserve Bank of Australia (RBA) has a number of potentially conflicting roles&lt;br&gt;• The Australian Payments System Council (APSC) does not have sufficient authority to set performance benchmarks for the payments system, while continued reliance on cooperative arrangements may impede overall efficiency&lt;br&gt;• Concerns have been raised about the size of interchange fees and about the terms of access to electronic networks for all industry participants&lt;br&gt;• Rules of international credit card associations are non-transparent and may restrict membership to non-banks&lt;br&gt;• Existing rules preclude providers of payments processing services from acting as direct clearing in payments systems, even though the risks can be managed if appropriate and transparent operational standards are set&lt;br&gt;• There is scope for liberalizing access to settlement arrangements subject to objective and transparent prudential and operational criteria</td>
<td>• The RBA should remain the regulatory authority in charge of the payments system, but with a separate subsidiary board (Payments System Board or PSB) to oversee this function&lt;br&gt;• PSB would have some common membership with the parent board of the RBA, but it would make decisions independently&lt;br&gt;• The APSC should be disbanded and replaced by the PSB, while its consumer protection responsibilities should be transferred to the Corporations and Financial Services Commission&lt;br&gt;• The RBA should be empowered to set regulatory standards and issue approvals for the payments system&lt;br&gt;• Any commercial provision of payments clearing services by the RBA should be separated from the regulatory function and be subject to transparent reporting arrangements&lt;br&gt;• Interchange arrangements and credit card activities should be reviewed by the PSB and the Australian Competition and Consumer Commission&lt;br&gt;• Access to clearing systems and (subject to appropriate conditions) settlement accounts with the RBA should be liberalized on the basis of objective criteria subject to approval by the PSB&lt;br&gt;• Stores of value payment instruments should be subject to regulation</td>
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<td>Country – Institution</td>
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<tr>
<td>Australia – Reserve</td>
<td>1999-2000</td>
<td>Study of interchange fees and access to debit and credit card schemes in</td>
<td>Detailed data collection of costs and revenues (including interchange fees) from payment card participants</td>
<td>Because ATM interchange fees are directly passed on by card issuers to their cardholders whenever they use another institution’s ATM, card issuers have no clear incentives to negotiate lower interchange fees</td>
<td>The interests of end-users of card payment services need to be more directly engaged in the pricing process. Conditions of entry to card payments networks need to be more open than at present. Measures taken subsequently: Elimination of 'no surcharge' and 'honor all cards' rules on merchants. Establishment of an objective and transparent cost-based benchmark ('standard') for the calculation of interchange fees for both debit and credit cards. Establishment of transparent access regime under which the card schemes are not permitted to discriminate against potential new entrants based on whether they are deposit-taking institutions or whether they are only an issuer (or acquirer) of credit cards. Greater disclosure on interchange fees and access criteria.</td>
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<tr>
<td>Bank of Australia and</td>
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<td>Consultation with industry players on interchange fees and conditions of access for new participants</td>
<td>Cost-based methodologies suggest that interchange fees should be much lower than current levels. 'No surcharge' rules are undesirable because they suppress important signals to end-users about the costs of the credit card network</td>
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<td>Australian Competition</td>
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<td>Analysis of the economic efficiency of card networks</td>
<td>Access restrictions for international credit card schemes (especially in card acquiring) lack transparency and objectivity, and cannot be justified</td>
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<td>and Consumer</td>
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<td>No convincing case for an interchange fee in the debit card payment network in Australia where, unlike other countries, payment is made to the acquirer and not to the card issuer. Competitive pressures in card payment networks have not been sufficiently strong to bring interchange fees into line with costs. Incentives structure has encouraged the growth of the credit card network at the expense of other payment instruments, particularly debit cards and direct debits, that consumer fewer resources; as a result, Australia has a higher cost retail payments system than necessary, and much of this is borne by consumers who do not use credit cards.</td>
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<td>Commission</td>
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<td>In general, payment card issuing is more profitable than acquiring, and this is magnified by the size of interchange fees. In general, credit card issuing is profitable even when interchange fees are excluded</td>
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<td>European Commission (EC)</td>
<td>2005-07</td>
<td>Competition in retail banking, including SMEs, focusing on:</td>
<td>Market surveys of banks and information from other relevant</td>
<td>Fragmented infrastructures and different market structures (including degree of vertical integration) along national lines. High concentration in payment cards acquiring, but not in cards issuing. In general, payment card issuing is more profitable than acquiring, and this is magnified by the size of interchange fees</td>
<td>Antitrust enforcement on access barriers, discriminatory rules, fee structures and governance arrangements in some payment card networks and clearing and settlement systems, high interchange fees and merchant fees in some payment card networks. More information is required on cooperative arrangements between savings and/or cooperative banks that have significant market positions. Regulatory and self-regulatory measures, such as the establishment of a pro-competitive Single Euro Payments Area (SEPA) and new EC Directives, can address other competition barriers such as access restrictions to payment systems and infrastructures based on institutional status, as well as restrictive rules for payment card networks that limit choice to retailers of a supplier for acquiring services.</td>
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<td>current accounts and related services, payment cards and payment systems</td>
<td>Description of market structure and estimation of revenues, costs and profitability by market segment across EU countries</td>
<td>In general, credit card issuing is profitable even when interchange fees are excluded</td>
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<td>Public discussion and consultation of interim reports</td>
<td>Signiﬁcant competition issues in the payment cards market (high variation in card fees, structural barriers, access and governance arrangements, network rules and membership fees, preferential bilateral fee agreements, access to clearing and settlement systems)</td>
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<td>Entry barriers stem from network and standardization requirements, and from regulatory policies and market behavior due to cooperative arrangements</td>
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<td>Ireland</td>
<td>The Competition Authority</td>
<td>2005</td>
<td>Competition in the (non-investment) banking sector, especially in:</td>
<td>Appointment of consultants (LECG) to write report on market characteristics and problems</td>
<td>The structure of the payment clearing system (governing structure, information disclosure, access rules, application procedures, web of bilateral arrangements between individual banks) has inhibited new banks offering services</td>
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<td>personal current accounts</td>
<td>Consultation with, and documentation collected from, industry players</td>
<td>Ireland's continued high reliance on paper transactions (such as cheques) means that new banks need to invest in expensive paper sorting technology that raises costs</td>
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<td>lending to SMEs</td>
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<td>Developments in the Irish payments model will be influenced by changes in the wider European system (SEPA)</td>
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<td>the payments clearing system</td>
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<td>The present structure of the ATM network does not raise competition concerns</td>
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<td>Netherlands</td>
<td>DNB (Wellink report)</td>
<td>2002</td>
<td>Tariff structures and infrastructure in retail non-cash payments</td>
<td>Analysis of the Dutch payments market (products, tariff structures) and international comparisons</td>
<td>Payments market is characterized by efficient infrastructure, but it is dominated by a few large banks and a single interbank processing institution (Interpay)</td>
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<td>for individuals and business users</td>
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<td>No explicit (but some hidden) transaction charges for payment services to consumers, while business customers pay explicit (and sometimes complex) transaction charges</td>
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<td>Tariffs compare favorably to other countries</td>
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<td>Consumer cost of using payment products is largely unrelated to actual use of payment services, although (for other reasons) consumers are already using such products efficiently</td>
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<td>Interpay's special position raises concerns about tariff setting and access conditions</td>
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<td>Lack of clarity about division of labor between Interpay and the banks in debit card use</td>
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| South Africa – National Treasury and South Africa Reserve Bank (Falkena report) | 2004 | Competition in the banking industry, especially retail banking (including SMEs) | • Review of recent literature on competition issues in banking  
• Comparison of domestic banking industry with international peers  
• Analysis of concentration and economics by market segment  
• Examination of structure, ownership and competition in the payments system | • Dominance of big banks in the payments system, related to concentrated deposits market  
• Entry restrictions and payment processing procedures (including mutual governance arrangements) undermine competition, especially in serving low-income individuals  
• A big challenge is to develop the payments system so that it caters for the previously unbanked sector of society | • Improved disclosure requirements on banking services  
• Extend interoperability and transparency of access requirements to payments system  
• Promote competition by allowing second/third-tier banks and entry of foreign banks  
• Consider implementing narrow e-money directive enabling electronic transmission facilities by non-banks  
• Competition Commission should investigate possibility of complex monopoly in operation of payments system  
• Government should prohibit a payment processing mechanism that results in favoring any institution  
• Bank and payment regulators should be required to consider the competitive impact of their regulation |
| South Africa – Competition Commission | On-going (2007) | Aspects of competition in retail banking and the national payment system | • Analysis of the national payment system (structure, evolution, regulation, participation and access, technical description, and economics)  
• International comparison of various aspects of national payments systems, including costs, fees and regulation | Findings to-date:  
• The domestic national payment system is highly efficient and sound, but not necessarily fair to consumers  
• Revenue earned directly from payment system activity (mostly from big banks) amounted to over 2 percent of GDP while the banking industry earns 38 percent of its revenue from payment system-related fees  
• There is little apparent link between the costs directly attributable to making a transaction and the fee the customer is charged by the bank  
• There is a wide area of payment activity that remains unregulated, including IT and most pricing arrangements  
• Absence of market conduct regulation in the national payment system  
• Distribution of income from payment activities appears to be influenced by ownership of acquiring infrastructure, as in the case of the mutually-owned dominant retail payment system operator (Bankserv)  
• Different access considerations for small, international or mutual banks and for non-banks | Not yet completed |
| Sweden – Swedish Competition Authority | 2006 | Terms of access to payment systems for banks | • Bank surveys on cost of access to payment systems infrastructure  
• International comparisons | • Smaller banks have a cost disadvantage in giro transfers, direct account transfers and especially cash withdrawals (access to ATMs), but not in card issuing  
• Differences in fee levels paid by banks of different size appear to limit establishment of further ATMs  
• ‘Infrastructure clubs’, such as Bangirot, create potential conflicts of interest due to mutual governance structure  
• In contrast to other network industries, there are no rules relating to the pricing of payment system infrastructure  
• Customer switching across banks is currently limited, costly and complex, especially for individuals | • Commercial management of the payment system infrastructure should be separated  
• Rules should be developed to ensure terms of access to payment systems are objective, proportional and non-discriminatory  
• Government should introduce measures making it easier for consumers to switch across banks, including via changes to the payments systems |
<table>
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<th>Country – Institution</th>
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<th>Approach</th>
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</table>
| UK – Treasury (Cruickshank report) | 1999-2000 | Examine levels of innovation, competition and efficiency in UK banking industry, focusing on:  
- Money transmission (payment systems)  
- Services to personal customers (including supply of cash via ATM networks)  
- Services to SMEs |  
- Data collection from suppliers, banks, consumer surveys and previous published research (including international comparisons)  
- Analysis of market structure and economics of various retail payments schemes  
- Estimation of ‘excess’ risk-adjusted investor returns and accounting ROE by banks |  
- Concentrated (and unregulated) market structure and mutual governance model create artificial and discriminatory barriers to network access, lack of price transparency and of effective competition across payment schemes, high cost to retailers for card use (interchange fees), slow clearing cycles, excessive charges (e.g. ATMs), and a cumbersome payment system that stifles innovation  
- Affects competition in “related markets” (e.g. current accounts)  
- Ineffective (competition law) framework for government intervention  
- Lack of competition attributed to network effects that cannot be resolved solely by the “dynamics of the marketplace” |  
- Introduce new policy framework to increase transparency in banking supervision, get institutional incentives right, deliver effective competition scrutiny, and eliminate regulatory distortions  
- Set up independent payment systems commission to supervise licensing regime  
- Government should avoid creating regulatory distortions that unnecessarily stifle competition by restricting access to payments systems  
- Government should act as intelligent consumer of payment services  
Measure taken subsequently:  
- Office of Fair Trading (OFT) undertook updated market study of clearing systems and review of plastic card networks in 2003  
- Starting in November 2003, OFT was given enhanced role in payment systems for a period of four years  
- Establishment of Payments Systems Task Force in 2004, chaired by the OFT, to focus mainly (but not exclusively) on the issues raised by the Cruickshank report, including whether the subsequent self-regulatory reforms by the industry have been sufficient  
- 2006 Competition Commission inquiry into store cards, in response to OFT referral, confirms competition problems and proposes remedies |
| USA – Federal Reserve (Rivlin committee) | 1997-1998 | Role played by Federal Reserve (“Fed”) in payment services to depository institutions, especially in certain retail payments services (cheque collection, ACH services, payment cards) |  
- Input of Fed personnel  
- Input from other payments system participants via a series of forums |  
- The Fed plays a major role in the (primarily local) market for cheque collection services, especially for smaller depository institutions  
- Per its pricing and cost recovery principles, the Fed does not subsidize cheque collection services  
- It is unclear whether the cheque collection process should be made more electronic via electronic cheque presentment and truncation  
- The Fed plays a major role in the (primarily national) market for ACH transactions  
- Potential growth of ACH is hampered by several constraints (e.g. lack of flexibility and accessibility, complexity etc.) |  
- The Fed should remain a provider of both cheque collection and ACH services with the explicit goal of enhancing the efficiency, effectiveness and convenience of both systems, while ensuring access for all depository institutions  
- The Fed should play a more active role, working closely and collaboratively with users and providers of the payments system, both to enhance the efficiency of cheque and ACH services and to help evolve strategies for moving to the next generation of payment instruments (e.g. legal infrastructure, standards, consumer education etc.) |

Note: Only those inquiries and those sections of them relevant for retail payments


Federal Reserve System (2002). Retail payments research project. F. R. System.


I. BALANCING COOPERATION AND COMPETITION IN RETAIL PAYMENTS SYSTEMS


World Bank and International Monetary Fund (2002). “Financial Sector Assessment Program: Experience with the assessment of systemically important payment systems”
COOPERATION VERSUS
COMPETITION IN ARGENTINA’S
AUTOMATED CLEARING
HOUSE (ACH) MARKET

BY SERGIO GORJÓN, MARIO GUADAMILLAS,
MASSIMO CIRASINO, AND VICTORIA VANASCO*

Abstract: The objective of this paper is to analyze cooperation and competition issues in Argentina’s Automated Clearinghouse Market (ACH). Argentina is characterized by the co-existence of four distinct ACH platforms with, in theory, overlapping markets. In addition, the RTGS system played a role in the context of small-value payments during the crisis. This latter aspect along with historical reasons, non-trivial switch costs and widespread uncertainty about the real size of scale effects is found to explain the relatively low level of direct competition between the various ACH platforms; a circumstance that is further enhanced by the remarkable absence of a well-founded and sound oversight framework. The authors discuss the implications of these findings, and conclude with the identification and brief elaboration of some potential policy options to reform this market.

Keywords: Argentina, retail payment systems, automated clearing house, competition, oversight.

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* Sergio Gornón (sgornotivas@worldbank.org) is a Financial Sector Specialist in the World Bank’s Latin America and the Caribbean Region on secondment from the Bank of Spain. Mario Guadamillas (mguadamillas@worldbank.org) is a Senior Financial Economist in the World Bank’s Latin America and the Caribbean Region. Massimo Cirasino (mcirasino@worldbank.org) is a Lead Financial Sector Specialist in the World Bank’s Financial and Private Sector Development Vice Presidency and Head of the Payment Systems Development Group. Victoria Vanasco is a Junior Professional Associate in the World Bank’s Latin America and the Caribbean Region. This paper forms part of a broader project on cooperation and competition issues in retail payments systems in the Latin America and the Caribbean Region. The authors are thankful to the BCRA team coordinated by Dr. Raúl O. Planes (Subgerente General de Medios de Pago from May 2008, BCRA) (Dr. Guillermo Alejandro Zuccolo, Subgerente General de Medios de Pago until May 2008, BCRA) and Lic. Julio César Pando (Gerente de Sistemas de Pago, BCRA) that included Mr. Juan Carlos Navas (Subgerente de Administración de Sistemas de Pago, BCRA), Mr. José Luis Nicolucci (Secretario Ejecutivo de Campara, BCRA), Ms. María Isabel Negueruela (Jefe de Sistemas de Pago, BCRA).
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I. INTRODUCTION AND CONCEPTUAL FRAMEWORK

This document is part of a broader program between the Banco Central de República Argentina (BCRA) and the World Bank (WB) that collaborate since 2006 on a broad range of financial sector technical issues closely related to access to financial services and capital market development, among them financial infrastructure development (e.g., payments systems). As part of this collaborative program a WB team visited Buenos Aires in September 2007 to review the existent legal framework and current arrangements for the oversight function. As part of the oversight arrangements over retail payment systems the team analyzed in detail issues related to cooperation and competition issues in retail payments: in particular, as regards ACH services, the purpose of this paper. This market, which forms the core of the retail payment infrastructure in most countries, is still relatively unexplored in spite of its unequivocal significance at many levels. The present paper, which is the result of a joint effort between the World Bank and the BCRA, aims to address this topic from the viewpoint of a policy-maker, further describing key practical issues that act as a hurdle for the attainment of public policy goals and which, moreover, do typically have a final bearing on the choice of the ultimate strategic policy actions to be put in place.

This report is further connected with the overall study on cooperation and competition in retail payment systems in selected Latin American countries which has taken place under the leadership of the World Bank. The starting point for this study is the apparent trade-off between cooperation and competition in retail payment systems, traditionally characterized as ‘upstream cooperation combined with downstream competition’. While competition among payment service providers has been commonly seen as an important contributor to efficiency, there is a need for cooperation in building infrastructures and in defining and implementing standards due to the specific characteristics of the payments industry – namely, the existence of economies of scale (significant fixed costs), scope (potential for sharing infrastructures across instruments and clients) and networks (positive externalities from participation). However, cooperation among participants can lead to collusive practices that hurt efficiency, innovation and access. Neither the academic or empirical literature nor standard-setting efforts to-date provide clear answers as to the appropriate balance between the two forces that would lead to the most socially desirable outcome. Much depends on specific industry characteristics and external environmental factors, such as the historical evolution, the institutional set-up and the regulatory and oversight framework, which influence governance, access and pricing considerations. The lack of sufficient publicly available data and the fact that cross-subsidization across payment instruments and other products often takes place, further complicate the analysis of the economics of these systems and the determination of the appropriate regulatory balance.

Some institutional structure changes in the retail payment systems arrangements in Argentina may achieve efficiency gains in the systems’ design and operation. The market is characterized by the co-existence of four distinct ACH platforms with overlapping markets and by a role by the RTGS system in the context of small-value payments during the crisis. Following BCRA regulation an implicit specialization of the various platforms took place, thus catering for the needs of specific market segments. In addition, the practical execution

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74 The team included Massimo Cirasino, Mario Guadamillas and Victoria Vanaesco, all World Bank.
75 Retail payment systems in general are said to be relevant for overseers too for a number of factors: most notably, because of their importance for the overall efficiency of the payment system, their potential impact on the public trust in money and its relevance to sustain the ultimate objective of economic growth.
76 The study comprises an overview and policy paper and four country case studies (Argentina, Brazil, Colombia, Mexico) that address competition versus cooperation issues in different retail payment systems and instruments.
77 See Kemppainen (2003) for an overview.
78 See Guadamillas, Stephanou and Gorjón (2008) for an analysis of these issues.
of the oversight function is further obscured by a weak regulatory foundation of the former role—as defined by the legal statute of the central bank—and by the lack of a specialized unit entirely devoted to payment policy issues. In fact, to this date, several departments are in charge of covering different aspects of payment systems oversight such as the Subgerencia General de Medios de Pago, the Gerencia de Sistemas de Pago, the Gerencia de Cuentas Corrientes, the Gerencia de Control de Sistemas de Compensación and the Gerencia de Auditoría Externa de Sistemas. Effective coordination among them is currently left to an informal and non-regular exchange of unstructured information. There have been very successful coordination efforts (e.g. CIMPRA) but with a limited scope.

In addition to providing an overview on the main payment instruments and infrastructures in Argentina (section II), the paper is organized as follows:

• Discussion of stylized facts about the ACH market, focusing particularly on demand and supply-side factors affecting the former such as clients, service offering, operating standards, pricing policy and governance arrangements (section III).
• Review of the key issues and challenges stemming from the stylized facts (section IV).
• Identification and brief elaboration of potential policy options in the ACH market, including pros/cons and likely implications (section V).

Appendix I describes in detail the structure of the banker’s associations in Argentina. Also the annex at the end of this book further provides a table which summarizes the structure and characteristics of the ACH markets in selected countries.

2 PAYMENT INSTRUMENTS AND INFRASTRUCTURES

2.1 RETAIL PAYMENT INSTRUMENTS

To date, cash is the most popular payment instrument in Argentina (see figure 1). In 2006, cash in circulation was Ar$49,644 million on average (i.e. about 7.6 percent of the country’s GDP). In the first 11 months of 2007 this figure has increased, peaking at Ar$61,655 on average (i.e. around 9.4 percent of GDP). About 67 percent of said amount was in hands of the public, and this percentage has remained stable for the last three years. The holdings of US dollars in Argentina are no longer significant as a result of the 2001-2002 crisis. Indeed, the latter crisis had a significant upward effect on the cash holdings given the general loss of confidence in the banking system. This situation, however, has been improving in the past few years and financial intermediation is again growing at an accelerated pace. In addition, taxation practices and the fact that the real interest rate on sight deposits has been negative for the past four years have further encouraged the use of cash. Mounting inflation, however, may go against this trend and further prompt financial intermediation as well as a greater development of non-cash payment instruments.

However, several initiatives have been brought up by the government in order to reduce the use of cash. First, there is the National Plan of Work Regularization (Plan Nacional de Regularización del Trabajo) which was prepared and signed in 2003 by the Ministry of Labor, Employment and Social Security. The Plan has established the opening of a savings account

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A tax on financial transactions of 0.6 percent applies to both every single debit and credit book-entry on an account. Only when money is transferred across the accounts of a same customer is this tax exempted. Obviously, cash circulation outside the financial system has augmented significantly as a result of this tax.

The reported inflation rate in Argentina in the year 2006 was 9.8 percent. The annualized figure for the period from January till October 2007 was already 8 percent.
as a requisite when recruiting personnel. As a result, in the last few years a growing number of workers in the formal economy have seen their salaries being paid out directly on their savings accounts. Administration fees on payroll-related accounts have been formally waived, and the deposited funds are typically mobilized with a debit card. This initiative is believed to have helped reduce the amount of cash in circulation, in spite of many workers withdrawing all their balances the same day the crediting takes place. In addition, early in 2007, the Ministry of Economy extended once again a policy measure that has proven extremely successful in promoting the use of cards for commercial purposes: namely, to provide a VAT cash-back to consumers whose purchases are made with a debit card.81

Paper cheques follow cash as the second most used payment instrument in the country. Present trends provide mixed results as to their future evolution. Since 2000 the use of cheques has shown an erratic behavior both in terms of volume and amount. From 2000 to 2006 the volume of cheque transactions decreased significantly (the compound annual growth rate was -11.30 percent). However, this figure has been taking up again ever since (up 6.8 percent per annum). A similar, though less pronounced trend, is also observed in terms of value: i.e. a compound annual growth rate (CAGR) of -3.18 percent in the first four years vs. a larger increase thereafter (14.11 percent CAGR in the next four years). Interestingly, with the exception of 2001, the rate of rejections has declined firmly until 2003. From then on, it has remained stable at a level slightly below 2 percent. On average, the value of cheques processed in 2006 was Ar$4,747 (up 85 percent since 2000). In 1999 cheque truncation was first introduced, in 2005

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81 The measure was first introduced in 2001 and, presently, it consists of a 5 percent cash-back in the case of a debit card purchase. In the past there was also a 3 percent cash-back if a credit card is used.
its geographical range was extended to cover the whole nation, and by the end of 2006 the truncation project was deemed complete (also called *Compensación Federal Uniforme* or C.F.U.). Thus, nowadays all cheques issued in Argentina are truncated and physical exchange of the underlying documents is only then necessary when rejections happen to take place for a limited number of reasons.\(^{82}\) However, for those cheques that exceed a certain amount (presently, Ar$5,000) in addition to the electronic exchange of relevant data, image transmission is further requested.

A system for cheque truncation has been implemented. The *Compensación Federal Uniforme* (*Cámara Federal*) is the electronic clearing of cheques (truncation) adding also the image for items of value over $5,000. This is a system that allows for higher efficiency and lower operational risk for cheques clearing. It is also cost-efficient systems as it allows for the interconnection of the cheque clearing locations around the country into a single session, thus, easing commercial transactions as the accreditation date is independent of the location where the transaction takes place.

The strong demand for cheques is partly driven by the use of post-dated cheques as a credit instrument. Post-dated cheques (*cheques de pago diferido*) are an order of payment for a date subsequent to the date on which the cheque was issued. Their use has surged significantly from 2003 onwards as a result of a very unique feature that was introduced in that year: i.e., under certain circumstances, post-dated cheques can be traded in the Buenos Aires stock exchange. Thus, these payment instruments have become liquid assets and are now perceived as an appealing and affordable credit instrument for SMEs\(^{83}\) (see Figure 3). Along with the former type, customers are further offered ordinary cheques as well as certified ones, the latter of which include a payment guarantee. Moreover, individuals and companies have also access to cashier’s cheques issued by banks and other financial entities. These were originally intended as an alternative payment instrument for those who were not bank clients or who did not hold a current account and/or credit card. A forth category are the so-called “legal tender alike” cheques (*cancelatorio*), which serve as instruments for extinguishing payment obligations.\(^{84}\)

Despite the perennial significance of cheques, the reform of the national payment system has brought about ascertainable changes regarding its nature and structure. Before the payments reform of the mid-90s’, major risk exposures and inefficiencies did arise from an extended use of cheques for large-value payments and their manual processing. However, the redesign of the payments infrastructure and the emergence of additional payment instruments did alter the traditional behavioral patterns of the final users. According to the most recent figures, nowadays about 85 percent of the cheques processed over the COELSA clearinghouse are below Ar$5,000. Similarly, around 90 percent of the cheques channeled through the ACH S.A. are also reportedly under the aforementioned threshold.

Direct debits have been showing an upwards trend in Argentina for the past few years (see Figure 4). The reform process of the national payment system with the launch of an RTGS and the development of several Electronic Clearing Houses (*Cámaras Electrónicas*

\(^{82}\) Basically, whenever it is argued that the cheque was lost, stolen, forged or tampered.

\(^{83}\) Presently, post-dated cheques can be traded in either two modalities. The largest share of the market are the so-called “sponsored” cheques (patrocinados) where it is the authorized company that issues the tradable document and the beneficiary who trades it. “Guaranteed” cheques (avalados) account for a third of the market and for their trading the concourse of a mutual guarantee association is required.

\(^{84}\) The cheque cancelatorio is a payment instrument issued by the BCRA. Following the provisions of its governing regulation, the cheque cancelatorio can replace money in the settlement of a debt (see, Comunicación A 3201).
II. COOPERATION VERSUS COMPETITION IN ARGENTINA’S AUTOMATED CLEARING HOUSE (ACH) MARKET

de Compensación, C.E.C.) has certainly been a major reason for its initial taking up. Lately, acceptance rates seem to have further expanded thanks to some features of this product (e.g. a 30-days rejection period which obviously raises the confidence of users) as well as due to several public initiatives designed to promote the use of this payment instrument. From an operational point of view, originating customers are principally corporates which, again, are further broken down into

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85 For example, in 2005 the Federal Administration of Public Revenues (Administración Federal de Ingresos Públicos) issued a regulation making it mandatory for taxpayers to use direct debits in order to fulfill their obligations in case they wanted to benefit from the newly introduced convenience payment options.
two distinctive categories: high-volume enterprises (i.e. those that enter a significant volume of transactions –100,000 items on average per month– and thus benefit for lower interchange fees –Ar$0.30– and “regular” companies (all the rest, which pay Ar$1). Interchange fees are to flow from the bank of the instructing party (i.e. payee’s bank) to the bank of the payor.

Credit transfers further experienced a similar push as a result of the payment systems reform. Prior to the reorganization of the national payments system in the country, no interbank procedure was in place for instructing credit transfers. Therefore, those types of payments were very limited in scope as they could only be executed between customers of the same bank. Nonetheless, the development of the clearinghouses and the creation of the MEP in the late nineties have clearly helped credit transfers to gain momentum (see Figure 5).

As of now, there are three different types of credit transfers available in Argentina: i.) wage and assimilated payments;\textsuperscript{86} ii) supplier payments; and iii) customer/third party credit transfers. In the first case, two systems coexist: a closed one (i.e. employer and employees have accounts with one same institution)\textsuperscript{87}, and an open one (where the employer and the employee have their accounts in separate banks). Typically, wage-related credit transfers are free of cost for the receiving party and, in some instances, additional monetary benefits may also apply.\textsuperscript{88} Wage-related payments also profit from certain non-monetary advantages such as, e.g., shorter execution times (24H) whenever processed over the C.E.C. Conversely, supplier and customer/third party payments solely operate on the

\textsuperscript{86} Namely, pensions, family allowances and seizure of properties.

\textsuperscript{87} Regulated by BCRA Communication ‘A’ 2590.

\textsuperscript{88} The closed-loop system, for example, further implies that account-holders who are beneficiaries of funds may have access to a cost-free debit card or, alternatively, that they may further withdraw money from an ATM at no cost (unless the monthly transaction limit is exceeded).
basis of an open system. The main difference between both categories of credit transfers lies in the fact that issuing customers/third parties are not required to hold an account, but may initiate the payment in cash. Either way, transactions can be performed at the bank’s teller window, at an ATM, or taking stock of homebanking applications (currently, available from the large banks). Clearing and settlement cycles take normally 24 hours, though some operations make take 48 hours.

The use of payment cards, especially credit cards, is widespread in Argentina. In fact, Argentina presents the most developed market for payment cards in Latin America. Both bank and non-bank cards are issued in Argentina. In addition, to the different international and domestic credit card schemes with a universal or national coverage, several other credit card companies (not necessarily owned by banks) are also active at either the regional or even the municipal level.

In recent years, the use of ATM cards has also increased as a result of the rise in checking and savings accounts. In addition, the variety of services that have been added to the ATMs (deposits, withdrawals, balance inquiry, payment of bills, etc.) has created a demand for cards. Moreover, payroll funds credited directly to a bank account are typically accessed via ATMs. Finally, banks normally create a disincentive for cash withdrawals at the counter by charging an explicit fee for such a service.

Retailer and pre-paid cards are growingly becoming a relevant payment product in Argentina. Some mono or limited purpose pre-paid schemes are active but no multi-purpose pre-paid cards circulate in the country. The main players in the retailer cards market are the large appliances stores such as Falabella, Fravega, and Megatone. Clients have easy access to their credit card products and further enjoy significant discounts and other benefits. Most of these stores have their own fi-

**FIGURE 5: CREDIT TRANSFERS—EVOLUTION OF VOLUME AND VALUE CLEARED (BOTH COELSA AND ACH)**

Source: BCRA (2008)
nancial entity or are associated with one. They are not supervised by the BCRA, however, since they do not take deposits. As for the pre-paid cards, the main players are the cell-phone companies (e.g. Movistar, CTI, Personal) which offer pre-paid cards for their cell-phone lines, and Metrovías: the metro company which also offers pre-paid cards to be used in their transportation network.

Moreover, in spite of not offering account facilities, the Postal Administration (Correo, S.A.) is also actively involved in the management of its own payment transactions: i) postal money orders and ii) recurrent payments. The postal money orders are similar to cheque instruments. Typically, a sender goes to the post office and initiates the transfer of funds by first making a cash payment over the counter or, alternatively, by delivering a bank cheque. The post office then issues a cheque-like document which is further sent to the receiver either immediately (if the payment was done in cash) or at a later stage, once the original cheque has been cleared. The receiver has then the option of presenting the cheque for settlement either at the premises of the post office or at a bank’s branch. In the latter case, the cheque is cleared in the clearinghouses as if it were another bank-issued cheque. This is possible since the Postal Administration is also an accountholder with the BCRA. The Correo also operates in the payment system via one of the electronic clearinghouses (COELSA), but volumes so processed are negligible.

The Correo is used extensively for recurrent payments (utilities, tax duties, etc.). The network for these payments, named SEPSA (Servicios Electrónicos de Pago S.A.), is managed by an external company and operates with bar code instruments. Payments are received at the Post Office only in cash and are transmitted on the following day to SEPSA, which distributes them to the final beneficiary. The system manages millions of operations per month.

2.2 RETAIL PAYMENT INFRASTRUCTURES

In trying to overhaul the Argentinean interbank settlement circuit, a series of nation-wide payment platforms were created. Among them, two “low-value” and two “large-value” clearinghouses were authorized. Unlike some other countries, in Argentina the distinction between large and low-value systems is mainly based on the length of the interbank clearing and settlement cycle. Thus, the term large-value is used only to define those infrastructures where settlement occurs within 24 hours. Conversely, longer processing cycles are typically associated with low value-type transactions. Moreover, in line with international experience, retail payment systems in Argentina were further reviewed to ensure a greater involvement of the private sector in the direct management of these infrastructures.

Thus, since 1997 payment service providers can choose to channel “their low-value” transactions either through the ACH S.A. or the Compensadora Electrónica S.A. (COELSA). In the present market structure, clearinghouses are privately-owned companies whose business is to provide clearing services for a set of payment instruments previously and jointly agreed by the industry (e.g. cheques, direct debits, etc.). Clearinghouses have to be authorized by the BCRA prior to starting their operations, and they are expected to compete against each other for attracting payment service providers. In October 2007, a total of 21 banks, mainly located in the area of Buenos Aires, both owned and used the services of COELSA. An additional 17 banks did further participate in the clearinghouse but did not hold stakes in the company. On the other hand, as of the same date, some 24 banks, mainly outside the Buenos Aires region, were stakeholders of ACH S.A..

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89 To be authorized, a prospective infrastructure provider has to meet several criteria set forth by the BCRA. At least four aspects are analyzed: operational capability and reliability, soundness and appropriateness of the telecommunication infrastructure and availability of contingency plans. Once the test is successfully passed, infrastructures become part of the so-called network of automated clearinghouses (C.E.C.)
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However, “large-value” clearinghouses may further play a role in the execution of retail payments. In the absence of a formal threshold for discriminating payments among alternative payment platforms both, Interbanking and Provincanje (commonly referred to as a large-value clearinghouses) have also the potential to accept payments of a small size. The opposite is also true. In fact, there is some anecdotal evidence that some of the so-called low-value clearinghouses do actually process individual transactions in the same magnitude as those of Interbanking.

Interestingly, large-value clearinghouses further offer additional services somewhat unrelated to the clearing and settlement of payments. Interbanking S.A., for example, is a private sector for-profit company that basically provides potential customers with: i) cash management solutions (corporate/SME clients), and ii) large-value clearinghouse services. Currently, the company is owned by 10 out of its 36 member bank. It officially started operations in 1997 after a series of mergers and an in-depth redesign. As a clearinghouse, the CCI (Cámara de Compensación de Interbanking) provides multilateral netting services to banks settling their money payments, as well as electronic funds transfer services to private firms for inter-company payments. Interbanking thus combines a Value Transfer Network and a Large-Value Net Settlement Clearing House service. Therefore, the system has become a niche player in the market so providing the financial and business community with a private sector complement to the central bank managed RTGS system.

Provincanje has also been providing processing services to the financial sector along with running a central bank-designated large-value clearinghouse. As a clearinghouse provider, Provincanje ensures the real-time and guaranteed transfer of funds between banks participating in their own network (Red Intranet Provincanje). In addition, Provincanje further allows banks to outsource a number of their back- and front-office operations such as, e.g. the transmission of payment-related data to/from the retail clearinghouses or helpdesk services. Last but not least, Provincanje supplies the banking sector with an overarching electronic network to efficiently perform a number of day-to-day retail banking transactions such as collection services for cheques, insurance premiums, bills or taxes as well as payroll payment. As of 2007, Provincanje’s services were offered to a large client community that comprised banks, public sector entities as well as several corporate users. Provincanje has only 12 shareholders (all of them licensed banks), but it does also serve a wider range of clients such as 45 banks, 25 public bodies and 20 corporate customers.

Another common feature to all clearinghouses is the fact that participation is open to all banks. Nonetheless, as a general rule, no entity may control directly or indirectly more than 33 percent of the company. Members of the clearinghouses can be financial entities and other institutions, public or private, explicitly authorized by the BCRA. However, a minimum of 10 shareholders from the banking sector with a share of, at least, 67 percent are legally required in order to obtain the authorization to operate as a clearinghouse.

In addition, the BCRA is also a member of the ACH S.A. for the clearing of cheque transactions and, as such, intervenes in the system to ensure that its own operations are processed. The admission requirements are typically non discriminatory and, so, all the entities meeting such requirements are expected to become full members enjoying the same list of rights. On the contrary, specific membership rules for Interbanking multilateral payment netting service do not apply. Access criteria were initially considered, but they were discarded as such rules were considered to discrimi-
nate against smaller banks, thus preventing them from a broader participation.

Regarding the settlement of the clearinghouses, all present arrangements seem to prevalently rely in central bank money for such purpose. C.E.C. net balances are settled on the accounts of the participants with the BCRA via the MEP (Medio Electrónicos de Pago). For settlement to be completed, participants with short positions need to be adequately funded on due time. Only once short participants have been discharged of their obligations, does the crediting of participants with long positions start. Risk management mechanisms are a relevant feature of the various systems, further reflecting its individual peculiarities. Typically, a combination of caps, loss-sharing agreements and individual/collective pledging of guarantees are applied in order to ensure the final settlement taking place on the due date.

It must be also noted that, though mainly an RTGS system focused on large-value payments, the MEP is clearly of chief importance for the smooth functioning of the retail payment systems. The MEP was at the heart of the payment systems reform that took place in Argentina in the mid 90’s. The MEP, owned and managed by the BCRA (and developed in coordination with financial institutions and the clearinghouses), provides the financial sector with a modern RTGS for the swift and safe processing of large-value and time-critical transactions (e.g. monetary market, etc.). As explained earlier on, ancillary retail payment systems typically use the MEP for settlement purposes. In addition, the MEP does further offer a specific procedure that guarantees same day settlement of payroll and assimilated payments. Moreover, the MEP is also used by the banking community to articulate their request for cash holdings in a prompt and efficient manner.

Of growing importance are also the seven credit card networks currently in operation as well as the two ATM platforms. Five POS networks are owned by banks and follow an open architecture model (Visa, Mastercard, Credencial, Cabal, Carta Franca). The other two are Travel and Entertainment circuit-type of networks, i.e. they are closed-loop schemes run by American Express and Diners Club. Furthermore, BANELCO and LINK are the two companies in charge of ATMs. Both these companies provide high quality electronic services to the financial market, further offering a commercial framework for their shared use and the exploitation of scale-advantages. BANELCO is formed by private banks and its ATMs are mainly located in the capital city and its immediate surroundings. LINK, however, provides a national coverage so reflecting its diverse shareholder structure. All these networks enjoy full interoperability since 1994. In 2006, LINK ATMs processed a total of 328,312 cash withdrawal transactions versus 233,158 in the BANELCO network.

In addition to card payments, there are other types of operations processed outside of the C.E.C. and the MEP. All these transactions are settled on the accounts held by financial institutions at the BCRA. They include: i) payment of pensions on behalf of the Administración Nacional de la Seguridad Social (ANSES), and iii) some transactions between the BCRA and commercial banks, i.e., reverse repos and cash withdrawals by banks at the BCRA.

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93 LINK is participated by private banks, all national and provincial banks, credit card companies, pension funds and some other ATM networks.
3. STYLIZED FACTS ABOUT THE ACH MARKET

3.1 EVOLUTION AND CURRENT MARKET STRUCTURE

The rising role of the private sector in the development and management of retail payment infrastructures stands out as a prominent feature of the late reform. Not only has the banking sector smoothly taken over the ownership and administration of both “large” and “low-value” clearinghouses but, moreover, it has been and still is one of the most crucial elements for the successful implementation and update of the modernization program. With this purpose, back in 1995, the Comisión Interbancaria de Medios de Pago

BOX 1: CIMPRA

The Interbank Committee for Payment Instruments in Argentina (CIMPRA) is primarily entitled to manage the development of the National Payments System by planning and coordinating its implementation. The Committee does furthermore promote future improvements over the instruments and means of payment used in the Argentine financial system. It is the forum where the different stakeholders (BCRA, banks, banks’ associations, electronic clearinghouses) study, plan, and monitor the evolution of payment instruments.

CIMPRA currently comprises the following institutions:

- BCRA
- Banco de la Nación Argentina
- Banco Ciudad de Buenos Aires
- Several banking associations (i.e. ABAPPRA, ABIRA, ABE, ABA, ADEBA)

The CIMPRA is governed by its Board of Directors which is participated by the banking associations, the Banco de la Nación Argentina, the Banco de la Ciudad de Buenos Aires, and the BCRA. The latter is, moreover, the chairman of the meetings. The Secretary acts as a coordinator for all the activities of the CIMPRA, providing support to the Board’s decisions, coping with the organization of the different tasks assigned to the working groups, taking due note of the outcomes of their meetings, and circulating their decisions to the Board for its approval.

The BCRA, the banking associations, and the public banks (Banco de la Nación Argentina and Banco de la Ciudad de Buenos Aires) are members of the different working groups that focus on such specific topics as operational, technical, and/or legal aspects, fees, etc. When the nature of the topic so requires, the electronic clearinghouses are also authorized to participate in the discussions of said working groups.

Thus, the CIMPRA becomes the entry point for the various projects, proposals and questions that may arise from the above-mentioned actors in relation to payment instruments. Incoming requests are passed on to the corresponding working group when and if a technical review is considered necessary. The working group will so discuss the issue and make a judgment that will further be circulated to the Board for its approval. Once a final decision has been taken, it will be finally disclosed among the involved stakeholders.

Decisions are enforced in two ways:

i.) BCRA Communications, which become compulsory for all financial institutions;
ii.) CIMPRA Bulletins, which simply act as a guideline for the industry.
de la República Argentina (CIMPRA) was launched as a forum to help provide private sector input on the modification and modernization of existing payment media, the creation of innovative instruments, and the improvement of clearing and settlement systems (see Box 1). Ever since, CIMPRA has been actively issuing recommendations on the future evolution of channels and instruments for the transmission of funds. At the same time, these recommendations have become the later source of inspiration for the adoption of formal BCRA regulations on retail payment systems.

Furthermore, a genuine unbundling of payment instruments and processing infrastructures has become another major highlight of the current institutional framework. Thus, under the present arrangements, the operational and business layers of payment products (i.e. the interbank rules, practices and standards for the execution of a given payment as well as the commercial framework which enables the authorization, clearing and settlement of these transactions) are regulated independently from the technology platform on which the clearing and settlement process are expected to take place. Therefore, all clearinghouses shall, in principle, be ready to handle the same set of retail payment instruments: namely, i) cheques; ii) direct debits, iii) credit transfers, iv) letters of credit; v) fixed-term certificates of deposit; vi) banking payment orders; vii) postal/bank giro transfers; and viii) sight bills of exchange drawn against quotas of a mutual fund.

As a result, retail clearinghouses are, in principle, able to compete in the market for clients and to deliver a number of common services. These services include typically: i.) receiving, sorting out and further acting as a switching point in relation to other clearinghouses, ii.) calculating net balances and submitting them for record and settlement purposes, iii.) preparing and circulating data for statistical and control purposes by the BCRA and iv.) taking over the management of interbank fees stemming from the above processes.

3.2 SERVICES, OPERATING AND RISKS STANDARDS

Whereas clearing, sorting and message transmission services dominate the core market proposition of clearinghouses in Argentina, a number of associated services are often further provided. According to Circular A 2557, in Argentina the clearinghouse’s solely corporate purpose will be the netting of authorized payment transactions submitted by financial institutions on their own behalf or on behalf of a legitimate third party. In addition, clearinghouses may further qualify for the provision of closely related ancillary services in connection with their basic purpose. Some clearinghouses have already so expanded their product offering and, thus, their on-going portfolio does nowadays include an array of transactional services for corporate customers along with multiple outsourcing options. Among the former, e.g. Interbanking, provides several solutions for on-line B2B payments related to inter-firm trades, customs clearance and tax payments. Moreover, several separated business lines seem to co-exist in Provincanje such as, e.g. MICR and imaging technologies, interfacing solutions, cash collection services and other tax-related back office facilities. On the other hand, the small-value clearinghouses have also recently followed the above trend, thus supplying imaging services too, and, furthermore, positioning themselves as a central repository for truncated cheques.

Operational rules for the different payment instruments contain specific provisions requesting full interoperability among processing platforms. The development of common technical interfaces that ensure
II. COOPERATION VERSUS COMPETITION IN ARGENTINA’S AUTOMATED CLEARING HOUSE (ACH) MARKET

communication across platforms and the adoption of universal business procedures, as defined by the BCRA circulars, are the cornerstones of interoperability. Thus, the industry together with the central bank, agreed upon developing a file structure and using message formats based on the National Automated Clearing-house Associations (NACHA) and leave it up to each platform to find a way of channeling those files to the appropriate counterparty, when necessary. Thus, by elaborating an overall framework for payment instruments and ensuring its enforcement, infrastructure providers are forced to abide by it and, furthermore, financial institutions are so given the perception that the system operates as if there was only a single national clearinghouse in the country.

In spite of a shared regulation, clearing cycles vary according to the underlying type of transaction and the currency used. In all cases, direct participants and the clearinghouses send/receive payment-related files to/from one another over a technical facility called the transmission center (Centro de Transmisión). As stated in the previous section, wage and assimilated credit transfers benefit from shorter execution times when the open C.E.C. system is involved. In those circumstances, clearing and settlement are completed on T, and funds are made available to the final customer on T+1. Returns on these transactions are to take place by means of issuing a new credit transfer on the day following the interbank settlement. In the very same fashion, a 24 hours interbank clearing and settlement cycle is also in place for supplier payments as well as for customer/third party credit transfers whenever local currency is used. Conversely, foreign-currency denominated credit transfers of the latter type take 48 hours to be final. Value dating for end-customers in those cases happens to occur on T+3. That same rule applies also in relation to the processing of cheques. Finally, regarding direct debits, the complete interbank cycle is somewhat longer (i.e. 72 hours).

In order to enhance the financial soundness of the clearinghouses a collateral pool and other risk control measures have been formally put in place. The BCRA is entitled to establish a set of minimum requirements regarding the risk control measures to be applied by the clearinghouses. These criteria and their practical implementation typically differ between low-value and large value clearinghouses. In the case of a large value processing platform, the size of the collateral pool is agreed upon by the participants and the board of the C.E.C. However, the latter can never fall short of the daily net balance to be settled or else, payments submitted will be put on hold in the queue. As regards retail clearinghouses, the management of the C.E.C. is the only body responsible to decide on the amount of the pool. For this purpose, the average value of the participant’s five largest debit balances in every quarter will be taken into account. In addition, all the members in a low-value clearinghouse are further requested to contribute with $15,000 to the creation of a supplementary and shared collateral pool. Likewise, a Committee of the Clearinghouses (Comité de Cámaras) comprising representatives from all the four clearinghouses, the BCRA and the CIMPRA is in charge of assessing every abnormal situation that may arise in relation to the settlement of payments and which may have a bearing on the collateral pool.

3.3 REVENUE/COST DRIVERS AND PRICING POLICIES

Common payment products (direct debits, cheques and other cleared documents, credit transfers) are fur-
ther subject to coordinated pricing policies at the level of the CIMPRA.99 Cost recovery criteria prevail over other considerations. Instead of allocating the decision-making process on interbank fees to the governing bodies of each ACH, banks have opted for a collective price determination in the CIMPRA100 (for details see Box 2). Therefore, predatory pricing strategies are prevented from occurring despite the existence of different infrastructures.

Nonetheless, discernible differences among the various small-value clearinghouses are reported to exist regarding the pricing of processing services. In the case of COELSA, fixed monthly fees as well as per transaction ones are levied on all members. From an organizational point of view, COELSA operates as a cost center and, so, its running costs are apportioned according to the following rule: i) about a third of the costs are recovered via fixed fees (which, again, are broken down into three categories: 70 percent are borne by banks that clear cheques, 15 percent by banks that clear direct debits and 15 percent by banks that clear credit transfers), and ii) two thirds of the total costs are recoup via per transaction fees. On the opposite, ACH S.A. charges each and every single participant a flat fee, regardless of the volume of transactions they send and/or receive through the system. Moreover, higher fees (of up to a 50 percent surcharge) are usually applied to payments which imply an inter-clearinghouse exchange.

Conversely, large-value clearinghouses apparently display their own, “proprietary” pricing structure substantiated by platform-specific features. Interbanking, for example, applies a monthly and uniform fee to each and every single participant in the system along with a fixed per item charge whose size varies according to the underlying transaction. The latter fees are only borne by the instructing party and the shareholder status does not make any difference in terms of price. However, the use of Interbanking’s electronic funds transfer service to private firms for inter-company payments is solely subject to a monthly flat rate which, again, is adjusted based on the service package and the actual size of the network of correspondent banks which the customer is granted access to. On the other hand, Provincanje further acts as a cost center for its clients and its fees do not exhibit any major geographical differences.

Despite these differences in pricing of the low and large value clearinghouses, participants do not tend to base their membership and usage policy on price considerations. For a detail discussion of this phenomenon see Key issues section.

Interbank fees do further accrue to transactions processed in the clearinghouses, but they typically come in different forms and fashions. Interbank fees are normally expected to flow from the bank of the instructing party to that of the beneficiary. While for wage-related credit transfers (with the exception of “family allowances”101) fees are calculated as a percentage of the amounts transferred (i.e. 2 per thousand, with a minimum of Ar$1), for supplier payments a flat per-transaction fee is charged (Ar$2). A slightly more complex mechanism is used in the case of customer/third party credit transfers: namely, i.) payments up to Ar$500,000 are subject to a 1.5 per thousand fees with a minimum and maximum caps of Ar$1 and Ar$40, respectively, and ii.) larger transactions are priced 1.5 per thousand with no maximum cap. In addition, supplier and third/party payments may further be subject to charges based on geographical coverage. The latter apply only in those circumstances where both the issuing and the receiving bank do not have offices in the same region and, in addition, there are no more

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99 This holds true only in the case of low-value clearinghouses (see next paragraph).

100 One of the reasons is the fact that no financial institutions are missing in the said body as they all are represented through their respective associations (ABAP-PRA, ABIRA, ABE, ABA, and ADEBA). See Appendix I.

101 A flat-fee per transaction of Ar$0.30 applies.
BOX 2: DETERMINATION OF THE INTERBANK FEE STRUCTURE THROUGH CIMPRA

Broadly speaking, at the interbank level, participants in the national clearing infrastructure do usually have to cope with two distinctive families of fees. First, interbank fees between the banks of the payer and payee are a common feature in most payment systems. Their size and the direction in which they flow can, however, exhibit remarkable differences. On the other hand, the clearance platforms do furthermore more apply a set of fees to their own clients (normally, the banks) for the services they provide.

Below, a list of the various types of interbank fees applied in retail payment systems in Argentina is given as well as a brief insight into the rationale and determination process of the former. As explained earlier, a salient feature of the Argentinean case is the role that a representative body from the industry, namely the CIMPRA, does play in the setting up of these fees.

**Direct Debits**

*Interbank fee for the use of an account.* This is the fee that the financial institution of the creditor (i.e. the creditor’s bank) has to pay to the payer’s bank (or debtor’s bank) in compensation for being granted access to the account of the latter’s client. This way, the payer’s bank debits its own books, as instructed by the creditor’s bank, further allowing the payee’s bank to obtain the funds requested (which, later on, will be credited to its own client). Two different types of fees are applied depending on the nature of the underlying company: a) High-volume one, and b) all other companies. High-volume companies are charged a “wholesale price,” while all others will have to pay a “regular” fee. Companies with a monthly average item volume over 100,000 in one year may apply for the high-volume fee. Typically, the size of a company’s business is assessed against figures from the previous year, i.e. if a given company applies for a “wholesale” fee, say, February 2009, the number of items submitted during 2008 will serve as a basis for the determination of its status. The high volume fee is also applied to *empresas de servicios domiciliarios*, the National, State and Local Governments and non-for-profit organizations.

Fee structure:
- High-volume company (wholesale): Ar$ 0.30 per transaction.
- All other companies (regular): Ar$ 1.00 per transaction.

**Cheques**

*Interbank fee for geographical coverage.* Whenever a collecting bank does not have a branch in the region where the cheque is supposed to be cashed in, the depositor’s bank is expected to pay the former fee to the bank the cheque is drawn on. Such fees will be determined by and settled over the C.E.C.

*Interbank fees for cheque truncation.* There are, basically, two types of fees that apply to the truncation of cheques. On the one had, for taking over the execution of several formal procedures related to the handling of cheques (e.g. control, filing, etc.) the collecting bank will receive a fee. On the other hand, sometimes the drawee bank may request the cheque back (either the original cheque or a copy thereof). Such request further entails costs for the depositor's bank which will have to be covered through an additional fee.

*Handling of cheques.* Typically, the handling of cheques requires the collecting bank to act on behalf of the drawee bank in performing a number of formal checks. Among other things, the depositor's banks will have to verify that the date is correct, that the amount box and the text line where the amount is reproduced are not divergent, that there are no traces of amendments or forgery, etc. Moreover, the collecting bank incurs in additional costs due to the safekeeping and storage of the actual documents (e.g. room availability, adequate staffing, etc.).
Fee Structure:
- Filing: Ar$ 0.03 (per cheque)
- Formal controls: Ar$ 0.05 (per cheque)
- TOTAL: Ar$ 0.08

The presentment of cheques if furthermore covered in the above fees. Thus, whenever a depositor’s bank presents a cheque, it will receive the corresponding fee regardless of the outcome of such presentment (i.e. acceptance vs. rejection).

Cost of claiming a cheque back. Under different circumstances, a drawee bank may initiate a procedure to claim the cheque back. In such a case, the collecting bank will have to be compensated for the administrative costs incurred (e.g. searching for the document). Therefore a fee applies, regardless of whether the cheques have or have not been honored. Usually, these fees will depend on issuance date of the cheque and on whether the request for delivery is for the actual cheque or a copy thereof. Claiming an original document is more expensive than asking for a copy since it does imply having to access to the original files. The final fees will be only then known to the drawee bank after the procedures have been completed. As with any other interbank fees, settlement will take place over the C.E.C. There will be only one set of per item fees (as opposed to per amount) that will apply system-wide.

Fee Structure:
- Original check: Ar$ 2.44
- Copy: Ar$ 1.72

Credit Transfers
There are three different types of credit transfers in Argentina:
- Wage/Payroll and assimilated payments¹
- Supplier payments
- Customer/Third party credit transfers

Wage/Payroll and assimilated payments

Fees for the use of an account. This is the fee that the bank of the instructing party of a credit transfer will have to pay to the beneficiary’s bank in compensation for being granted access to the beneficiary’s account to so credit the funds. In the case of payroll and other assimilated payments (except family allowances), a 2 per thousand fee will apply with a minimum of Ar$ 1.00. Family allowances are typically subject to a per item fee of Ar$ 0.30.

Interbank fee for geographical coverage. Geography is no longer a factor in the pricing of credit transfers.

Amount restrictions per location and/or account. Not applicable.

Transaction/Book-entry cost. The crediting of payroll and assimilated transactions is not subject to additional fees or costs additional. However, management fees and any other conditions applicable to the account as specified in its contract do apply.

¹ Namely, pensions, family allowances and seizure of properties.
II. COOPERATION VERSUS COMPETITION IN ARGENTINA’S AUTOMATED CLEARING HOUSE (ACH) MARKET

that two banks with presence in the region. In such a case, fees are 1 per thousand with no minimum and/or maximum caps. For direct debit products, as explained earlier on, a two-tiered interbank fee has been established: i) Ar$ 0.30 for high-volume enterprises, and ii) Ar$ 1.00 for all other payees. As regards cheques two-fold interbank fees apply: i) the so-called relay verification fees, and ii) fees for claiming cheques back. For more information on the fee structure, see Box 2.

3.4 GOVERNANCE AND OVERSIGHT

While a clear vision for the National Payments System (NPS) in Argentina was developed in the late nineties, this vision did not cover all aspects of the NPS. The BCRA has traditionally played an active role in the launch of more efficient interbank payment systems. Among its major achievements is the implementation, more than a decade ago, of an RTGS system that has been improved adding new functions and technological upgrades (e.g., transactional system, security). The BCRA also regulates the clearinghouses and plays an important role in the CIMPRA. Cheque truncation has also been implemented as well as the creation of a Federal clearinghouse for electronic clearing of cheques. At present, the BCRA is considering which actions should take in order to upgrade the national payment and securities settlement system (e.g. improvements in the legal framework, upgrade of the CRYL system).

The BCRA has not established a fully fledge payment system oversight function. The BCRA carries out its oversight of the four clearinghouses focusing only on operational aspects. The Gerencia de Control de Sistemas de Compensación approves the operation of the clearinghouses and conducts yearly inspections of them. In addition, in case of substantial modifications in their operation, the clearinghouses need to be re-assessed (re-homologadas) in order to continue operat-

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**Supplier Payments and Customer/Third Party Payments**

*Fees for the use of an account.* This is the fee that the bank of the instructing party of a credit transfer will have to pay to the beneficiary’s bank in compensation for being granted access to the beneficiary’s account to so credit the funds. As a general rule a Ar$2.00 per transaction fee is applied on every supplier payment. As regards customer payments, a credit transfer of a face value up until Ar$500,000 will entail a 1.5 per thousand fee, with a minimum of Ar$1.00 and a maximum of Ar$40.00. Larger transactions don’t have a maximum cap and will be priced according to a fixed fee in the range of 1.5 per thousand of the value.

*Interbank fee for geographical coverage.* Two different situations arise where an additional fee for providing geographical reach may apply. On the hand, a credit transfer may be directed to a beneficiary whose place of residence is such that only one bank does operate in said regional market (this one bank being different from the ordering bank). In such a case, an “exclusivity market” rule applies. On the other hand, the ordering bank may not have a branch in the place of residence to the beneficiary but the market may be serviced by two competing banks. In such a case, a “shared market” rule applies. Both these situations have to be reported to the CIMPRA which will prepare an industry-wide available table with monthly updates on the market structure. Only when either one of the above-described situations occurs is the beneficiary’s bank entitled to request a 1 per thousand fee (no minimum and maximum caps) from the ordering bank. Moreover, amount restrictions per location and/or account do not apply.
ing. The BCRA has established specific operational requirements (e.g., capacity, security, contingency plans, etc.) through Comunicación A2575. The Comunicación A4247 establishes the guarantee system of the clearinghouses. Also, the Gerencia de Auditoría Externa de Sistemas looks at some aspects related to the participation in the payments system by financial institutions.104

BCRA’s principal tools for the practical exercise of its oversight function are regulation and moral suasion, in particular in the context of the CIMPRA. BCRA’s

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**TABLE 1: GOVERNANCE ARRANGEMENTS OF THE CLEARINGHOUSES**

<table>
<thead>
<tr>
<th>Clearinghouse</th>
<th>Ownership Corporate Structure</th>
<th>Origins and Historical Evolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>COELSA</td>
<td>21 stockholders and 17 clients.</td>
<td>Formally incorporated as a low-value clearinghouse in 1997, COELSA initially provided clearing services for banks located in the Buenos Aires region.</td>
</tr>
<tr>
<td>ACH</td>
<td>24 stockholders and an additional 23 users</td>
<td>Formally established in February 1996, ACH’s primary corporate purpose is the provision of automated processing services for low-value payments instructed in the National Payment System (i.e. direct debits, cheques and credit transfers). The ACH features an ample regional coverage as it was founded by banks, outside the Buenos Aires area.</td>
</tr>
<tr>
<td>Interbanking</td>
<td>10 stakeholders and some 36 bank customers</td>
<td>Interbanking is the result of a 1996 merger between Datacash and Newnet (bank-owned companies specialized in the provision of e-banking services to corporate customers: i.e. fund transfers and information services). Initially, Interbanking had 15 stakeholders but successive mergers in the market and capital reductions led to some consolidation in the ownership structure.</td>
</tr>
<tr>
<td>Provincanje</td>
<td>15 banks of which 80 percent are private banks. Each owner has a share of 6.66 percent</td>
<td>It was created originally in 1986 as a cost centre for several regional banks with the aim of providing an infrastructure for the clearing of payment items presented against them in the capital.</td>
</tr>
</tbody>
</table>
pens to take place only every so often and, most notably, on an informal basis.

In principle, the rules of the clearinghouses do not prevent nonbanks from becoming participants in the national payments system. According to Comunicación A 2557, section 7, in addition to financial institutions, the BCRA is entitled to authorize any public or private legal entity to participate in the clearinghouses as long as the admission criteria are fully met. To this date, however, very few institutions aside from banks have applied for participation and so, most of them seem to have chosen to be represented by a direct participant instead. Among the few exceptions reported are the Postal Office and the National Social Security Administration (ANSES).

Clearinghouses current governance arrangements and its evolution is briefly described in table 1.

4. KEY ISSUES

4.1 COEXISTENCE OF ACH PLATFORMS

The impact on competition of multiple ACHs has fallen short of expectations. Contestability may, in theory, have benefited from an increased number of payment infrastructure providers, but actual competition in the market is lagging behind as a result, among other reasons, of product specialization. Following BCRA regulation small and large-value ACHs have positioned themselves in the market differently, hence developing and leveraging, for the most part, from a distinctive product portfolio. Thus, e.g. Interbaking traditionally makes up most of its business out of a fund transfer service designed to meet the needs of corporate customers. Indeed, 90 percent of the volumes nowadays processed by the CCI stem from this particular market segment. Likewise, Provincaje is better known in the market for providing back-office services related to payments as well as collection services of insurance premiums and municipal taxes: a feature, the latter one, which is also offered by Interbanking to large taxpayers. Conversely, both small-value clearinghouses primarily focus on providing clearing services for rather traditional payment instruments (e.g. cheques, direct debits and credit transfers), without prejudice to the development of certain complementary services such as the imaging of paper cheques.

Market segmentation due to historical reasons and, to some extent, non-trivial switch costs for banks may further explain the perpetuation of the present landscape. In its origin, large private and public banks located mainly in the Buenos Aires County were responsible for the establishment of the COELSA clearinghouse. Equally, regional banks operating on a local or national level and, typically, of a smaller size (as well as medium-sized and small public banks) together decided to proceed independently and, so, they further created their own processing platform: the ACH. The resulting setting has apparently led to a situation where corporate governance mechanisms of the one and the other system exhibit a bias towards the underlying interest groups represented in their respective capital. For this reason, policy objectives and overall strategies are perceived differently by the various players, thus hindering a steady transition from one platform to the next. In addition, non-negligible switch costs of an administrative nature are reported to exist whenever a participant intends to channel its payment traffic over a different technical platform. Disincentives so arise and lock-up effects are likely to win through.

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105 From a practical point of view, the system works as follows: in order to use this service, corporate customers need to open an account with one of the banks participating in the scheme (the so-called debit bank). When a given company wants to execute a funds transfer, it first sends the instruction to Interbanking which, in turn, submits the order to the debit bank. Later on, the request is re-sent to Interbanking by the debit bank in real-time over the MEP system for further execution.
A reported lack of conclusive evidence on the existence of increasing returns to scale and other prominent scale effects in the core business of the clearinghouses substantiates the delayed process of consolidation. The relevance of scale and scope economies has been challenged several times by the clearinghouses which have so opposed the various plans of mergers suggested by the BCRA. However, international experience and the limited empirical information available on the performance of and business strategies followed by the clearinghouses in Argentina seem to point in a different direction. Currently, ACH operates with a significantly lower volume of transactions than COELSA (see Figure 6). The latter has furthermore recently climbed up its operations by absorbing the payments traffic from no less than 3 local credit card networks (BANELCO, ARGENCARD and CABAL): an intentional decision that clearly aims at taking full advantages of its processing capacities. What’s more, ACH and COELSA are said to be in talks to share their operational platforms in the near future in an unambiguous attempt to leverage staff and IT across different products.

Moreover, the proliferation of a vast range of services in the clearinghouses other than processing and netting may be an indication of an excessive fragmentation of the retail payments market. To some extent, historical reasons may certainly help explain the composition of the current product and service portfolio in the dif-

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**FIGURE 6: CREDIT TRANSFERS PROCESSED BY ACH S.A. AND COELSA– VOLUME OF TRANSACTIONS**

![Graph showing credit transfers processed by ACH S.A. and COELSA](image)

Source: COELSA & ACH (2007)

1 Monthly averages.
different clearinghouses. The way some of these companies have evolved into providers of clearing services can surely shed some light on why past investments and business lines may still play a visible role in the company’s current endeavors. However, the actual size of some of these non-strictly-speaking clearing and ancillary services as well as the fact that a number of them have been developed fairly recently may provide some anecdotal evidence suggesting there might be no business case to support the present multiplicity of concurrent players. Therefore, a rationale presumption has built up that some clearinghouses have adopted a cross-subsidization strategy of their core payment services by substantially diversifying their service offering and entering other lines business. Indeed, just as an example, in 2007 the actual number of transactions processed by one of the large-value clearinghouses only randomly accounted for more than 20 percent of the total volumes handled. Also, MEP provision of retail payment services during the crisis may have introduced additional fragmentation.

4.2 OVERSIGHT FRAMEWORK

Weak legal foundations, fragmentation of relevant policymakers and the absence of institutional coordination mechanisms have limited the practical exercise of an effective oversight function. On the one hand, article 3 of the legal statute of the BCRA does only provide a very general, although not explicit, basis for the oversight function over payment systems. This function has not yet been further developed by an appropriate regulation, and its implications for both the participants in the system and the general public are not known to them. Oversight is nowadays limited in scope and tools, and it is furthermore spread over a number of departments within the BCRA, each of which features a particular (and often overlapping) focus on not-so distinctive aspects of the payment system. As previously mentioned, there is no structured cooperation between the BCRA and other authorities involved in payment systems oversight such as, for example, the Ministry of Finance, the CNV and the antitrust authority.

However, cooperative arrangements for the payment systems between the central bank and relevant stakeholders do exist in Argentina. Though obviously only accounting for a small part of the entire set of a central bank’s oversight activities, it is worth mentioning that the catalyst role of the BCRA in the area of payment seems to be currently nurtured through the CIMPRA. Due to its presence in the latter body, the central bank is indeed in a position to somehow steer the discussions of the banking community in line with its own interests, thus making significant progress in several areas crucial for the development of a modern and more efficient payment system. Nonetheless, the fact that mainly banks are represented in the CIMPRA along with some notable absences such as several clearinghouses, securities market participants and other authorities does certainly curb the actual impact of the decisions taken by this body.

Moreover, the BCRA has recently made clear its commitment to step up its oversight responsibilities and, in so doing, to define a plan that helps upgrade the National Payments System. Despite the lack of a fully-fledged legal framework for the performance of oversight on payment systems, the BCRA has traditionally played an active role in the launch of more efficient interbank payment systems. Its leadership in the reform process articulated in back 1997 and which lead to the reorganization and improvement of the national payment system is just one of the many examples where the role of the BCRA has come to be noticed. More recently, against the background of a BCRA-WB col-

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107 This holds true particularly for the large-value clearinghouses.
108 MEP has some features and rules that allow for the submission of customer/third party payments regardless of their nominal amounts. This feature was significantly used during the crisis but MEP role in retail payments is currently diminishing.
laborative effort, the BCRA has expressed its intention to review the present payments landscape in order to define an action plan that will help to promote changes so as to properly address the challenges that lay ahead.

5 POLICY OPTIONS AND STRATEGIC DECISIONS

Addressing the key issues identified above is not an easy task and decision on policy priorities need to be determined before any action is taken. In Argentina, due to legacy issues there is a coexistence of different clearinghouses operating in the retail payments market, however the multiplicity of clearinghouses is not increasing competition and it is duplicating costs. As mentioned before interbank fees are determined at the industry level and participants are not deciding their membership and usage according to prices but to a combination of legacy and governance issues. Policy making in retail payments depends on trade-offs and policy goals and is also made more difficult by the multitude of relevant agents. Therefore, the authorities in Argentina need to determine if their overarching policy goal would be further competition or operating costs reduction taking advantage of economies of scale/scope and network externalities.

Against this background some policy actions to promote efficiency and innovation in the retail payments market should be considered. These actions are essential to address some of the most urgent shortcomings spotted in the previous sections. However, their precise timetable and articulation is open to further analysis as they are driven by the agenda and available resources of the various stakeholders involved. Any reform decision would also be influenced by political economy considerations and would need to take into account that priorities may change in the future and that policies should accommodate these changes. These non-mutually exclusive policy actions are: (1) if operating cost reduction is the priority policy goal, the authorities should consider promoting a greater degree of consolidation in the ACH market, (2) broadening the scope and participation of the CIMPRA to become a fully-fledged National Payment Systems Council, and (3) enhancing BCRA’s responsibilities in relation to low-value payments.

In order to take advantage of economies of scale/scope and network externalities authorities and market players could consider consolidation of platforms. In addition, further consolidation could foster innovation and the introduction of more efficient payment instruments and clearing procedures. Here the CIMPRA could once again become the perfect forum for discussion and the leadership of the BCRA as a catalyst for the change would reveal itself as crucial. One possible way forward would be to consolidate the low-value clearinghouses in the first place and, at a later stage, to explore a potential agreement with the rest of the clearinghouses for the sharing of their operational platforms and specific products. However, for this strategy to succeed serious thoughts need to be given to the governance and pricing aspects in the new company. Moreover, concerns about monopolistic behaviors in the market would have to be addressed by strengthening the oversight role of the BCRA and

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109 See Bosone and Cirasino (July 2001) for a discussion of public policy objectives in payments systems.

110 According to the BIS (March 2003), specific efficiency and safety goals include addressing legal and regulatory impediments to market development and innovation, fostering competitive market conditions and behaviors, and supporting the development of effective standards and infrastructure arrangements. A fourth potential objective mentioned in the document, concerns the provision of central bank services in the manner most effective for the particular market. Moreover, BIS (January 2006) states that one of the guidelines for national payment system development consists of expanding the availability of retail payment services via improved infrastructures.

111 From a theoretical perspective the same objective could be achieved increasing competition among the existing clearinghouses. However, in the case of Argentina, given the long standing and strong cooperative arrangements of the banking community, consolidation seems to be a preferred option.
by carefully monitoring changes in the governance arrangements.

The second major issue in the action plan could be the establishment of institutional mechanisms to promote coordination and information sharing between the various parties: a role that CIMPRA is obviously called to play. Following the experience of other countries in creating such vehicles (e.g. Payment Systems Board in Australia, Payments Council in the UK and South Africa112), CIMPRA could evolve in such a way that it opens up to all the major stakeholders in the market, thus horizontally extending the range of topics that it covers to include all sides of the payments business. The CIMPRA would so become a forum where all interested parties could engage in constructive dialogue about the development of the retail payments infrastructure, further contributing to its modernization and to fostering innovation.

The third action shall further empower the BCRA to consistently address key payment systems issues, acknowledging the relevance of retail payments in supporting economic activity and creating trust in the currency. All in all, a clarification of the role of the central bank of Argentina as regards its oversight responsibilities seems necessary at the present stage. An ongoing initiative is reported to be in place with the aim of revising the present legal framework and having it adapted accordingly. In this context, the inclusion of retail payment systems issues from the point of view of efficiency, practicality, competition and protection of consumer interests seems the more appropriate as it will ensure a proper evolution of the payments market and the provision of payment services under the best possible conditions.

In this last regard, the formalization of a cooperation framework among regulators and other relevant players should be given a high priority on the agenda. A cohesive framework for cooperation would prevent potential regulatory gaps and promote a comprehensive approach to developing a more efficient and accessible electronic payments systems infrastructure. This can be achieved by reviewing the current assignment of responsibilities across different government agencies and determining whether/how they can be re-arranged to ensure a more effective framework.

In conclusion, this study needs to be considered in the broader context of the retail payment system strategy in the country. Retail payment systems are characterized by a multiplicity of rules, instruments, procedures, circuits and their functioning and efficiency depend on the consistency of all these factors.

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112 See OFT (February 2007), Payments Council (2007), as well as the website of the Payment Systems Board in Australia (http://www.rba.gov.au/PaymentsSystem/payments_system_board.html) for details on the evolution, structure and mandate of these bodies.
# APPENDIX I: BANKER’S ASSOCIACIONES IN ARGENTINA: ASSOCIATES, ORIGIN, MANDATE AND BOARD COMPOSITION

<table>
<thead>
<tr>
<th>Association</th>
<th>Associated Members</th>
<th>Origin and Board Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ABAPPRA</strong></td>
<td>Associated members (17)</td>
<td>It was established in 1959 as ABAPRA integrated by State banks, Municipal banks, Social and Investment banks.</td>
</tr>
<tr>
<td>(Asociación de Bancos Públicos y Privados de la República Argentina)</td>
<td>Banco Credicoop Coop. Ltdo.</td>
<td>Board of Directors (16)</td>
</tr>
<tr>
<td></td>
<td>Banco de Corrientes SA.</td>
<td>1 President</td>
</tr>
<tr>
<td></td>
<td>Banco de Formosa SA.</td>
<td>5 VPs</td>
</tr>
<tr>
<td></td>
<td>Banco de Inversión y Comercio Exterior SA.</td>
<td>1 General Secretary</td>
</tr>
<tr>
<td></td>
<td>Banco de la Ciudad de Buenos Aires</td>
<td>1 General Pro-Secretary</td>
</tr>
<tr>
<td></td>
<td>Banco de la Nación Argentina</td>
<td>1 Treasurer</td>
</tr>
<tr>
<td></td>
<td>Banco de la Provincia de Buenos Aires</td>
<td>1 Pro-Treasurer</td>
</tr>
<tr>
<td></td>
<td>Banco Provincia del Neuquén S.A.</td>
<td>5 Vocals</td>
</tr>
<tr>
<td></td>
<td>Banco del Chubut S.A.</td>
<td>1 Executive Director</td>
</tr>
<tr>
<td></td>
<td>Banco Hipotecario S.A.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Banco Municipal de Rosario</td>
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<tr>
<td></td>
<td>Banco Provincia de Tierra del Fuego</td>
<td></td>
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<tr>
<td></td>
<td>Caja Popular de Ahorros de la Provincia de Tucumán</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nuevo Banco de Entre Ríos S.A.</td>
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<tr>
<td></td>
<td>Nuevo Banco de Santa Fe S.A.</td>
<td></td>
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<tr>
<td></td>
<td>Nuevo Banco del Chaco S.A.</td>
<td></td>
</tr>
</tbody>
</table>

| **ABE** | Associated members (18) | It was established in 1964 as ABE to group financial entities authorized by the BCRA to protect its interests |
| (Asociación de la Banca Especializada) | Bacs Banco de Crédito y Securitizacion S.A. | Board of Directors (20) |
| | Banco B.I. Creditansalt S.A. | 1 President |
| | Banco Cetelem Argentina S.A. | 3 Vicepresident |
| | Banco Columbia S.A. | 1 Secretary |
| | Banco de Servicios Financieros S.A. | 1 Pro-Secretary |
| | Banco del Sol S.A. | 1 Treasurer |
| | Banco Másventas S.A. | 6 Directors |
| | Caja de Crédito Cuenca Coop. Ltda. | 4 Tribunal de Conducta |
| | Caja de Crédito Coop. La Capital del Plata LTDA. | 2 Comision Revisora de Cuentas |
| | Creditlogros Compañía Financiera S.A. | 1 Executive Director |
| | Compañía Financiera Argentina S.A. | |
| | Montemar Compañía Financiera S.A. | |
| | Multifinanzas Compañía Financiera S.A. | |
| | Compañía Financiera Argentina S.A. | |
| | Organización Veraz S.A. | |
| | Puente Hnos S.A. | |
| | Tutelar Compañía Financiera S.A. | |
### Association Members

<table>
<thead>
<tr>
<th>Associated members (36)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABN Amro Bank N.V</td>
</tr>
<tr>
<td>American Express Bank Ltd. S.A.</td>
</tr>
<tr>
<td>Banco Bradesco Argentina S.A.</td>
</tr>
<tr>
<td>Banco Cetelem Argentina S.A.</td>
</tr>
<tr>
<td>Banco Do Brasil S.A.</td>
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<td>Banco Latinoamericano de Exportaciones</td>
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### Orgin and Board Composition

- It was established in 1999 as ABA to promote the development and to serve the interest of the banking system.
- Board of Directors (16):
  - 1 President
  - 4 Vicepresidents
  - 1 Secretary
  - 1 Pro-Secretary
  - 1 Treasurer
  - 1 Pro-Treasurer
  - 2 Directors
  - 4 Directors suplentes
  - 1 Honorary President
**ADEBA (Asociación de Bancos Argentinos)**

**Associated members (28)**
- Banco C.M.F. S.A.
- Banco Comafi S.A.
- Banco De Córdoba S.A.
- Banco De La Pampa S.E.M.
- Banco De Santiago Del Estero S.A.
- Banco De Servicios Y Transacciones S.A.
- Banco De Valores S.A.
- Banco Del Sol S.A.
- Banco De Tucumán S.A.
- Banco Finansur S.A.
- Banco De Galicia Y Buenos Aires S.A.
- Banco Hipotecario S.A.
- Banco Industrial S.A.
- Banco Julio S.A.
- Banco Macro S.A.
- Banco Mariva S.A.
- Banco Meridian S.A.
- Banco Patagonia S.A.
- Banco Piano S.A.
- Banco Privado De Inversiones S.A.
- Banco Regional De Cuyo S.A.
- Banco Roela S.A.
- Banco Saenz S.A.
- Banco Supervielle S.A.
- Mba Banco De Inversiones S.A.
- Nuevo Banco Bisel S.A.
- Nuevo Banco De La Rioja S.A.
- Nuevo Banco Suquía S.A.

It was set up in 1972 under the name of the Argentine Bankers Association and re-founded in April 2003 as the Argentine Private Bankers Association – an initiative by Argentine private banks aimed at promoting the development and representing the interests of locally funded Argentine private banks.

**Board of Directors (13)**
- 1 President
- 3 VPs
- 1 Secretary
- 6 Board Members (2 suplentes)
- 1 Auditor (suplente)
- 1 Executive Director
II. COOPERATION VERSUS COMPETITION IN ARGENTINA’S AUTOMATED CLEARING HOUSE (ACH) MARKET

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ABSTRACT: The objective of this paper is to analyze the efficiency implications of competition versus cooperation in Brazil’s retail payments infrastructure along two distinctive market dimensions: i.) the degree of interoperability in the ATM/POS networks and, ii.) the level of fragmentation of the processing infrastructure. It is found that, in spite of recent efforts, interoperability in the cards market still remains low therefore giving rise to relevant efficiency concerns. Similar conclusions are drawn from the lack of fully integrated payment arrangements for other low-value payments. The authors discuss the impact of these findings, and identify briefly a number of policy lessons that could help explain the roots of the problem and define a potential way forward.

KEYWORDS: Brazil, retail payments, competition, ATM, POS, interoperability, credit and debit cards.
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1 INTRODUCTION

The objective of this paper is to analyze the efficiency implications of competition versus cooperation in Brazil’s retail payments infrastructure. In particular, the paper aims to distill the key economic and institutional features that drive competition versus cooperation in retail payments and describe their consequences on two specific market dimensions (interoperability and segmentation of infrastructure), as well as to identify relevant implications and potential policy lessons.

This paper is part of a broader study on cooperation and competition in retail payment systems in selected Latin American countries. The starting point for this study is the apparent trade-off between cooperation and competition in retail payments systems, traditionally characterized as ‘upstream cooperation combined with downstream competition’. While competition among payments service providers has been commonly seen as an important contributor to efficiency, there is a need for cooperation in building infrastructures and in defining and implementing standards due to the specific characteristics of the payments industry – namely, the existence of economies of scale (significant fixed costs), scope (potential for sharing infrastructures across instruments and clients) and networks (positive externalities from participation). However, cooperation among participants can lead to collusive practices that hurt efficiency, innovation and access. Neither the academic nor empirical literature nor standard-setting efforts to-date provide clear a priori answers as to the appropriate balance between the two forces that would lead to the most socially desirable outcome. Much depends on specific industry characteristics and external environmental factors, such as the historical evolution, the institutional set-up and the regulatory framework, which influence governance, access and pricing considerations. The lack of sufficient publicly available data and the fact that cross-subsidization across payments instruments and other products often takes place, further complicate the analysis of the economics of these systems and the determination of the appropriate regulatory balance.

The case of Brazil is particularly interesting due to its idiosyncratic features and still-evolving institutional framework. In contrast to other countries, competition between banks to-date has restricted interoperability in distribution channels of payment services – namely, automated teller machines (ATMs), points-of-sale (POS) and bank correspondents – and contributed to a segmented retail payments clearing infrastructure. Although the current institutional set-up is driven by competition and has facilitated innovation, it has adverse efficiency implications since it leads to overlapping and/or segmented payments infrastructures that reduce the exploitation of scale/scope economies and of network externalities. The Brazilian central bank (Banco Central do Brasil, BCB), in its role of promoting a safe and efficient national payments system, is currently in the process of implementing a second phase of payment modernization reforms that address these issues and increase the use of electronic payment instruments vis-à-vis paper-based instruments. The confluence of these factors raises interesting questions about striking the right balance between competition and cooperation in this market given different public policy objectives, and about ensuring an appropriate oversight role for the central bank in shaping future market developments.

The paper focuses primarily on interoperability and segmentation of retail payments systems in Brazil. For each of these two issues, the historical evolution, cur-

113 The study comprises a policy brief, an issues paper and four country case studies (Argentina, Brazil, Colombia, Mexico) that address competition versus cooperation issues in different retail payment systems and instruments.
114 See Kemppainen (2003) for an overview.
115 See Guadamillas, Stephanou and Gorjón (2008) for an analysis of these issues.
116 See Banco Central do Brasil (May 2005) for details.
rent market characteristics, drivers and consequences are described, and the potential way forward – based on current trends and, where relevant, the experience of other countries – is identified. However, the document does not explain the operating rules or risk characteristics of the retail payments infrastructure and does not describe the banking sector that represents its main user. Moreover, due to the unavailability of revenue and cost information, the financial performance of the different systems is not analyzed, although relevant drivers and actual pricing policies are discussed.

The rest of the document is organized as follows:

• Overview of Brazilian retail payments systems, and brief description of the legal and regulatory framework that underpins them (Section 2).
• Discussion of interoperability issues for ATMs, POS and bank correspondents (Sections 3, 4 and 5 respectively), focusing particularly on the historical evolution, current structure, drivers and consequences, as well as the potential way forward (Section 6) based on current trends and international experience.
• Analysis of the potential causes and consequences of segmentation in retail payments clearing systems (Section 7).
• Identification of relevant policy implications and potential lessons for other countries (Section 8).

2 OVERVIEW OF RETAIL PAYMENTS SYSTEMS IN BRAZIL

2.1 BRAZILIAN PAYMENTS SYSTEM (HISTORICAL CONTEXT AND RECENT REFORMS)

Brazil had a fairly sophisticated payment system even prior to the launching of a major reform program, which was completed in 2002. The speed and efficiency of payments achieved had been paramount, in many instances however with the neglect of sometimes large potential risks undertaken by system participants, notably the central bank. This development was partly imposed by the need to cope with high inflation rates. As the economy stabilized, the attention shifted from speed of payments to risk management. It became clear that the Brazilian payment system presented serious problems in terms of financial risks, incurred by the central bank and, ultimately, by the system as a whole.

The first shortfall was the lack of a sound and reliable legal framework for payments. Regulations governing the rights and obligations of participants in payments transactions were scattered, and large gaps existed in terms of a legal underpinning for many transactions involved in the payments process. Key examples were the lack of legal validation of multilateral netting, the

See Banco Central do Brasil (September 2006) and Western Hemisphere Payments and Securities Clearance and Settlement Initiative (September 2004) for an overview of the Brazilian payments system, and Girasino, Guadamillas, Garcia and Montes-Negret (2007) for cross-country comparisons.

See World Bank (2007b) for a discussion of the structure of the banking industry in Brazil.

117 Debits and credits between two participants can be settled on a gross basis (individually, order-by-order), on a bilateral netting basis (offsetting debits and credits between any two participants); or multilateral netting basis (where each participant’s total debits and credits to the entire system are offset, leaving the participant with a single net position in relation to the entire system). This choice impacts critically on the efficiency and risk exposure of the system, and on market characteristics such as the availability of liquidity. Gross systems eliminate risk but require more liquidity. More recent innovations in RTGS system design offer additional techniques for addressing financial risks and reducing liquidity costs for participants. Netting systems increase risk due to the deferred nature of the settlement process. Therefore, multilateral netting requires sound risk control measures (including the existence of a sound counterparty to all system participants) and clear and appropriate rules for participation.
existence of the “zero hour” rule, the lack of protection of assets pledged as collateral in case of failure of a participant, and the lack of empowerment of the central bank in its oversight capacity. These features made the Brazilian payments system particularly vulnerable to shocks and crises. Second, implicit in the previous system was an informal assumption that should any problem occur, the central bank would have guaranteed settlement. In this environment, the Banco Central do Brasil (BCB) was assuming the ultimate risks since banks were allowed to maintain negative balances in their reserve accounts held at the central bank. In particular, it was only in the morning that the central bank and the banks were able to know each commercial bank’s reserves account balances of the previous day. Thus, since the payment system worked in ‘Deferred Net Settlement’ (DNS) mode, there was a reasonable degree of intraday credit exposures. Therefore, during the day, the payment system worked on the understanding that each transaction would be final, since market participants believed that the BCB would guarantee settlement in any case. As a result, the Brazilian large value payment system was not compliant with many of the CPSS Core Principles for SIPS. Third, the system did not allow for an efficient integration between payments and securities settlement procedures since some additional and cumbersome passages were needed to guarantee delivery versus payment (DvP) in settling securities transactions – i.e., guaranteeing that securities are delivered if, and only if, there is payment, which is the ultimate desirable goal in terms of safety in securities settlement.

Two elements of the Brazilian reform process have been notable, contributing to its breadth, scope and complexity. First, the central bank conducted a comprehensive diagnostic study before defining the reform which sought to identify all forms of risks present in the system. Second, the central bank consistently involved key stakeholders in the reform debate. The central bank’s project team engaged in a series of meetings, workshops and seminars with almost all players in the Brazilian financial market (banks, other financial institutions, clearinghouses, other regulators, etc.), which enabled widespread understanding and support for the new systems.

In the late Nineties, the BCB assumed a leadership role in an on-going payments and securities system reform program with the overall objective of satisfying the evolving funds and securities transfer needs of all sectors of the economy. In particular, the reform of the Brazilian payment system had three main specific objectives. First, the reduction of systemic risk, by introducing the figure of “central counterparty” in the settlement of financial transactions. Second, a more appropriate sharing of the risks associated with settlement of payment transactions between the central bank and private market players. Third, the compliance of the main systemically important payment systems of the country with international standards and best practices.

In April 2002, the Banco Central do Brasil started operating a new settlement system (Sistema de Transferencia de Reservas - STR) which: a) settles in real time and on a gross basis transfers of funds on bank reserve accounts (RTGS); b) reduces to zero the risk for the central bank since each transfer will occur only in case of a positive balance on the reserve account to be debited; c) is consistent with international standards and best practices since, among other things, it allows only credit transfers, i.e. payment orders will originate from the financial institution whose reserve account is going to be debited. With the implementation of the STR, fund transfers are considered final, i.e. irrevocable and unconditional, in the exact moment when the accounts are moved at the central bank.

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120 Under this rule, trades can be ‘unwound’ from a given point in time, normally at the zero hour of the day in which the institution is declared failed, associated with the bankruptcy of one participant, with possible systemic consequences in netting systems where all participants’ trades would have to be unwound.

121 See CPSS (2001).
Another important feature of the reform is the definition of appropriate interactions between the central bank and the several private clearinghouses operating in Brazil. Settlements on reserve accounts of the net balances calculated at the end of the clearing process of systemically important clearinghouses occurs in all circumstances via the central bank RTGS system. To this end, the clearinghouse opens a settlement account at the Banco Central do Brasil. Within each clearinghouse system, at a time to be determined by the system’s rules, banks with net debit positions order a payment transfer to debit their accounts and credit the clearinghouse settlement account. The clearinghouse, after verifying that all payment orders have gone through, places an order through STR, also at a time determined by the system’s rules, to debit its account and credit the accounts of the banks in net credit position. In case one or more financial institutions (in a net debit position) do not proceed to send the payment order within the pre-established time, or some payments do not go through due to insufficient funds, the clearinghouse adopts the new risk control mechanisms to be contained in its rules and procedures, in order to guarantee the positive conclusion of the settlement process. At the end of the operating day, the clearinghouse will have to transfer any eventual positive balance from its settlement account to the account of one or more banks of its choice. Consequently clearinghouse settlement accounts will present a zero balance at the end of the day.

After the reform of the legal and oversight framework (see below) and of large value payment and securities settlement system was completed in 2002, the BCB started a new phase by looking more carefully at retail payment system issues. This part of the reform is still on going.

2.2 LEGAL, REGULATORY AND OVERSIGHT FRAMEWORK

Regulatory and Oversight powers of the central bank in payment systems have been reformed in recent years. The general responsibilities of the Banco Central do Brasil (BCB) are stated in its Legal Statute, Law 4,595 of December 1964. The Payment System Law of 2001 defines the scope of the Brazilian payments system. This law sets out the specific responsibilities of the BCB towards payment systems. In particular, it reinforces the BCB’S broad mandate stated in Law 4,595 to regulate payments and securities clearance and settlement systems. Resolution 2,882 of 2001 of the National Monetary Council (Conselho Monetário Nacional) states the payments system objectives of the BCB. It also defines the scope of application of BCB’s rules and interventions, namely all clearinghouses and system operators that handle interbank transfers and settle among at least three direct participants. The core of this Resolution is nine general rules that system operators must comply with. In general, these rules resemble the CPSS Core Principles for Systemically Important Payment Systems. Furthermore, according to this Resolution, the BCB will conduct oversight on a continuous basis over payment systems and, to this purpose, it is entitled to regulate the activities of system operators, authorize the functioning of the systems and apply sanctions. The Resolution also specifies that the BCB may apply specific provisions to those systems that are considered systemically important and clarifies the role of the securities regulator and the cooperative framework between it and the BCB. Finally, it states that the BCB will only operate payment systems that settle on a gross basis, in real time. Following up on this Resolution, in August 31, 2001 the BCB issued Circular 3,057. This Circular contains the detailed regulation of the functioning of clearinghouses and other payment system operators and defines several features these entities must comply with, including capital requirements, transparency standards, risk control measures, operational requirements, etc. All these elements
had to be submitted to the BCB for their revision and approval. The Annex to the Circular also defines a formula to determine whether a system is systemically important, based on the average value of the largest transaction and/or the aggregate value, both over a 6-month time span.

Other relevant payment system legal issues are covered by existing legislation. They include:

- **Collateral and Repos & Settlement Finality and “Zero Hour” Rule:** The legal framework established by the Payment System Law also grants private clearinghouses important legal rights and protections: i) legal rights to seize the collateral pledged by bankrupt participants; ii) protection of the payments system against the implications of a zero hour rule; and, iii) legal recognition to multilateral netting schemes. This legal framework also clarifies specific responsibilities for the clearinghouses: those that are designated as “systemically important” by the BCB must act as central counterparties and guarantee final settlement of the transactions they accept for clearance and settlement. These clearinghouses are subject to sanctions similar to those that are applicable to financial institutions. A specific restriction is that the net assets of a clearinghouse cannot be used as pledged collateral for any loans sought by the clearinghouse.

- **Electronic Payments, Messages and Signatures:** The electronic signature is protected legally.

The BCB effectively performs its oversight function over payment systems in Brazil. This includes:

- **Objectives, Scope, Instruments:** by law and by regulation, the BCB is committed to apply international standards to the systems it operates and to systems it does not operate. The existing legal and regulatory framework gives the BCB authority to perform its oversight function through a broad range of oversight tools, including discretionary powers. Rules to sanction abnormal behavior of intermediaries in each system have been produced. So, they are considered a crucial element to enforce risk management measures to be taken by the system’s participants since well-defined sanctions are viewed as important to ensure that adequate action is taken to remedy non-compliance with BCB rules.

These legal and regulatory frameworks give the BCB authority to perform its oversight function through a broad range of oversight tools, including discretionary powers. Rules to sanction abnormal behavior of intermediaries in each system have been produced. So, they are considered a crucial element to enforce risk management measures to be taken by the system’s participants since well-defined sanctions are viewed as important to ensure that adequate action is taken to remedy non-compliance with BCB rules.

- **Transparency of the Oversight and Dissemination of Information:** Publicity disclosed policy statements are available at the BCB website. Abundant information on payment system structure and data is available regularly from the BCB and other sources.

- **Organizational Arrangements and Cooperation:** The oversight function is performed by the Department in charge of the RTGS and banking operations within the BCB. A Memorandum of Understanding (MoU), signed on July 5, 2002, sets forth the exchange of information and previous consultation between the BCB and the Comissão de Valores Mobiliários (CVM) concerning issues related to entities dealing with settlement of financial assets. The MoU is available on the BCB web-site. Formal agreements have been signed between the BCB and anti-trust authorities, in particular in the area of retail payments. Although the BCB has a clear policy of cooperation with other stakeholders and system participants, no structured cooperative body, such as a Payment System Council exists in Brazil.

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122 A memorandum of understanding has been signed on July 14, 2006 between the BCB and the two government branches in charge of anti-trust (Secretaria de Direito Economico, SDE, and Secretaria de Acomphamento Economico, SEAE). The document is available on the BCB web-site.
2.3 RETAIL PAYMENT INSTRUMENTS AND CIRCUITS

Cheque Clearinghouse

Brazil has been traditionally characterized by the heavy use of cheques, which are compensated efficiently, normally in T+1, at the COMPE (Centralizadora da Compensação de Cheques e Outros) operated by the Banco do Brasil (BdB), a government-owned commercial bank. The COMPE is regulated by the BCB. All commercial banks, multiple banks with commercial operations and savings banks are participants in the COMPE. Participants’ reserve accounts at the BCB are linked to another account (the “linked account”) created for the financial settlement of interbank obligations arising from the COMPE. This account receives deposits through funds transfers ordered by the account holders through the STR.

Basic features and processing are standardized across the country. All cheques contain magnetic ink character recognition (MICR) encoding. Cheque truncation has not yet been implemented in Brazil at the system level. The COMPE holds two daily sessions for the exchange and return of documents: i) cheques up to a limit established by the BCB (currently R$299.99) that were accepted by the banking network during the previous business day. These cheques are settled by T+1, one day after the acceptance by the banking network, at the level of the participants; ii) this session covers cheques for individual amounts above the R$299.99 limit received in the banking network during the same business day (T), and are settled by T+1 at the level of the participants.

As there are no safeguards to guarantee settlement, if a participant does not have sufficient funds for settling its obligations, an unwinding of the multilateral positions is made and the relevant institution is excluded from the settlement process.

Direct Credits and Direct Debits

Direct debits are used extensively to pay utility bills and are based on intrabank transactions, i.e. the payee and payer must have deposit accounts in the same bank.

Regarding intrabank credit transfers, the most used instrument is known as Bloqueo de Cobrança. Other instruments are available, namely the TED (Transferencia Electronica Disponivel), the DOC (Documento de Credito) and the TEC (Transferencia Especial de Credito). The Ted is a same day fund transfer, which is settled on a gross basis and does not have any amount limit. The DOC is a T+1 fund transfer, for amounts lower than 5,000 reais. The TEC is an immediate transfer, which moves the accounts of the payer and the payee within the same day, and is also limited to amounts lower than 5,000 reais.

The Sistema de Liquidação Diferida de Ordens de Crédito Interbancárias (SILOC) is a multilateral net settlement system that settles interbank obligations related to DOCs and Bloquetos, for amounts lower than 5,000 reais. It is operated by the Câmara Interbancária de Pagamentos (CIP) and went live in February 2004. All deposit-taking institutions have access to the SILOC.

The SILOC holds two daily settlement sessions: the DOCs and Bloquetos issued in the day before (T-1) are usually settled in the morning session, through a settlement window that ends at 8:20 a.m., while returned items are usually settled in the afternoon session, which ends at 4:10 p.m. The multilateral balances are informed by the CIP. Funds transfers from participants with a net debit position to CIP, and from CIP

123 Bloqueos de cobrança are documents used to pay bills. A customer receiving a bloqueo de cobrança takes it to a bank and pays in cash or writes a cheque to authorize payment through his account. Alternatively, the customer can input the bar-coded numbers at a home-banking station or ATM. Banks charge the payee an interbank fee to use them. They are cleared and settled electronically and when it is the case the physical item is truncated at the collecting bank.

124 The TECs are cleared on a multilateral basis.
to the participants with net credit positions are made through the STR. Final settlement occurs once the BCB posts the multilateral balances in the reserve accounts.

An unwinding of the positions would occur if a participant is unable to cover its settlement position.

**Payment Card Systems**

The most representative institutions are Visanet and Redecard, which provide the settlement and clearing services to credit and debit card transactions from Visa and Mastercard, respectively. TecBan, which settles transactions from Banco24Horas, an ATM network with 52 associated financial institutions, is a national debit card scheme owner. Currently, banks are replacing some of the latter services, with Visa Electron and Maestro schemes.

Credit cards represent nearly 40 percent of the total credit card business in Latin American markets and 2.6 percent of the credit card business in the global market. The main brands in Brazil are Amex, Diners Club, HiperCard, MasterCard, and Visa. The issuer segment of the industry has increasingly become a bank business. The main players in this area are Banco do Brasil, Bradesco, Itaú, Unibanco and Citibank. Since April 2002, the interbank settlement of credit card transactions was removed from the COMPE. For this purpose, RedeCard and VisaNet, the exclusive acquirers for MasterCard and Visa brands in Brazil, turned themselves into clearing-houses to provide settlement services on a multilateral netting basis.

ATM networks are not fully interoperable in Brazil. All of the major private banks in Brazil operate their own ATM network. Smaller banks participate to the shared

![Figure 1: Evolution of ATMs by Functionality (2000-2006)](image)

**Source:** Febraban.

**Note:** Febraban figures differ slightly to those of BCB, especially in earlier years.
network operated by TECBAN. POS networks are also not interoperable.

Data and trends on card instruments are presented in the sections below.

3 INTEROPERABILITY ISSUES – ATMS

Both the availability and use of ATMs have grown in recent years. In particular, the volume and value of transactions using ATMs increased by 92 percent (7.3 billion in 2006) and 128 percent (1.1 trillion reais in 2006) respectively over the period 2001-06. Compared to other countries, the demographic coverage of ATMs (797 terminals per million inhabitants in 2005) is comparable with some European countries (e.g. France, Italy, Switzerland). Although the geographical coverage is also comparable with countries of similar size, most ATMs are concentrated in urban areas – in fact, Sao Paulo and Rio de Janeiro account for almost one-half of the total. As shown in Figure 1, there has been a progressive move recently towards multi-purpose ATMs that can offer a variety of services (see below).

The functionality offered by some ATMs in Brazil is extensive compared with other countries, although it varies by location. In addition to traditional services (i.e. deposits, cash withdrawals, account inquiries, funds transfers etc.), many ATMs also offer more innovative transactions such as bill and tax payments, cheque issuance, credit applications, and even insurance sales. The latter types represent a shift away from a transactional view of ATMs (i.e. to maximize customer migration away from branches in order to decongest them) and towards a relational view of ATMs (i.e. to allow personal marketing and increase cross-sales). As

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**FIGURE 2: ATM TRANSACTIONS BY TYPE (2006)**

Source: BCB.
Note: Bill Payments include bloquetos de cobranca. Other Functions includes cheque dispensers, consumer credit, and investment-related transactions.
a result, Brazil exhibits a relatively lower use of ATMs for ‘traditional’ transactions than other countries (Figure 2). However, functionality varies significantly by location, with ATMs located in branches catering to a bank’s own customers being the ones that offer the greatest variety of services. In fact, only around one-fifth of all ATMs are currently ‘off-site’ – in the sense of being located outside bank branches – although this number is increasing rapidly (Figure 3).

The ATM market is primarily dominated by larger banks. The number of ATM networks has not changed substantially in recent years. As of 2006, there were 25 proprietary ATM networks, many of which were regional in nature reflecting the geographical focus of their bank owners. All large banks operate their own proprietary network, while some smaller banks share ATMs in order to benefit from economies of scale. **Tecnologia Bancária** (TecBan) is the only non-proprietary shared ATM network in Brazil. TecBan is a not-for-profit organization that is owned by several Brazilian banks and operates the **Banco24Horas** network, which comprises both TecBan’s own terminals located in public places (around 4,000 ATMs) and the proprietary ATM networks of 13 participating banks (around 30,000 ATMs)\(^{125}\), as well as provides outsourcing services for the terminals of a few banks (around 1,000 ATMs).

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\(^{125}\) These include Unibanco, ABN-Santander, HSBC, Nossa Caixa, Citibank, and some smaller banks.
ATMs). *Rede Verde e Amrela* (RVA), which is another non-proprietary ATM operator, does not yet have its own network but rather acts as a switch for the ATM networks of 11 current and former state-owned banks. RVA is run by technology company ATP on behalf of the Brazilian Association of State and Regional Banks (*Associação Brasileira de Bancos Estaduais e Regionais*, ASBACE).

Interoperability remains low and bank clients tend to avoid the use of non-proprietary ATM networks. While BCB reports an increase in the proportion of ATMs that are accessible to customers of other banks (‘open access’ – see Figure 4) to 40 percent of the total in 2006, there are several important qualifications to be made. Firstly, ‘open access’ is generally not multilateral: many ATMs are actually open only to customers of specific banks as a result of bilateral agreements, such as those reached recently between *Banco do Brasil* (BdB) and *Caixa Economica Federal* (CEF), and between BdB and Bradesco. Only the ATM networks of TecBan and RVA are plurilateral in nature\(^1\), although use of these networks is not fully reciprocal – for example, card-carrying customers of Bradesco can access a *Banco24Horas* network could be accessed by 24 banks (including by some small banks that do not have their own ATM network) and around 93 million payment cards as of June 2006, and represented around 4 percent of the total volume of ATM transactions in 2006.

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\(^1\) For example, the Banco24Horas network could be accessed by 24 banks (including by some small banks that do not have their own ATM network) and around 93 million payment cards as of June 2006, and represented around 4 percent of the total volume of ATM transactions in 2006.
ATM terminal that belongs to another bank, but not vice versa. Secondly, interoperability is typically limited to a minimum set of basic convenience-related transactions, such as account inquiries, deposits and cash withdrawals; these are the only types of transactions that are currently offered by TecBan and RVA. Thirdly, interoperable ATMs are often located in public places while those located inside branches tend to be closed to other banks’ customers, presumably in order to discourage active ‘switching’ behavior. Finally, the fee structure for using ATMs belonging to other banks can be prohibitive, which partly explains the very low proportion of shared transactions in ‘open access’ ATMs (Figure 4). In fact, interoperability might actually be better for foreigners, since many ATM networks allow transactions of cards carrying international brands (Cirrus, Maestro, Amex) that are issued abroad, but not transactions for the same payment cards if they are issued by a local bank that does not own the ATM network. These facilities have been made available to foreigners on a broad basis only in recent years and are only available in main city or touristic centers.

Low ATM interoperability can be potentially attributed to several factors. It is difficult to directly attribute low interoperability to any single driver. However, anecdotal evidence suggests that strategic considerations stemming from the current banking market structure might represent the most important contributing factor. In contrast to other countries that have highly concentrated banking sectors (see below), Brazil’s relatively lower bank concentration in the past may have diluted the benefits and increase the (actual or perceived) costs of cooperation. In addition, the asymmetric market structure (few large and many small banks), the high geographical overlap in ATM networks between the main banks (focus on urban areas, especially in the southeast of Brazil), as well as the high initial investment costs to set up the ATM infrastructure, may help explain the unwillingness of large banks to open up their networks to competitors, particularly small ones. The situation had been compounded until recently by the lack of portability of bank accounts and the absence of an interbank direct debit service (see next section), which strengthened banks’ comparative advantage from having a large proprietary ATM network. Different technical and security standards arising from the development of proprietary ATM networks and the limited use of international terminal vendors, as well as distinct business rules (i.e. pricing, execution times, charge-backs, communication protocols etc.) are also factors that may have slowed down the integration process. This is because of the perceived cost of harmonizing rules and standards across banks, and the related issues of allocating those costs and of setting interbank fees in order to reach an appropriate equilibrium between different players. The existence of a growing bank correspondent network by some banks (see section V) and of the bloquete de cobrança for bill payments might also reduce incentives to share ATM networks since a bank’s

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127 Until recently, regulations discouraged the transfer of accounts across banks either by taxing financial transactions (Contribuição Provisória sobre Movimentação Financeira, CPMF tax), which was in any case also applied to intra-bank payments, with the exception of transfers between accounts of the same holder) or by inherently locking clients with one bank due to the nature of payroll account relationships. The latter allowed banks to obtain important information on their customers and to provide them with payroll loans (a very popular product), and forced many customers to stay with the same bank for convenience purposes (given search costs and lack of ATM interoperability across banks). The potential payoffs from this “captive market” seemed to be so high that, in fact, banks paid considerable amounts to corporations and state/local governments to manage their payrolls. This situation is changing since the CPMF tax was abolished in early 2008, while the authorities introduced regulations in 2006-07 to de-link the retail and corporate relationships by promoting the portability of wage and loan accounts.

128 Security concerns are very relevant in some areas of the country and have played an important role in the developing of proprietary solutions, as the needs differ from bank to bank in this area, according to the location and coverage of the network.

129 Due to a history of hyperinflation and a fairly closed economy, large Brazilian banks had developed their own technological systems and networks to capture the benefits of float. As a result, much of the existing banking infrastructure in Brazil is proprietary and does not rely on third-party vendors.

130 By contrast, differences in the variety of ATM services, which has been cited by some banks as one of the factors that impedes higher interoperability, appears to be more of an excuse and a manifestation of other factors. ATM interoperability in other countries typically applies to a set of basic services, while each bank can still offer additional customized products on its proprietary ATM network to its customers.
FIGURE 5: AVERAGE ANNUAL NUMBER OF TRANSACTIONS BY ATM NETWORK (2004)

Source: Banks and Tecban.

FIGURE 6: CROSS-COUNTRY COMPARISONS OF ATM TRANSACTIONS BY TERMINAL AND PER CAPITA (2005)

Source: BCB (May 2005).
customers have access to a broader number of service points than the bank’s own ATM and branch networks for certain types of transactions. Finally, the ownership structure of TecBan, which is the only mid-sized, non-bank player that could be used as a conduit to integrate proprietary ATM networks across banks, might also have prevented more cooperation.\(^{131}\)

The consequences of low interoperability are overlapping coverage and inefficiency. The adverse consequences from a low level of interoperability are recognized by BCB,\(^{132}\) and include overlapping ATM networks that distort any comparisons of Brazil to other countries in terms of geographical and demographic coverage, as well as their inadequate use by bank customers leading to inefficiencies and high operational costs. In particular, low interoperability complicates the exploitation of economies of scale and positive externalities. As can be seen in Figure 5, many proprietary ATM networks – especially smaller ones – have relatively few transactions. In terms of cross-country comparisons, Figure 6 shows that Brazil has a relatively low number of ATM transactions per capita and by terminal, in spite of being comparable in terms of the number of ATMs per capita. The cost of deploying and maintaining ATMs might also have adversely affected the capillarity of bank ATM networks, with the rural, lower-income and less populated parts of Brazil being at a comparative disadvantage.

International experience suggests that ATM interoperability tends to arise naturally due to market conditions, although it can take time and depends on the structure of the banking sector. In particular, there are different configurations across countries, ranging from a single (usually bank consortium-owned) ATM network integrating the proprietary networks of all banks (e.g. UK, France, Portugal) to a more complex ‘patchwork’ structure of proprietary yet interoperable – at least in terms of basic services – ATM networks (e.g. USA, Spain, Italy, Netherlands). Interbank fee arrangements for shared networks also differ substantially, with banks in some countries charging no fees on ATM transactions (e.g. UK, Portugal) as they prefer to bundle or cross-subsidize such services. Brazil differs mainly in terms of its low level of ATM interoperability, although one could argue that it is currently undergoing the same integration process that other countries had gone through in the past, such as the UK (Link), Chile (Redbanc), and the USA (Plus and Cirrus)\(^{133}\).

ATM interoperability in Brazil will likely continue to expand, albeit unevenly and on a bilateral basis. The aforementioned potential explanatory factors for low ATM interoperability – especially strategic ones – continue to remain relevant and will likely prevent the fast and smooth integration of proprietary ATM networks. In the absence of regulatory pressure or of big changes in the operating environment (e.g. further bank consolidation, cost pressures due to saturation of ATM coverage and declining loan spreads, modifications in TecBan’s governance arrangements), it is likely that interoperability will mostly advance incrementally – including in terms of the functionality offered and location of ATMs to be shared – via bilateral agreements between the larger bank players on the basis of their private risk-return considerations. Discussions are apparently already taking place between these banks in order to determine the extent and appropriate remuneration of ATM network integration. However, the current banking sector mentality, which has been shaped by Brazil’s historical experience (i.e. hyperin-
Table 1: Recent Evolution of the Cards Market in Brazil

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>Growth 2004-2006</th>
<th>CAGR</th>
</tr>
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<tbody>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Cards (million)</td>
<td>277</td>
<td>338</td>
<td>379</td>
<td>36.8%</td>
<td>17.0%</td>
</tr>
<tr>
<td># Transactions (billion)</td>
<td>2.9</td>
<td>3.7</td>
<td>4.3</td>
<td>48.3%</td>
<td>21.8%</td>
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<tr>
<td>Value of transactions (R$ billion)</td>
<td>164.1</td>
<td>203.2</td>
<td>246.3</td>
<td>50.1%</td>
<td>22.5%</td>
</tr>
<tr>
<td>Value of transactions (USD billion)</td>
<td>[94.10]</td>
<td>[116.53]</td>
<td>[141.24]</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Credit Card</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Cards (million)</td>
<td>53</td>
<td>68</td>
<td>79</td>
<td>49.1%</td>
<td>22.1%</td>
</tr>
<tr>
<td># Transactions (billion)</td>
<td>1.4</td>
<td>1.7</td>
<td>2.0</td>
<td>42.9%</td>
<td>19.5%</td>
</tr>
<tr>
<td>Value of transactions (R$ billion)</td>
<td>101.3</td>
<td>123.0</td>
<td>151.2</td>
<td>49.3%</td>
<td>22.2%</td>
</tr>
<tr>
<td>Value of transactions (USD billion)</td>
<td>[58.09]</td>
<td>[70.54]</td>
<td>[86.71]</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Debit Card</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Cards (million)</td>
<td>138</td>
<td>171</td>
<td>187</td>
<td>35.5%</td>
<td>16.4%</td>
</tr>
<tr>
<td># Transactions (billion)</td>
<td>1.1</td>
<td>1.4</td>
<td>1.6</td>
<td>48.4%</td>
<td>21.8%</td>
</tr>
<tr>
<td>Value of transactions (R$ billion)</td>
<td>44.2</td>
<td>58.2</td>
<td>69.4</td>
<td>57.0%</td>
<td>25.3%</td>
</tr>
<tr>
<td>Value of transactions (USD billion)</td>
<td>[25.35]</td>
<td>[33.38]</td>
<td>[39.80]</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Private Label</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># Cards (million)</td>
<td>86</td>
<td>99</td>
<td>112</td>
<td>30.2%</td>
<td>14.1%</td>
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<tr>
<td># Transactions (billion)</td>
<td>0.5</td>
<td>0.6</td>
<td>0.7</td>
<td>34.8%</td>
<td>16.1%</td>
</tr>
<tr>
<td>Value of transactions (R$ billion)</td>
<td>18.6</td>
<td>22.0</td>
<td>25.7</td>
<td>38.2%</td>
<td>17.5%</td>
</tr>
<tr>
<td>Value of transactions (USD billion)</td>
<td>[10.67]</td>
<td>[12.62]</td>
<td>[14.74]</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Brazilian Association of Credit Card and Service Companies - AB ECS (June 2007).

Inflation, proprietary networks and technological competition – is likely to slow down this process.

4. INTEROPERABILITY ISSUES - POS

4.1 HISTORICAL EVOLUTION

Prior to the creation of single acquiring networks, card issuers operated both in granting credit to cardholders and in the affiliation of merchants to accept cards as a means of payment. However, the concentration of a substantial share of the banks’ business on corporate lending and banking services to the government was instrumental to a broad reorganization of the industry in clusters. The crucial role played by the card associations in providing an overall regulation for the organization and functioning of card payments, the need for cooperation among the various actors due to the existence of network effects along with banks’ limited expertise in building and retaining merchant relationships seemed to, naturally, pave the way for the adoption of a more collaborative approach. Moreover, with inflation back to a moderate trend in the mid 90’s and the gradual reduction in the credit spreads, additional incentives arose for banks to cooperate in trying to increase volumes as a key source of revenues for the cards business.

Thus, nowadays, merchant acquiring and payment card processing in Brazil visibly exhibit features of a highly concentrated industry. In 1996, three of the largest banks in Brazil (Citibank, Itaucard and Unibanco) agreed on creating a company specialized
on relationships with merchants and payment processing activities. For this purpose, they established the so-called Redecard S.A. by spinning off both the above-mentioned business lines from their shared credit card management company: Credicard. As a result of a previous joint venture between Credicard and MasterCard International, the latter further became a shareholder of Redecard S.A. right after its foundation. This helped ensure a prevalent focus of the newly formed company on MasterCard (and later on also on Diners Club) branded credit and debit card transactions. That same year, Visa International, Bradesco, Banco do Brasil, ABN Amro (former Banco Real) and the now extinct Banco Nacional announced their plans to pursue a similar strategy and, so, to unify the processing and acquiring of Visa-related card payments under the aegis of a single corporation: namely, Visanet\textsuperscript{134}. As a result, currently VisaNet processes about a half of all card transactions in the market, leaving Redecard with slightly above a 37 percent market share in all.

In addition, up until 1996, a non-duality rule as regards the issuance of Visa and MasterCard labeled cards was also in place. Pre-existing arrangements in the Brazilian payment cards market had issuing banks facing the choice of joining either one brand and giving up the competing one. Nonetheless, a gradual consolidation of the banking industry in the 90’s\textsuperscript{135} led to a swift termination of this exclusivity and, thus, put an end to a restrictive practice which had often been perceived by the market players as determinedly harmful for the actual expansion of the market.

Interestingly, alongside the international brands, in recent times other smaller players have started to gradually gain momentum in the market. Private label cards, international three-party schemes and a few other domestic card products, some of which are further endorsed by the banking sector, appear to be showing clear signs of success. This heterogeneous group already accounts all together for a market share of about 25 percent, and it is growing up very fast\textsuperscript{136}. Along with the likes of Amex and Diners Club, up to 26 additional card brands currently populate Brazil. Quite often the strategy followed by these actors is that of becoming niche players, i.e. to target specific market segments that are less exploited by the large international schemes. It needs to be noted that some of this private labels are becoming “hybrid” cards, as they also carry the Visa or Mastercard brand.

4.2 CURRENT SITUATION IN THE MARKET

Vertical integration and provision of similar product/services are distinctive features of the largest players in the POS market: Redecard and Visanet. Both these companies are in charge of managing the affiliated network of merchants, of capturing, transmitting, processing and conducting the settlement of transactions resulting from the use of card transactions and of developing related or connecting business to any of the aforementioned items. One and the other, further claim to offer a wider or narrower set of value-added products and/or services through their terminals such as, e.g., capture and transmission services for transactions carried out with voucher or the actual rental and ongoing maintenance of POS devices.

However, notwithstanding their similarities, a number of significant differences can be traced down. As of 2007, Redecard S.A. is a publicly listed company in the São Paolo stock exchange (BOVESPA). Presently, almost a third of its capital is free float and the remainder is about equally allocated among its controlling

\textsuperscript{134} Along with the former two companies, the Brazilian acquiring market is further served by a few other, niche-type specialized businesses.

\textsuperscript{135} One such example was the acquisition, in 1995, of Banco Nacional by Unibanco. As a result of the merger, two former competing banks in the card issuing market found themselves at a time holding both a Visa (through Banco Nacional) and a MasterCard issuing license (via Unibanco’s participation in Credicard).

\textsuperscript{136} According to ABECS estimates, in the last two years private label cards have shown a spectacular growth totaling 700 million transactions in 2006 out of a 4.3 billion aggregate figure.
shareholders: namely, Citibank, Itaú and Unibanco. Conversely, Visanet is a mutually-owned company in whose capital every single issuer of a Visa-branded card is entitled to participate. To this date, three large banks and Visa International are the primary investors (together, they hold about 95 percent of the capital). The remaining 5 percent is distributed among 12 banks whose equity is adjusted annually on the basis of their level of activity. Further relevant differences are, e.g., the offering of a service for the prepayment of receivables to merchants of the sales performed with credit cards: a business line only found in Redecard. Moreover, opposite to Visanet, Redecard is not granted an exclusivity status in the acquiring of MasterCard and Diners Club related transactions in Brazil. For this reason, some (three) entities have already obtained a concurrent authorization which, however, none of them has yet exercised.

Merchant discount fees are unmistakably the largest source of revenues for acquirers. Nonetheless, other business lines have shown to provide non-negligible proceeds, too. Merchant discount fees are negotiated bilaterally between the acquirer and the merchant on a case-by-case basis. The size of the transaction business at stake –both in terms of volume and value–, the package of value-added services provided to the client as well as other strategic decisions related to the activation of each particular merchant are decisive factors in the final outcome. Thus, on average merchant discount fees are said to fluctuate between 4/5 percent for smaller merchants and about 1.5 percent for larg-

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1 Visanet is in an advanced stage to go public, as well. It will be listed in the Sao Paulo stock exchange (BOVESPA).
er ones. The brand and type (credit vs. debit) of the underlying card may further explain a greater disparity. Rental payments stemming from the lease of POS equipments represent about 20 percent of the recurring and foreseeable operating revenues. They vary in accordance with criteria such as the business segment of the merchant or its location. Likewise, the use of float also arises a lesser known, though still relevant, pricing mechanism applied by acquirers. Indeed, on average, interbank settlement of outstanding balances between issuers and acquirers typically takes place on T+27 or T+29. Final settlement on the accounts of the merchant is, however, usually delayed until T+30.

Despite the strong concentration on the acquiring business, there are no clear signs that innovation has been seriously hindered. As a general rule, the process of capturing and transmitting relevant information related to a card purchase transaction has already been fully automated, without further need to recourse to a paper voucher. Moreover, the large majority of POS equipments have been recently upgraded to become EMV compliant for greater security and convenience. What’s more, large investments have taken place in the development and promotion of secure capture applications for Internet transactions, and the set of available on-line services for merchants and customers seems to show a steady growth (such as, e.g., account statements, conciliation and on-site fraud detection tools, instant access to consumer finance, pre-paid cell phones re-charging features, etc.). In addition, mobile technology is currently being tested in different environments in the hope of expanding the reach of card payments to other segments like door-to-door sales, transportation and/or delivery services, among others.

Yet, most importantly, current arrangements in the POS infrastructure of the Brazilian cards market reveal significant shortcomings concerning the effective degree of interoperability. The present model whereby the acquiring business is organized along the lines of a limited number of isolated, vertical structures per card brand is believed to yield an inefficient outcome. Fragmentation is, thus, leaving merchants with the dizzying choice of whether to enter into a multiplicity of relationships with each and every single acquirer or, alternatively, to give up on accepting different brands. Various demand and, to a greater extent, supply factors are at the root of the problem and, furthermore, they are still the reason why progress in the field is so slowly taking place. In the following section, a more detailed explanation on the influence of these drivers will be provided.

4.3 INTEROPERABILITY: INHIBITORS AND CONSEQUENCES

By its very nature, the absence of full interoperability between different POS networks is a multilayered problem. According to estimates, in 2006 some 150,000 physical terminals (out of a total of around 2.6 million) exhibited a certain degree of interoperability. However, modest efforts by some of the largest players to reduce fragmentation (i.e. Visanet and Redecard) and, most notably, the growing role played by a small num-

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138 In the particular case of Redecard, net financial revenues from prepayment of receivables to merchants resulting from credit card transactions captured represent an additional 20 percent of the total net revenue of the company. Since 2002 they have been showing an average annual growth of 31.9 percent. However, this revenue stream is expected to decline in the coming years in line with the company’s strategy of seeking a greater involvement by credit card issuers in these operations (in exchange for increases in the volume of MasterCard and Diners Club branded credit cards issued).

139 Indeed, the primary goal of Redecard IPO’s strategy was to generate a flow of net proceeds to be entirely applied to making additional investments in Redecard’s own technological infrastructure: i.e. acquiring both, new hardware and software.

140 Interestingly, international experience has shown that in an industry with a structure like the one described above, it’s easy to see other relevant concerns -such as those related to the process of determination of interchange fees- arising. However, in the particular case of Brazil such issues are yet unheard of, for which reason they have not been subject of any further analysis in our paper.

141 Not counting the proprietary solutions integrated in the front desk automation facilities of most large stores and suppliers, which might introduce some form of operational risk according to some local IT experts.
ber of independent providers of multiplatform/multiservice facilities -such as, e.g. Getnet Tecnologia- seem to be slowly contributing to making a change. As was the case with the ATM market, POS segmentation is the result of various intertwined factors picking up on a wide array of issues that range from the state of technological development to strategic decisions, from governance to business rules and practices. Several of the most recurring arguments to explain this lack of interconnectivity are reproduced below as are some its most visible repercussions.

First and foremost, on the supply side, a large consensus has built up that additional and fairly costly IT investments would be needed in order to raise the figure of compatible POS. Different reasons seem to explain the present circumstance. On the one hand, information storage and processing capacity of existing devices has nearly been exhausted as the provision of a customized set of value-added services is typically embedded in the functional features of the electronic capture equipments. Therefore, acquirers claim, achieving a smooth interaction between different POS deployers requires first a carefully planned replacement and/or enhancement strategy of the actual terminals and communication channels (and, probably, also a change in the operational procedures, i.e. in the system’s management and administration). Software-related con-

\[\text{\textsuperscript{142}}\text{ Indeed, according to industry practitioners about half the number of POS currently in place would need to be replaced as they are not ready to support the necessary upgrades to become interoperable.}\]

\[\text{\textsuperscript{143}}\text{ These are often non-negligible expenses as they can easily entail a very large share of the overall cost structure of launching a card system. This is very well illustrated, among other authors, by Goldfinger (2003) in the particular case of the smart cards industry.}\]
cerns do, furthermore, arise as standards, message formats and protocols (along with communication interfaces and other system components) have often been chosen in a unilateral manner\textsuperscript{144}.

Second, alongside revamping the hardware and software infrastructure, acquirers further argue that their entire business model would also call for major changes. Thus, strong leadership and sufficient time will be required to broker complex agreements on such controversial topics as the allocation of roles and responsibilities in case of fraud, applicable pricing structures, choice of products/services that will be finally shared or how product development and sales will be carried out without interfering in the individual market strategies of competing companies. Thus again, the timing of a non-organic enlargement of the Brazil’s disjointed POS infrastructure is likely to be dictated by a lengthy bargaining process between different interest groups were path-dependence, size and enforceability are acknowledged to play a crucial role\textsuperscript{145}.

Third, the aforementioned setbacks might have moreover escalated in the past as a result of a fairly uncompetitive industry structure in the provision of technical devices, software and integration services. It appears that up until 1993, the Brazilian market was closed to technology imports from abroad. Different regulations prevented the acquisition of IT solutions from foreign providers, for which reason an oligopoly seem to develop at the level of the local market: i.e. a small number of local vendors evolved which, in most cases, were related to the incumbent acquirers or their stakeholders. As a result, legacy solutions were favored and first-mover advantages were so given to domestic firms. Thus, international competitors were left behind, facing a substantial number of entry and mobility barriers. The situation has substantially improved so far, but still some foreign third party suppliers argue that it’s hard for them to position themselves in the Brazilian market. Cost-disadvantages may support their claims as some newcomers dispute the lack of formal certification procedures properly managed by the local licensees of the international brands. This latter aspect, however, could not be formally attested.

Four, disagreements over interchange fees and particular features of governance arrangements may have also thwarted reciprocal accords. The fact that several middle-sized card issuers have disputed the validity of the pass-through levels of merchant discount fees may potentially reveal a source of conflict that would need to be solved as a pre-condition to muster a stable inter-connectivity agreement across the various networks\textsuperscript{146}. Whereas exact figures are missing, these issuers claim that current allocation of the rents extracted from the merchants at the point of sale is, on average, about 300 basis points below the standard international levels. Since an expected outcome of greater interoperability is certainly the increase in the inter-system competition and, as discussed in the literature\textsuperscript{147}, this could in principle either imply an increase or a decrease in the resulting interchange fees, a complex negotiation period may still lay ahead. Aspects such as the bargaining power of the issuers and the merchants (based, inter alias, on the size of their business and their influence in the decision-making bodies of the industry), the factual degree of single-homing and other strategic consider-

\textsuperscript{144} One often-cited example relates to the security aspects of a card-based transaction, since both Visa and MasterCard-branded products have been smart card enabled but American Express ones haven’t.

\textsuperscript{145} Here again several topics of interest may arise, such as the reluctance to adopt a new and more efficient technology due to the transition costs (Farrell and Saloner, 1986: Kemppainen, 2003) and the potential risks of lock-in effects and collusive behaviors (Shy, 2001; Martin, 1996).

\textsuperscript{146} It should be noted, however, that following a new policy by MasterCard to improve the remuneration of card issuers, in 2006 interchange fees experienced a 12.6 percent increase over the previous year.

\textsuperscript{147} For a comprehensive discussion on the effects of interchange fees on competition between different payment systems see, Rochet & Tirole (2003) and Guthrie & Wright (2003; 2005).
ations might need to be carefully assessed and balanced and, so, a belated endgame can be anticipated.\footnote{148}

Five, the pursuit of sustainable network-based competitive advantages has proven a recurrent and rational strategic behavior in incumbent acquiring firms. As literature and empirical research show, firmly-grounded network positions confer incumbents a significant competitive advantage by providing access to valuable and scarce resources\footnote{149}. In deploying their own POS networks, established institutions in Brazil have made substantial investments in technologies, systems and marketing, thus developing a distinctive franchise value in the market. Smaller players typically lack resources, project management skills and technical expertise necessary to plan and implement equally large-scale POS projects, for which reason significant asymmetries between competing organizations have arisen. Dominant players are observed to have been conducting themselves very consistently when examining the potential complementariness to be drawn from cooperative alliances with competitors. Therefore, smaller competitors are frequently discarded without delay to prevent two-way relationships from just ensuring increased benefits to the one party with the less significant base of retailer outlets\footnote{150}.

\footnote{148} It also needs to be taken into account that card issuers can benefit from several days of float, which is not common in the international experience. This might outweigh some of the implications discussed in this paragraph.

\footnote{149} See, inter alia, Burt (1992), Gnyawali & Madhavan (2001) and Maurer & Ebers (2006).

\footnote{150} This makes for a particularly strong case in the POS market. In comparison to the industrialized countries, Brazil still exhibits a significantly low level of card penetration among merchants (e.g. about 30 to 35 percent of merchants in Brazil are estimated to have access to POS vs. 80 percent in the US). Naturally, great potential for a growth in revenues lies ahead and larger acquirers are the ones now better positioned to reap the benefits of said expansion.
And six, industry’s low-key approach to achieving interoperability is likewise believed to derive both from the need for a greater public intervention and anti-trust concerns. Despite growing volumes of card transactions and significant improvements in terms of cost both in the deployment of terminals and communication infrastructures, the use of payment cards in Brazil still remains low as compared to other countries (see, figure 7 and 8). Revenue streams from the acquiring business thus stay limited and volatile, hence altering the rationale and timeframe for advancing acutely demanding investment decisions. Consequently, scale effects are still under-exploited and industry-promoted interoperability initiatives may have been put on hold for the same reason. Indeed, card acquirers and banks seem lately to have drawn the attention of the public authorities to several domains where they think intervention would be needed. In particular, a fairly inadequate access to financial services\(^{151}\), the high interest rates and the customers’ poor financial culture stand out as the principal impeding factors affecting the use of cards. What’s more, the remarkable rate of informality in the economy, especially in those market segments with a greater importance to the cards industry, is furthermore posing difficult challenges to the industry and the policy-makers\(^{152}\). In addition, examples of a tighter scrutiny of card payment arrangements in some industrialized countries and the threat of legal proceedings related to the formation of a cartel in the Brazilian market have further been the source of some distress.

\(^{151}\) According to World Bank estimates, in 2007 only 43 percent of the households in Brazil had access to an account with a financial intermediary.

\(^{152}\) Informality in Brazil is said to be 42.3 percent of GDP. The proliferation of both general taxation through federal, state and municipal budgets as well as special tax on banking transactions along with the complexities of doing business in Brazil are believed to be the main drivers for such high figure.
4.4 INTEROPERABILITY: POTENTIAL ENABLERS

Albeit the above arguments there is an overall understanding that abridged interoperability is obstructing the modernization of the retail payment systems and that potential benefits are being misplaced. Both the acquirers and the central bank have acknowledged that a better allocation of the productive resources in the economy would immediately follow a greater degree of interoperability in the POS market. Most notably, the optimization and ensuing cost reduction in the use of equipments has been pointed out in the first place as duplication of hardware in one single establishment would no longer be necessary. As a result, the adherence process of merchants would be extremely simplified and cost-savings could be further attained from reduced renting and maintenance fees as well as due to shortened staff training and the implementation of less burdensome administrative and control procedures.

Interestingly, although sharing the views of the authorities, acquirers disagree on the actual need for an urgent action as it may stall present development trends. Though recognizing the drawbacks caused by a lack of interoperability, large acquirers make a case that concentration of their activities in vertically integrated companies has been beneficial to the growth of the cards market. By providing scale in the production and processing of card payments, these arrangements allegedly have contributed to the steady expansion and present capillarity of the network. Hence, the establishment of single acquirers has brought significant cost-savings as regards ICT applications and hardware and, furthermore, it has been central to accumulating the large resources needed to undertake mounting investments in the deployment of terminals and in order to trigger innovation. Moreover, in the light of recent international experience, acquirers claim that changing the structure of their activities by transferring to financial institutions the responsibility for signing up merchants has not yet proven a successful strategy. This, so they say, has been abundantly clear in the example of the Netherlands and Interpay back in 2003 where, according to so-claimed empirical evidence, the measures taken did not visibly contribute to a surge in the levels of competition for the provision of merchant acquiring services.

What is more, in their opinion, market dynamics are arguably becoming a decisive factor in alleviating the call for an instant reaction. It is the current viewpoint of the industry that two distinct patterns are now gaining momentum which, in a not-so-distant future, will likely reshape the way the cards market operates. On the one hand, technological progress is paving the way for a greater convergence of technology and financial services, thus helping unconventional and often cheaper distribution channels (such as, e.g., mobile phones) to acquire greater relevance. As the acceptance and use of these devices—which are, typically, developed outside the closed environment of the card organizations—grows wider, the role of POS as transactional platforms is expected to diminish or at least change. On the other hand, the arrival of newcomers in the supply of integrated solutions for the acquiring market is further changing the balance of powers. These players are already having an impact on the market conditions, even though they usually tend to be relatively small in terms of balance sheet total. Niche players like these do not have to face the large sunk costs inherent

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155 This hypothesis on the critical role of size in the early adoption of innovative technology is further supported by the research of, inter alia, Mansfield (1993) and Cohen & Levinthal (1990).

156 Before the ruling of the Dutch Competition Authority, banking payments in the Netherlands already ranked among the cheapest in the European landscape. To this date, after all the changes in the institutional arrangements, only 1 euro cent decrease has been observed as regards merchant discount fee and less than 1 percent has been the reported growth in the number of POS terminals.
to a complex tapestry of entangled activities. Therefore, they can concentrate more efficiently on certain market segments by addressing their particular needs and by offering cut-rate prices for their services. This circumstance is said to slowly undermine the market position of incumbents as customers become much more aware of differences in prices, terms and other conditions and, thus, start to shop around.

Along these lines, the potential for a natural growth in merchant-owned capturing devices further broadens the prospect of increased interoperability. In Brazil, as in many other countries, it is very common that large retail merchants are in the possession of their own set of automated sales systems. The latter are usually interfaced with several technical solutions for payment purposes which, in the end, provide merchants with an interactive payment terminal that enables the initiation of card-based transactions in very much the same fashion as POS156. Automated sales solutions are normally developed by specialized companies which, generally, need to be certified by card organizations/acquirers prior to making the activation of these services feasible. In practice, these devices turn out to be shared terminals as they can virtually provide support to various competing brands. Though small in their total number, in terms of volume nowadays these channels account for about 40 percent of the transactions captured in the Brazilian market. This figure has been showing a steady increase in the last years, and this trend is expected to continue in the near future as long as no external shocks alter the cost structure of the production function157.

Finally, in the light of a widespread multi-homing by both card users and merchants interoperability seemingly comes to be a less pressing issue. While empirical data to prove this point was unavailable, the largest acquirers in Brazil emphasized the relevance of this phenomenon and how it did influence their strategic decisions. According to their estimates, about 30 percent of the cardholders currently multi-home, but what makes this figure economically important is the fact that the latter group is mainly compounded by high usage consumers. As the theoretical work and some recent research have demonstrated, cardholders typically establish a favorite network on which to place the largest share of their spending and, then, switching takes place as a result of a number of determinants158. In the case of Brazil, the industry does particularly highlight the value placed on the interest-free period as one of the key drivers of multi-homing. As regards merchants, several reasons draw industry practitioners to agree on multi-homing rates of around 100 percent159 across the industry. Certainly, fear of a real decrease in sales if certain brands are not accepted along with the resolute efforts of both acquiring organizations are deemed vital to understand why the client base has so significantly expanded for both brands. However, those are not the only drivers. Of particular importance are also the strategies applied by retailers in order to avoid fulfilling their tax obligations. In fact, by carrying several brands merchants have the possibility to split their accounts receivables and, so, chances are they can keep the latter under the legal reporting thresholds.

4.5 EFTPOS AND THE INTERNATIONAL EXPERIENCE: SOME INTERESTING LESSONS

A variety of reasons have lately spurred the interest of public authorities and the Academia in card payments. Due to the growing awareness on the importance of this means of payment for the economy, in the last de-
cade or so, a mounting number of publications and reports addressing card-related topics have been issued all over the world. Though mostly focused on interchange fees and the two-sided nature of card markets, other subjects such as, e.g. interoperability have also arisen. This circumstance has provided researchers and the public in general with some very interesting facts and theories which, furthermore, allow for a stirring international comparison. In the following paragraphs, a few relevant issues and findings will be further discussed and, moreover, some concrete examples will be also highlighted for its particular merits.

Empirical evidence suggests that the construction and evolution of EFTPOS networks have been mainly driven by the specifics of the national institutional structure rather than by the underlying technology. In deciding the design features of a given card payments network, banks and all other relevant players are typically laying the grounds of the industry’s future competition game. Therefore, the final strategic approach chosen is likely to come as a result of the combined influence of such diverse factors as the structure of the banking industry, socio-legal and political considerations, demographic dimensions and many others. A greater or lesser degree of market concentration, a well-established tradition of cooperation in payment system issues as well as the size of the prospective costs to be borne in order to develop a technical platform have proven crucial to the adoption of diverging courses of action. So has the role of the central bank and other authorities, too. An illustrative example is provided by the now defunct EFTPOS UK project which, in its origins, surfaced as an industry-wide initiative to develop a debit card scheme with one central processing center to which all banks would belong. Despite its undisputed potential and the large investments made on developing a pilot scheme, conflicting interests and building mistrust among financial institutions did, in the end, impair its success, thus leaving the UK market for quite some time with two physically and operationally distinct EFTPOS networks.

Nevertheless, regardless of country-specific arrangements, in most industries a significant degree of interoperability between POS networks is reported to exist. The fact that different countries do exhibit quite varying degrees of concentration in their acquiring business (as a direct result of the underlying design choices made by their respective communities) does, however, not entail radically diverging levels of interconnectivity. On the one hand, markets like Chile, the Netherlands, Finland or Portugal have ranked very high in terms of interoperability for the simple reason that all their transactions have typically been acquired by a single institution responsible for all or, at least, the principal card brands. Some other countries, on the other hand, like South Korea present a limited number of acquirers with a preponderant brand specialization and integrated processing functions. In those cases, bilateral agreements are found to be the basis of increased interoperability between their respective capturing networks. A third model features several firms (quite often the same banks which further issue cards) acting as acquirer and/or processors, but not necessarily linked to any specific brand: i.e. each acquirer can, in principle, offer its services to all competing brands.

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160 The UK case is a particularly interesting example of changing market dynamics, excess inertia and rival strategies leading to a controversial outcome. In the early 80’s, when the idea of a single, shared EFTPOS network was first approached, a fairly stable financial framework was dominating UK’s financial industry: i.e. a unity of the often-called banking cartel (e.g. the four big clearing banks) was in place and the financial regulation as well as Bank of England’s stance towards the market was considered predictable. However, as the project unfolded the role of newcomers was enhanced as a result of the growing deregulation of the financial industry, the importance of legacy technology came into play (and, so, how the particular interests of some major parties could be accommodated in the common project) and first mover advantages became a prominent strategic option for some key players in the industry (e.g. Barclays).

161 It should be noted, however, that for some other countries a similar situation may exist in relation to purely domestic schemes.

162 Such is, e.g. the case of Spain.
In such case, terminals do usually support all brands and a set of intermediaries in the routing, clearing and settlement process guarantees an uninterrupted interplay between the individual networks.

Admittedly, in several instances, the catalyst role of key public authorities has been critical to streamline market efforts towards interoperability. This is indeed the approach taken by, e.g., the Eurosystem in the context of the Single European Payments Area for cards. In trying to encourage the European banking industry to swiftly deliver a euro area interoperable card scheme, the European Central Bank along with the national central banks of the Eurozone has been first actively pursuing and, later on, openly endorsing projects like the Euro Alliance for Payment Schemes (EAPS): a multilateral initiative by the principal national debit card schemes in Europe whose short-term objective has been to link all those national card schemes to ensure pan-European interoperability. With a long-term prospect, the European Central Bank has recently dared to go one step further and so it has suggested engaging in a constructive dialogue with banks, card schemes and the European Commission to so reach an
Sooner or later, the levels and the process of determination of interchange fees fall under the scrutiny of competition authorities, thus allegedly impacting the business model of the card industry. Both the amount and the rationale of interchange fees for the operation of cards systems have been challenged by several national and supranational bodies in charge of competition issues. Recent examples include the decision of the European Commission in 2007 against MasterCard’s multilateral interchange fees for cross-border payment card transactions in the European Economic Area, UK’s Office of Fair Trading ongoing investigation on the interchange fees set by MasterCard and Visa under the Competition Act of 1998 and the Article 81 of the EC Treaty, or RBA’s 2006 card payment systems reform which lead to the introduction of a standard process for determining a cap and a floor for interchange fees in the Australian EFTPOS system. A possible extension

agreement on both a model towards which national schemes should converge and a realistic time frame for such convergence.

Notwithstanding the above, on the grounds of fostering competition, it’s also interesting to note that a somewhat opposite stance has been taken recently by the EC. Indeed, in the particular case of systems set up and operated by a single payment service provider (such as, e.g. three-party card schemes) and in the context of the UE, the EC is of the view that mandated interoperability may have a potential to limit competition in the market. In particular, indent 7 of Directive 2007/44/EC of the European Parliament and of the Council on payment services in the internal market reads: “The provisions of the access to payment systems should not apply to systems set up and operated by a single payment service provider. Those payment systems can operate either in direct competition to payment systems, or, more typically, in a market niche not adequately covered by payment systems. They typically cover three-party schemes […] In order to stimulate the competition that can be provided by such payment systems to established mainstream payment systems, it should in principle not be appropriate to grant third parties access to these payment systems. Nevertheless, such systems should always be subject to Community and national competition rules which may require that access be granted to the schemes in order to maintain effective competition in payments markets.”
of the interchange fee conflict to other countries has a potential to undermine the adoption of prospective interoperability arrangements or, at best, to affect the continuity of current ones. Therefore, such issues and the arising uncertainties around them might need to be taken into account in the overall process of negotiations.

5 INTEROPERABILITY ISSUES – BANK CORRESPONDENTS

Bank correspondents have been an innovative means of expanding basic financial services in Brazil. Correspondent banking arrangements refer to bank partnerships with non-banks, typically retail commercial outlets, in order for the latter to provide a range of banking and other financial services. These partnerships, which have been encouraged by regulatory changes introduced since 1999, are negotiated on a bilateral basis and can vary depending on the specific contract. As can be seen in Figure 11, bank correspondents have expanded significantly in recent years, and accounted for more than half of all financial service points as of end-2006. As a result, all municipalities in Brazil now have access to basic financial services. In addition, the number of transactions handled by bank correspondents in 2006 reached the equivalent of 38 percent of transactions originated with branch tellers. The proliferation of correspondent outlets in recent years can also explain the relatively slow growth of branches and other service points, as banks have tended to prefer the former delivery channel in order to avoid high fixed costs associated with the latter channels, especially in areas with low population or economic density. The correspondent model has been recently adopted by other countries in the region, such as Colombia and Mexico.

Bank correspondents have mainly focused on payments services to-date. Although this type of arrangement is not new internationally, the scope of services offered and its geographical footprint in Brazil are fairly extensive. Services are provided via a POS device installed by the merchant that may be combined with a barcode scanner for bill payments, a personal computer, a PIN keypad or even an ATM, and is linked to the bank’s servers via (dialup or high-speed) phone line, cable or satellite connections. The vast majority of transactions are payments (tax and union contributions, payment orders, government benefits, pension receipts, utility bills, prepaid cell phone credit etc.), some of which do not require the use of a bank account per se. Clients can also open bank accounts in the outlet and are given cash or debit cards to perform basic transactions (deposits, withdrawals, transfers).

Unlike other distribution channels, not all large Brazilian banks participate proportionally in the bank correspondent market. CEF was the first bank to formally enter this segment and currently has the largest network of correspondents (CAIXA Aqui) due to its association with the national chain of lottery shops (Casas Lotéricas), which it had contracted to provide social benefit payments (school grants, food and income subsidies etc.) and basic financial services to low-income segments of the population. Other important participants in this market include Bradesco (correspondent arrangement with the Brazilian postal service in 2001, leading to the creation of its Banco Postal subsidiary), Banco Popular do Brasil (subsidiary

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164 See Kumar et al. (2006), Ivatury (May 2005) and de Camargo Barros (April 2006) for a description of correspondent banking in Brazil.
165 These include, but are not limited to, lottery kiosks, pharmacies, supermarkets, post offices, retailers etc.
166 In some case, intermediaries (management companies) are used by banks to locate and contract new correspondents, as well as to handle operations monitoring and equipment installation and maintenance.
167 According to Kumar at al. (2006), “correspondent banking in Brazil has been successful in penetration to poorer segments and to remote regions, but the central focus of some major correspondent networks remains urban”, indicating that such outlets can also be considered as complementary to bank branches.

168 Some correspondents also offer bank deposit/withdrawal services and act as a channel for receiving and forwarding bank instructions, such as credit applications and deposit account opening proposals.
of BdB), and ABN AMRO (primarily its vehicle financing sales points). An interesting market participant is *Lemon Bank*, a private bank that provides financial services solely through banking correspondents. Given their mandate to expand financial access to unbanked communities and low-income households, it is not surprising that CEF and BdB have expanded more in this market. Correspondent models differ across these entities in terms of customer focus, scope and terms of services offered, type of outlets, degree of integration with parent bank, etc. As can be seen in Figure 12, the above five institutions accounted for four-fifths of total correspondent banking outlets in July 2007.

Interoperability remains low among bank correspondent networks. Anecdotal evidence suggests that, in spite of their phenomenal growth in recent years, correspondent networks remain proprietary to individual banks and cannot be accessed by customers of another bank. There are very few exceptions: anecdotal evidence suggests that CEF and BdB are starting to share some of their correspondent networks, while *Lemon Bank* has struck agreements with a few small banks (as well as with the RVA network) that allow the customers of the latter to access – by paying a fee – their bank accounts through its correspondents. However, it should be noted that low interoperability is mitigated by two factors: (1) use of the *bloqueto de cobrança* for bill payment (its barcode can be scanned, and the bill paid in cash in correspondent outlets); and (2) recent installation by VISANET of its POS terminals in the correspondents of two of its large bank shareholders, which allow VISA debit card-carrying customers of other banks to perform some transactions (e.g. cash withdrawal, bill payment) in those outlets.

The drivers of low interoperability are fairly similar to the ones described earlier on. In particular, bank strategic considerations (e.g. different target markets, asymmetric players) and some technical factors (proprietary technology networks and business practices in most cases) have likely contributed to the relatively low interoperability in the bank correspondent market. The need for interoperability is also not viewed with the same degree of urgency as for the ATM or POS markets, because there are differences of opinion by market participants as to whether correspondent networks should be considered ‘manned ATMs’ or ‘branch extensions’. The former characterization would imply that ATM network sharing between banks could also be extended to their correspondents, while the latter characterization would render unlikely any such sharing. Of course, there are examples from other sectors and countries of network sharing (e.g. agents of remittance service providers) and of the ability to make some forms of payments in any bank branch (e.g. invoices and taxes), but the variety of bank correspondent arrangements and the absence of non-bank correspondent networks in Brazil complicate this task.

The consequences of low interoperability between bank correspondent networks are likely less adverse than for ATM and POS due to the immature business model. Low interoperability has likely encouraged overlapping network coverage in some regions (e.g. Southeast Brazil) and potentially insufficient coverage in more remote areas. However, given the low cost of expanding correspondent outlets and the still evolving business model (and geographical coverage), the inefficiencies from having duplicated infrastructures do not appear excessive compared to those for ATM and POS networks. A clear analysis of such costs will only be possible once the business model matures.

Left to market forces, interoperability across bank correspondents will likely be determined by institution-specific considerations. Given the aforementioned differences of opinion regarding the role of correspondent outlets and the immature business model, the need for interoperability will likely become an issue only after
similar developments have taken place for ATMs and POS. On the other hand, given the dominance of this market by a few banks (including two public ones), institution-specific reasons to begin sharing their correspondent network might lead to more drastic changes in this market. In addition, the possibility of interoperability via acceptance of different bank cards carrying a common brand (e.g. VISA) presents an interesting alternative means of attaining integration in this market.

6 INTEROPERABILITY: THE WAY FORWARD

A formal enhancement of the central bank’s statutory responsibilities in overseeing retail payment systems would likely activate the development of interoperable networks. The concerns raised by the low levels of interconnection between card acquiring networks in Brazil has already triggered some reaction on Banco Central do Brasil’s end. Back in 2006, a Directive was issued in order to draw attention of the market to the relevance of this topic and to further clarify the authority’s point of view and expectations. Previously, a set of reports had been published describing the main features of the market and highlighting some of the most crucial problems encountered by the central bank. In addition, the central bank is now engaged in a project with the competition authorities aiming to produce a new reporting framework for the cards market. When finished, this framework is expected to specifically address the pricing structure of the market and, thus, it will help to provide greater transparency. However, despite these efforts, the central bank still understands its oversight role over retail payments in a narrow sense, by placing its primary focus on the clearing and settlement aspects of the market. A stronger definition of its statutory tasks would, hence, contribute to widening the range of issues currently dealt with and would also formally empower the central bank to request all the information needed to obtain a full picture.

Against this background, the central bank should consider the establishment of a working group or forum with representatives of all stakeholders’ groups. The latter should include customers, telecom and mass transit operators, software developers and several other crucial actors throughout the value chain. In taking up the role of the principal architect of such forum, the central bank should cater for a design that guarantees the provision of an adequate platform which promotes dialogue and ensures the proper understanding and coverage of all the complex interrelations that exist between both the technical and the commercial aspects of the market. Such structure would so certainly contribute to an improvement in the quality of the debate and would, furthermore, help to potentially produce the most practical outcomes. In this regard, some useful lessons could be drawn from the examples of countries like Italy or Spain, among others, in setting up such consultation bodies to facilitate the adoption and evolution of SEPA products.

In particular, sufficient time and adequate resources should be devoted to the issue of standardization, seeking both sectoral and cross-industry cooperation. As explained earlier on, the partition of technological investments and expertise among different acquirers seems to have critically spoken for the subversion of collaborative initiatives between the various market players. Bridging this gap, thus creates an imperative for the different firms to work together in order to develop, establish, endorse, and promote a set of common standards, further overcoming numerous hurdles such as the importance of legacy investments and the need to ensure intergenerational compatibility. Leveraging

\footnote{This broad composition is of a special interest nowadays as users are observed to more and more become actively involved in the design and implementation of IT systems. For some empirical evidence, see Earl & Skyrme (1990), and Fincham et al. (1994).}
the experience of national or international standard-setting bodies might be one option. Another would be picking on the success of initiatives such as the EMV where competitors in the cards industry found a way to cooperate for the creation and universal acceptance of a single standard for bank-issued smart cards and terminals. Whatever way, it is important that the actors in this industry approach the issue of standardization under the fundamental principle of openness in the development of the actual standards, i.e. with no one or few firms controlling the final outcome. Along those lines, appropriate enforcement tools will have to be developed to ensure the credibility of the work done on standards, thus here again potentially calling for the regulatory authority to intervene and help finally bring those standards into common practice.

In addition, the central bank could further strive to team up with other authorities with a view to promote a greater use of cards in the economy. History proves that reaching new markets and consumers in no-yet mature industries usually requires a holistic approach: one where authorities are also expected to make decisive contributions. Raising consumer awareness, removing legal and/or regulatory hurdles and addressing other obstacles of a more institutional nature (like, e.g. the degree of informality) demands cross-sectional lines of action, very often embodied in overall strategic policies. In order to strike the best possible results, Memoranda of Understanding (MoU) have typically proven crucial tools to establish and streamline cooperation, thus providing more transparency to the relationship, improving efficiency through a clearer division of tasks and ensuring an easier administration.
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and a sound exchange of knowledge and information in all the relevant areas. Therefore, formalizing cooperation is most likely to lead to a definition of a plausible roadmap, with specific milestones ensuring the perfect alignment of everyone’s interests. The MoU between the BCB and antitrust authorities is a huge step in the right direction.

7. SEGMENTATION OF CLEARING INFRASTRUCTURES

7.1 A HISTORICAL PERSPECTIVE

The fragmentation observed nowadays in the Brazilian interbank fund transfer infrastructure has not been addressed by the reform process completed in 2002. Before the launch of the new Brazilian Payment System (a.k.a. SPB), both large-value and retail payments were settled on a consolidated multilateral netting basis within a single clearinghouse: namely, the COMPE. This situation gave rise to a number of concerns (e.g. lack of appropriate risk management mechanisms, need for an efficient integration of payments and securities settlement procedures, compliance with international standards and best practices, etc.) which finally led the central bank to promote a redefinition of the overall payment systems architecture. As a result, along with the creation of an RTGS system (STR), an additional clearinghouse was launched: the Câmara Interbancária de Pagamentos (CIP). The Banking Technology Corporation (TecBan) was already operating in the market.

The need for retaining a certain degree of speed along with early processing capacity constrains favored an expansion of the service offer at this initial stage. The

FIGURE 14: PAYMENT INSTRUMENTS- AVERAGE VALUE

Source: BCB (December 2007)
relocation to a newly created net settlement system of a good share of time-critical transactions, traditionally settled via cheque, left the banking industry facing several technical challenges. In trying to properly cope with them within a substantially tight timeframe, the financial sector came up with a proposal to split the CIP into a purely deferred net settlement facility (SILOC) on the one hand, and to combine the latter platform with a hybrid system, offering same day settlement for urgent transfers (Sistema de Transferência de Fundos, SITRAF). Thus, increasing volumes could easily find their way to either one system based on the transaction-specific features of each payment. Moreover, no highly demanding investment cycles were further needed.

Instrument-based specialization and diverse functional features of the various clearinghouses have arguably provided a rationale for the perpetuation of a multifold retail payment infrastructure. Disparate execution times, diverging value thresholds and unequally demanding liquidity requirements in the different systems have, inter alia, paved the way for an intricate tapestry of options available to any participating institution. Thus, COMPE remains the principal channel for clearing a decreasing but still significant number of obligations arising from cheques. Credit transfers, on the other hand, have mainly fallen into the domain of the CIP which, as stated above, does run two separate processing environments depending on the nature of the underlying transaction. In addition, card payments are mainly handled by either RedeCard, VisaNet or TecBan, the latter of which does also process a fairly small interbank direct debit scheme.

In addition, differential pricing between competing services and strategies devised to achieve a gradual migration towards more efficient, electronic payment instruments may further help explain the current status quo. Above and beyond the potential opportunity cost of keeping idle resources in the accounts of the central bank for the smooth functioning of the RTGS system – which is strongly mitigated by the existence of high reserve requirements usable for settlement purposes –, service fees in both SILOC and SITRAF are typically lower than in the central bank-run platform. Service fees are higher for SITRAF than for SILOC. They are normally paid by the instructing party in the case of SILOC and by both, the ordering and the receiving bank, in SITRAF. These fees are calculated on a per transaction basis, i.e. they are evenly applied to each and every participant regardless of the aggregated volumes they send. What’s more, as regards SITRAF, such fees are further designed to create incentives to prevent gridlocks from showing up at the end of the day. Thus, they gradually rise up as the time of the closing of the system draws near. Moreover, CIP transactions are subject to interchange fees as established by Febraban. These, again, present a significant degree of heterogeneity across the various instruments\textsuperscript{172}. On the other hand, in trying to boost the migration towards electronic payment instruments, banks have collectively agreed to align the value threshold for the issuance of TEDs with BCB’s now compulsory, non-interest-bearing deposit imposed on banks drawing cheques. Moreover, an extension of the execution times for the clearing of cheques has been further proposed by the banking sector in an attempt to further stimulate end users to shy away from the former instruments. However, banks still charge higher fees for electronic instruments than those for cheques and are being slow in providing services with higher aggregate value, taking advantages of the improvements in the payment system infrastructure that stemmed from the modernization process, led by the BCB.

7.2 MAIN STYLIZED FACTS

Multiple and not necessarily interrelated actors bring in an added layer of complexity to the retail payments landscape in their condition as operators of different infrastructures. Since its inception, a central bank’s

\textsuperscript{172} Cheques being the cheapest versus bloquetos de cobrança being the most expensive ones.
mandate has entrusted the government-owned Banco do Brasil with an operational responsibility in relation to the COMPE. In this context, this financial entity is entitled to carry out the clearing process for paper-based transactions, further providing the facilities and the logistical support needed for the physical exchange of documents. For its expertise in credit transfer products and its accumulated competitive advantage in the provision of a sound and ample geographical coverage, Banco do Brasil was also appointed by the CIP board as the technical outsourcing partner for the SILOC\(^7\). Conversely, to run the SITRAF, this same board has instead chosen the processing center of the Brazilian depository of corporate bonds, state and municipal government securities as well as securities that represent National Treasury’s special responsibilities: namely, the CETIP. Moreover, for bloquetos de cobrança above a certain threshold\(^7\) the CIP-managed SIPROC (Sistema de Processamento de Bloquetos de Cobrança) information exchange center comes into play.

Dissimilar market strategies and individual interests of the various parties (owners and participants in the payment systems alike) are likely to explain coordination failures not properly addressed through governance arrangements. Collective innovation in the retail payments area is allegedly following a slow pace ever since the culmination of the reform process. Both CIP and TecBan rules prevent non-banks from achieving a

\(^7\) A cost-benefit analysis of using Banco de Brasil’s services to run the SILOC vs. another processor with no previous experience in relation to bloquetos and DOCs was properly carried out by the banking industry. As in the case of COMPE, a clear-cut separation of the operational role of Banco de Brasil and its role as a competitor in the downstream market seems to have ensured that no potential conflict of interests has ever arisen.

\(^7\) As agreed by the banking community gathered in Febraban (currently at R$5,000).
shareholder status. None of the companies is listed in a stock market, for which reason their investor base has remained relatively stable—mergers aside—for years. In both cases, voting rights are equally distributed among board members who, in turn, are typically granted a seat once certain ownership threshold criteria are met. Interestingly, the size of the individual business brought to the system by each participant has no bearing on any decision pertaining the design and/or the future development of the platform. However, minority interests and those of non-stock holding institutions are further reflected in the composition of the CIP board by means of the allocation of rotating seats. Moreover, customer satisfaction surveys and informal one-to-one meetings with clients do regularly take place in that same context as an instrument to gather additional feedback. No similar procedures have been reported to exist in other systems. Finally, the decision-making process in the CIP is typically preceded by long discussions in the various working groups. The widest possible support among the different representatives is sought well in advance to so ensure that only those proposals with sufficient backing from the user community end up being submitted to the board. Hence, modernization of the system has been rather a subject of piecemeal progress.

\footnote{Usually, to be in possession of at least 8 percent of the capital}
Economic efficiency in the provision of payment and settlement services might be under-optimized by the lack of integrated payment arrangements. Two late major concerns expressed by the BCB are the scattering of liquidity across different systems as well as the mislaid opportunities for a full exploitation of economies of scale and scope. Under the current retail payment systems configuration, each clearinghouse is supposed to produce its own, separated net balance per institution regardless of the transactions that such participant might have sent to/received from its counterparties in other systems. Thus, an all-out resource-saving effect of netting mechanisms is believed not to be completely exhausted at this stage. In addition, routing similar transactions through several processing platforms instead of just a single one is seemingly running against reducing the average unit cost of producing and processing payment services: a well-documented effect in the payment’s industry.

Contrary to other examples of fragmented retail payment system, in Brazil operational risks have seemingly not been amplified by this latter circumstance\(^\text{176}\). The development from scratch of a state-of-the-art communications network as part of the reform process has provided participants and other actors in the Brazilian payment system with a modern facility: the Rede do Sistema Financeiro Nacional (RSFN). This network allows all of them to interact safely and automatically with one another throughout the entire system. All parties are thus interlinked via a network relying on a proprietary messaging protocol based on the TCP-IP standards. However, the departure from well-tested package solutions available in the market and the lack of well-defined governance arrangements for the RSFN may raise concerns on the easiness of access for non-incumbent participants.

The launch of a successful, interbank direct debit scheme has gone awry due to the popularity of the bloqueto de cobrança. The bloqueto de cobrança is a widely-used bar-coded standardized credit document that providers of goods and services began to issue, typically through banks, in order to facilitate the payment of bills. It is a paper-based, push-type payment instrument which easily allows clients to use a bank of their choice to discharge their obligations. Furthermore, bloquetos exhibit two interesting features not known to direct debits: i.) they can be protested, thus formally serving as proof of presentation to and dishonor by the drawee (a substantial point for drawers seeking to take legal action to recover any outstanding debt), and ii.) they can and are indeed often used by the issuing business to gain access to the discount windows of their respective banks. Both these features along with the remarkable expansion of consumer credit seen in Brazil in the last years\(^\text{177}\) have likely increased the popularity of this instrument, therefore cutting back their appetite for alternatives to make recurrent payments.

The reluctance of incumbent players to open up the market to competitors and other historic reasons have further pushed back the development of such a scheme. Interestingly, all major banks currently offer an intra-bank direct debit product as part of their retail payments portfolio. As explained in earlier sections, incumbent players still regard primary transaction account facilities as a source of their comparative advantage over competitors. For this reason, routing payments through proprietary transaction accounts has become a matter of strategic importance in order to ensure the preservation of a local access monopoly

\(^{176}\) Moreover, as stated in Section 4.1 above, different sources claim that operational risks arising from the technical constrains observed at the time of launching the national payment system reform were minimized by the choice of two separate payment processing platforms for retail payment instruments.

\(^{177}\) In the period from 1996 to 2005, the volume of credit granted to individuals in Brazil more than tripled, thus starting as low as 2.9 percent of GDP and then steadily rising until the equivalent of 9.7 percent GDP.
over its customers. Typically, this monopoly is best exploited by limiting access to alternative suppliers of payment services, i.e. by increasing their clients’ switching cost. In the case of Brazil, TecBan provides a good practical example of this as member banks only randomly make use of its reasonably priced, network-wide Débito Direto product. Furthermore, the fact that most large billers and the public administration already hold accounts with all the principal banks in the country is believed to have alleviated the otherwise strong pressures arising from the market towards finding a unifying solution. Finally, well-known concerns about the lack of control over the timing of a payment in pull-type instruments combined with past experiences in a hyperinflationary environment and the fear of banks about how to properly cope with fraud in direct debits spring forth as common themes for the slow take up of an interbank direct debit initiative.

4 THE INTERNATIONAL EXPERIENCE

A certain degree of public involvement repeatedly dominates the evolution of the ACH markets across the world. Though written accounts are sparse, the remarkable role of central banks in the deployment and transformation of ACH platforms in both Europe and the United States is fairly easy to spot. Coordination failures due to the presence of network externalities and, most notably, the lack of a sound business case in the short run (i.e. moderately small near-term profit opportunities vs. expected long term ones) are said to, characteristically, have given rise to suboptimal outcomes. Hence, to serve the public interest, central banks are oftentimes forced to mobilize their own resources to support ACH developments which, in turn, will contribute to increased levels of efficiency, reliability and safety over the long term. One such example can be found in Spain, where cooperation among providers of payment services for the launch of a single ACH with national coverage only took place under the strong leadership of the central bank. At the time, it was the central bank which saw how the proliferation of multiple fragmented clearing structures would likely restrain greater cost-savings. Therefore, it decided to take a strong position in this respect. Similarly, the operational role and commitment of the US Federal Reserve proved crucial to bringing the idea of an ACH to life, thus significantly advancing the national payment systems landscape.

In some countries, certain platforms have efficiently leveraged their operations across a very wide range of payment instruments. Several infrastructure providers have demonstrated excellence and extraordinary success in pursuing a strategy of steadily incorporating new means of payment into their operations. Where this is the case, large economies of scope are reportedly bringing significant cost-savings. For example, following the recent merger between Voca and the LINK ATM network in the UK, a joint venture -Immediate Payments Ltd.- was formed with a remarkable potential to offer some of the lowest transaction costs in virtually every payments market across Europe. Belgium provides another good example of consolidation in the retail payments market with a single organization (the Center for Exchange and Clearing) acting as the central point for handling most the transactions involving remitting and receiving banks in the country. A similar situation is further reported to exist in other countries like Portugal or Canada.

Nonetheless, most generally domestic clearing systems for retail payments diverge in the number of clearing

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178 One additional question that arises is whether the information-processing and storing capabilities of the current infrastructure would be able to cope efficiently with the increased traffic these new payment instruments might give rise to. This concern has been brought up by a few banks, but so far it has not really been explored.

179 Including credit transfers, cheques, direct debits and card payments.
arrangements, their nature and specialization. Versus the situation just described above where just one single clearing arrangement concentrates the processing of most payment instruments (regardless of whether they are paper-based or not), the BIS notes\textsuperscript{180} that there are also a number of countries where two separate channels are regularly used, depending on whether a physical exchange of the underlying documents is necessary or not (e.g. Australia, the United Kingdom). In other countries, a larger number of clearing arrangements coexist (e.g. Germany, Japan, the United States) which, sometimes, can be explained by a historic segmentation of the clearing services per categories of financial institutions. In these latter cases, however, it is often common that linkages among clearing arrangements exist either in an informal manner (i.e. bilateral agreements) or taking stock of the infrastructure provided by a competing third-party.

Conversely, the majority of retail payment arrangements display a tiered participation structure as one of their most prominent features. Typically, smaller institutions or, alternatively, entities with low exchange volumes on certain types of instruments refrain from acting as direct clearers in the system, but instead enter into an agency contract with one other bank holding an account with the central bank. This bilateral agreement, thus allow the former institutions to use the accounts of the party they have signed the contract with in order to complete the settlement of their own transactions. In most cases, reasons of cost efficiency are vindicated to justify the choice of indirect participation and, so, tiered participation does further become a useful tool to address issues of access to payment system. To be effective, however, the provision of indirect access services needs to be competitive since, otherwise, mixed incentives may arise on the supplier’s end.

\textsuperscript{180} See CPSS Report on “Clearing and Settlement Arrangements for Retail Payments in Selected Countries” (2000).
7.5 THE WAY FORWARD

In trying to foster the greater efficiency of retail payments, the central bank of Brazil has taken a pro-active approach in promoting the change. Along with focusing on interoperability issues in the card payments industry, the central bank of Brazil is currently pursuing second-generation reforms aiming, inter alia, at the integration of networks, the widespread adoption of electronic payment instruments and the encouragement of innovation. Taking stock of its statutory oversight role, the central bank has already insisted on the need to modernize the retail payments infrastructure and on streamlining the efforts of the industry to take advantage of the economies of scale and to fully exploit network externalities, further anticipating the proposition of structural changes should this be necessary.

However, at times conflicting signals have been given to the market, possibly due to a lack of sufficient coordination at the internal level. Different units with different mandates within the same institution may sometimes have overlapping goals. Such circumstance creates an opportunity for cooperation and coordination to ensure that decisions taken by the one party don’t negatively interfere on the expected outcome of the overall strategies set forth by the other. One such area is that of price regulation in basic payment services which notably has an influence on the final choice of the instrument by users. Different stakeholders should preferably collaborate from the outset and so ensure an alignment of their respective objectives prior to disclosing any action to the market. The setting up of a working group or the signing of a Memorandum of Understanding are two typical examples of an array of tools that have proven useful for promoting a smooth cooperation.

In response to the concerns expressed by the authorities, the banking industry has engaged in a dialogue to overhaul the present architecture of the national retail payment system. One of the signature agreements has been to commit to ensuring the launch of the Débito Direto Automático (DDA) by 2009. The DDA has been initially conceived as an electronic environment for the centralized and paperless exchange of relevant settlement information related to the bloquetos. By creating a central registry, not only will processing cost be reduced and execution times speeded up, but furthermore a window of opportunity will be opened for the development of value added services to replace some of the old manual procedures currently in place. In a second stage, banks envisage to upgrade the system and actually turn it into a fully functional platform able to perform the financial clearing of the underlying transactions. This state-of-the-art facility is further expected to attract an additional range of now decentralized niche payments, such as those related to the collection of municipal taxes. In due course, the former product shall be the basis for the development of an interbank direct debit instrument. Moreover, with the DDA banks are also hoping to so deploy a superior technical solution which can allow them to divert all the current CIP payments traffic onto the new infrastructure, thus meeting the central bank goal of a greater consolidation on the retail payments end.

Along with the creation of the DDA, the banking sector has also acknowledged the need for a rationalization of the roles played by the different stakeholders and products. Thus, TecBan shareholders decided to migrate their clearing business to the CIP in order to so profit from lower unit costs of processing. Febraban members have also agreed on gradually replacing the DOC for the TED and further transforming the former product into a non-urgent credit transfer. In addition, the growing promotion of electronic payment instruments seems to rank very high in the agenda of the principal payment service providers in the coming years.

\(^{181}\) Indeed, one of the expected value-added services to evolve will be the automatic calculation of penalties applied to bloquetos overdue. This feature is likely to save significant resources.
III. COOPERATION VERSUS COMPETITION: Efficiency Issues in Brazil’s Payment Systems

However, to this date no final decision has been taken on the future evolution of the cheque and payment cards clearing. Card acquiring companies have already started to take advantage of the CIP for settlement purposes of their net balances, but no plans have been disclosed as to the future outsourcing of the multilateral clearing process which they currently perform. Banks are further aligned in their intention to discourage the use of cheques. However, a potential merger between the COMPE and the CIP to offset the increasing processing costs of the former as volumes decrease has not yet been discussed.

8. POLICY LESSONS AND CONCLUDING REMARKS

This case study has analyzed the implications of cooperation and competition issues in Brazil’s retail payments infrastructure on two market dimensions: interoperability and infrastructure fragmentation. Idiosyncratic features and the still-evolving institutional framework have restricted interoperability in distribution channels of certain payment services (ATMs, POS and bank correspondents) and further contributed to a segmented retail payments clearing infrastructure. Although the current institutional set-up is driven by competition and has facilitated innovation, it has adverse efficiency implications leading to segmented infrastructures that have reduced the exploitation of scale/scope economies and of network externalities.

The main drivers of low interoperability and infrastructure segmentation in Brazil have been identified as:

a) Environmental Issues, Legacy and Governance
• During the hyperinflation of the late Eighties and early Nineties in Brazil, banks were experiencing, on one hand, a demand from customers for faster services available at any time, and, on the other hand, significant returns on their holdings of government securities, that were adjusted to the inflation. This allowed for huge investments in technology and introduced the perception in commercial bank management of the competitive advantage that a broad network could have vis-à-vis the clients.

• These high initial investment costs to set up the infrastructure (in part caused by the prohibition until 1993 to acquire IT solutions from foreign providers) might have been per se another factor inhibiting interoperability and creating segmentation, even after price stability was achieved. In more recent years, market providers consider that additional and fairly costly IT investments and changes in their business model would be needed in order to reach a compatible infrastructure.

• Low level of bank concentration might also have diluted the benefits and increased the (actual or perceived) costs of cooperation. This, coupled with the asymmetric market structure (few large and many small banks) and the high geographical overlap in networks between the main banks (focus on urban areas), may help explain the unwillingness of large banks to open up their networks to competitors, particularly small ones.

• A fairly inadequate access to financial services, the high interest rates and the customers’ poor financial culture have been historically some of the principal impeding factors affecting the use of modern payment instruments (e.g., cards, direct debits). In more recent years, however, the usage of electronic payment instruments is increasing at very high rates, signaling a change in consumers’ behaviors.

• The high informality rate of the economy has also posed traditionally difficult challenges to the industry and the policy-makers.

• The ATM market is primarily dominated by larger banks. All large banks operate their own proprietary ATM network, while some smaller banks share ATMs in order to benefit from
economies of scale. Tecnologia Bancária (TecBan) and Rede Verde e Amarela (RVA) are the only non-proprietary shared ATM networks in Brazil. In recent months, agreements are being established between large banks (e.g. Caixa Econômica Federal and Banco do Brasil) and large banks are also taking an active role in TecBan.

- The need to protect the card networks (in particular ATMs) from frauds and other external attacks forced banks to invest heavily. In most cases, each bank adopted specific solutions, which makes more difficult and costly to achieve interoperability.

- Vertical integration and provision of similar product/services are distinctive features of the largest players in the POS market: Redecard and VisaNet. Both companies are in charge of managing the affiliated network of merchants, of capturing, transmitting, processing and conducting the settlement of transactions resulting from the use of card transactions and of developing related or connecting business to any of the aforementioned items. Alongside the international brands, in recent times other players have started to gradually gain momentum in the market (e.g., Hipercard, regional cards).

- The fragmentation observed nowadays in the Brazilian fund transfer infrastructure derives from the complex path of reform of the Brazilian payments system. To the two existing clearinghouses, COMPE and TecBan, in 2002 another clearinghouse was added, the Câmara Interbancária de Pagamentos (CIP), parallel to the launch of the RTGS system (Sistema de Transferência de Reservas, STR). Instrument-based specialization and diverse functional clearinghouses have provided a rationale for the perpetuation of a multifold retail payment infrastructure.

- For some retail payments processing platforms governance arrangements seem not to have addressed coordination failures properly, thus preventing non-banks from achieving a stakeholder status, thwarting the assignment of shares or partially limiting the accumulation voting rights.

b) Access

- The pursuit of sustainable network-based competitive advantages has proven a recurrent and rational strategic behavior. For example, the reluctance of incumbent players to open up the market to competitors and other historic reasons have pushed back the development of a direct debit scheme. Also, hurdles to establish agency relationships do exist, i.e. correspondent networks with non-bank agents remain proprietary to individual banks and cannot be accessed by customers of another bank.

c) Pricing

- Disagreements over interchange fees may have thwarted reciprocal accords. For example, the fee structure for using ATMs belonging to other banks can be prohibitive, which explains the low proportion of shared transactions in “open access” ATMs.

- Also, several middle-sized card issuers have disputed the validity of the pass-through levels of merchant discount fees. These issuers claim that current allocation of rents extracted from the merchants at the POS is, on average, about 300 basis points below the standard international levels. As interoperability would possibly imply a greater competition in the marketplace, this aspect might reveal a source of conflict that would need to be solved as a pre-condition to muster a stable interconnectivity agreement across the various networks.

- In addition, the differential pricing between competing clearing and settlement infrastructure may have impacted negatively innovation (e.g., direct debit) as well as slowed down the migra-
tion towards more efficient, electronic payment instruments. One underlying issue may be the lack of an overall normalization of more modern payment instruments in the customer-to-bank domain. This situation has prevented full end-to-end automation from happening and thus, interbank fees for some of these instruments lie paradoxically well above the ones applied to traditional, paper-based products. Tax regulation adds to the complexity of the problem by creating exemptions for cheques and permitting charges over electronic instruments.

d) Oversight and Cooperation

• The concerns raised by the low levels of interoperability and infrastructure segmentation in Brazil have already triggered some reaction by the BCB, with the issuance of a circular aimed at foster cooperation in the retail sector.

• The BCB also signed a memorandum of understanding with the main anti-trust authorities for the financial sector to act jointly in this segment of the financial sector.

The key issues identified have been:

• The consequences of low interoperability are overlapping coverage and inefficiency. In particular, low interoperability complicates the exploitation of economies of scale and positive externalities. The cost of deploying and maintaining ATMs might also have adversely affected the capillarity of bank ATM networks, with the rural, lower-income and less populated parts of Brazil being at a comparative disadvantage.

• Lack of interoperability is obstructing the modernization of the retail payment systems and its potential benefits are being misplaced. A better allocation of the productive resources in the economy would immediately follow a greater degree of interoperability in the POS market. A study from the BCB indicates that a more intensive usage of electronic-based instruments can produce a potential saving to the country of 0.7 percent of the GDP per year. Such result stems from the economies of scale in the provision of electronic payments, the global increase of payments transactions, and the progressive lowering of telecommunication, software and processing costs.

• Economic efficiency in the provision of payment and settlement services is under-optimized by the lack of integrated payment arrangements. Multiple and not necessarily interrelated actors bring in an added layer of complexity to the retail payments landscape in their condition as operators of different infrastructures.

The analysis led to some main policy implications:

• A more active stance of the BCB in overseeing retail payment systems is starting to activate the development of interoperable networks and diminish infrastructure segmentation.

• Against this background, the central bank should consider the establishment of a working group or forum with representatives of all stakeholders’ groups.

• In particular, sufficient time and adequate resources should be devoted to the issue of standardization, seeking both sector and cross-industry cooperation.

• In addition, the central bank could further strive to team up with other authorities with a view to promote interoperability. The recent memorandum of understanding between the BCB and antitrust authorities is an important step in this regard.

• Bankers associations have a bigger role to play to foster cooperation in the banking sector. In fact, there is a clear need for a rationalization of
the roles played by different stakeholders in the settlement infrastructure. Despite firm direction from the BCB (occasionally providing some conflicting signals in different pieces of regulation aimed at different objectives) and long-lasting discussions at the industry level the future evolution of the settlement infrastructure for retail payments is still unclear.

If these measures prove to be ineffective, the BCB might have to use “harder” regulation to foster the achievement of the public policy objectives. This might include setting up a tight deadline for the interoperability of networks and for the creation of a unified retail clearinghouse. If forced to do so, the BCB would certainly maintain its traditional stance to minimize interference in the market and ensure that perceived costs of its regulation by financial institutions be not passed unfairly to final consumers.
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ABSTRACT: The objective of this paper is to analyze cooperation and competition issues in Colombia's Automated Clearing House (ACH) market. The market is characterized by the co-existence of two distinct ACH platforms, one of which is operated by the central bank. Although the presence of two ACH platforms has increased contestability, it is found that direct competition is inhibited by some discriminatory business practices. In addition, oversight arrangements to ensure the right balance between different policy objectives are complex because of the multiplicity of relevant policy makers and the lack of adequate institutional coordination mechanisms. The authors discuss the implications of these findings, and conclude with the identification and brief elaboration of some potential policy options to reform this market.

KEYWORDS: Colombia, retail payment systems, automated clearing house, competition.

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* Constantinos Stephanou (cstephanou@worldbank.org) is a Senior Financial Economist in the World Bank's Financial and Private Sector Development Vice Presidency, and Mario Guadamillas (mguadamillas@worldbank.org) is a Senior Financial Economist in the World Bank's Latin America and the Caribbean Region. This paper forms part of a broader project on cooperation and competition issues in retail payments systems in the Latin America and the Caribbean Region. The views and conclusions expressed in this paper are those of the authors, and do not reflect the views of the World Bank, its Executive Directors, or the countries they represent. This paper is intended solely for an internal World Bank audience and should not be circulated to other parties. The authors would like to thank the Colombian authorities (Central Bank, Financial Superintendency, Ministry of Finance and Public Credit, Superintendency of Industry and Commerce, and Ministry of Social Protection) for their excellent collaboration and express their gratitude to Sergio Fernando Gorjón Rivas and Jane C. Hwang for their contribution to this paper. The authors are also thankful to Joaquin Bernal, Carolina Merlano, Alvaro José Cobo Soto, Alvaro Benavides, Ricardo Nieto, Clemencia Dupont, Sergio Restrepo Alvarez, Augusto Restrepo Gomez, Carlos Upegui Cuartas and Gustavo Vega for their helpful comments and suggestions.
1 INTRODUCTION AND CONCEPTUAL FRAMEWORK

The objective of this paper is to analyze cooperation and competition issues in Colombia’s Automated Clearing House (ACH) market. This market, which forms an important part of the retail payments infrastructure in most countries, is relatively unexplored and has been ignored in much of the recent literature on competition in retail payments systems that has tended to focus on payment cards. By tackling this topic for Colombia, the paper aims to distill the key economic and institutional features of this market that drive competition versus cooperation, to describe practical considerations that complicate the attainment of public policy objectives, and to identify relevant implications and potential policy options going forward.

This paper is part of a broader study on cooperation and competition in retail payment systems in selected Latin American countries. The starting point for this study is the apparent trade-off between cooperation and competition in retail payments systems, traditionally characterized as ‘upstream cooperation combined with downstream competition’. While competition among payments service providers has been commonly seen as an important contributor to efficiency, there is a need for cooperation in building infrastructures and in defining and implementing standards due to the specific characteristics of the payments industry – namely, the existence of economies of scale (significant fixed costs), scope (potential for sharing infrastructures across instruments and clients) and networks (positive externalities from participation). However, cooperation among participants can lead to collusive practices that hurt efficiency, innovation and access. Neither the academic or empirical literature nor standard-setting efforts to-date provide clear a priori answers as to the appropriate balance between the two forces that would lead to the most socially desirable outcome. Much depends on specific industry characteristics and external environmental factors, such as the historical evolution, the institutional set-up and the regulatory framework, which influence governance, access and pricing considerations. The lack of sufficient publicly available data and the fact that cross-subsidization across payments instruments and other products often takes place, further complicate the analysis of the economics of these systems and the determination of the appropriate regulatory balance.

The case of Colombia is particularly interesting due to the industrial organization structure and oversight framework of the ACH market. In particular, the market is characterized by the co-existence of two distinct ACH platforms (albeit serving mostly different client segments), one of which is public. Oversight arrangements are complicated because of the multiplicity of relevant policy makers and an incipient institutional coordination framework. Those two market characteristics raise interesting questions about striking the right balance different public policy objectives – which include, among others, safety and efficiency, reliability, competition, access and consumer/data protection – and about ensuring an appropriate oversight framework.

The paper focuses primarily on the salient features of the ACH market in Colombia. While the retail payments infrastructure is briefly discussed, the document does not describe in detail Colombia’s different retail payments systems, the legal and regulatory

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182 An ACH is a funds transfer system handling electronic interbank payments (e.g. payroll deposits, social security and other government benefits, consumer bills, business-to-business payments etc.).

183 The study comprises an overview and policy paper and four country case studies (Argentina, Brazil, Colombia, Mexico) that address competition versus cooperation issues in different retail payment systems and instruments.

184 See Kemppainen (2003) for an overview.

185 See Guadamillas, Stephanou and Gorjón (2008) for an analysis of these issues.
framework underpinning them, or the financial system that represents its main user. Moreover, due to the unavailability of revenue and cost information, the financial performance of the two ACH platforms is not analyzed, although relevant drivers and pricing policies are identified and discussed.

The rest of the document is organized as follows:

- Overview of the evolution and current usage of retail payments instruments and infrastructures in Colombia (Section 2)
- Discussion of stylized facts about the ACH market, focusing particularly on historical evolution, current structure, service offerings, operating standards, revenue/cost drivers, pricing policy, as well as governance and oversight arrangements (Section 3)
- Analysis of key issues and challenges stemming from the stylized facts (Section 4)
- Identification and brief elaboration of potential policy options in the ACH market, including pros/cons and likely implications (Section 5).

Appendices I, II describe the government’s payments modernization strategy and Colombia’s social protection system.

2 OVERVIEW OF RETAIL PAYMENTS INSTRUMENTS AND INFRASTRUCTURES

Retail, or low value, payments are diverse as a result of the nature of transaction types and counterparties that are involved. Payments instruments basically convey relevant information regarding the transfer of monetary value from one party in a transaction to the other. Retail payments usually involve an individual as (at least) one of the counterparties, and are typically classified into cash and non-cash. Unlike cash payments, non-cash payments typically involve a transfer in value between financial institutions. There exists a variety of non-cash payment instruments, and they are classified into cheques and ‘paperless’ instruments used to transfer payment information and monetary value in an electronic financial book-keeping system through some form of electronic communications device, such as direct funds transfers and payment cards (debit and credit). Payments processes range from a simple cash transaction to more complicated processes that involve processing of payments instructions to complete the value transfer. These payment processes create the opportunities for shared infrastructure for the access, messaging, clearing and settlement services by instrument and across different instrument types; ACHs, automated teller machines (ATMs) and points-of-sale (POS) are examples of such shared infrastructure. This section briefly reviews existing retail payments instruments and infrastructures in Colombia. As can be seen in Figure 1, cheques and card payments are the most important retail payments instruments in terms of volume (number of transactions) in Colombia, although credit transfers are the most important in terms of value and comprise more than 80 percent of total.

2.1 INSTRUMENTS: EVOLUTION AND USAGE

Cash is widely used for low-value transactions in Colombia. The total currency in circulation at the end of 2006 amounted to 16 billion pesos, equivalent to around 5 percent of the GDP. During the 1990s, this ratio fluctuated between 2.5 and 3.5 percent, but it started to increase in the early 2000s and reached a level of 5.9 percent of GDP in 2004 (see Figure 2). This increase in the demand for cash can be explained by the rapid fall of the nominal interest rate in recent years and especially by the effect of the introduction
FIGURE 1: USE OF DIFFERENT PAYMENT INSTRUMENTS ACROSS SELECTED COUNTRIES (2004)

Source: WGPS-LAC.

FIGURE 2: USE OF CASH IN SELECTED LATIN AMERICAN COUNTRIES (% OF GDP)

Source: WGPS-LAC.
of a financial transactions tax (Gravamen a los Movimientos Financieros, GMF) in November 1998, which applied to all transfers in current and savings accounts and other financial assets. While the GMF was initially 0.2 percent of the financial transaction’s value, it has been raised to 0.3 percent in 2001 and to 0.4 percent in 2004.

Although cheques continue to be commonly used in Colombia, recent figures show that their use has decreased substantially. As shown in Figure 3, the volume of cheques has been on a steady decline since at least 1995, while the value of cleared cheques has stabilized in recent years. Cheques are used mainly for low-value transactions but they are also used by the corporate sector and by financial intermediaries for large-value transactions, sometimes as a credit instrument (post-dated cheques). In fact, according to BR figures for June 2007, cheques of less than 1 million pesos represented 63 percent of the total cheque volume but only accounted for 3.6 percent of the total cleared value.

Debit cards have grown significantly compared to credit cards in the past decade (Figure 4). The number of debit cards has grown between 1995 and 2005 at an average annual rate of 9.0 percent, from 4.8 million cards in 1995 to 11.4 million in 2005. In contrast, credit cards have only increased from 2 and 3.5 million during this period, with an average annual growth of 5.3 percent. The number of debit cards per capita is
higher than the number of credit cards per capita. By 2005, this indicator was 0.24 for the first and barely 0.07 for credit cards. As expected, in Colombia there are a much higher number of debit cards circulating than credit cards. Both indicators are low compared with other Latin American countries as well as developed countries. The indicator of Colombia is below that of Argentina (0.38), Mexico (0.33) and Chile (0.29), all with a big difference from Brazil which has an indicator of 1.25 in debit cards. However, the transaction value with debit cards in Colombia is very important as a proportion of GDP. By 2003 this transaction value was almost 15 percent of GDP, while the transaction value of credit cards barely amounted to 3.6 percent of GDP. When compared with the United States and Canada, there is an opposite trend because in those countries the highest transaction value as a percentage of GDP is with credit cards.

Internet banking continues to be increasingly used according to the latest results of an internet banking survey conducted by Asobancaria (Figure 5)\(^\text{188}\). The number of transactions increased by 8 percent during 2005, rising from an average of 14.9 million transactions per month in 2004 to 16.1 million in 2005. According to Asobancaria data, more than 80 percent of Internet transactions are for consultations, non-mon-

\(^{188}\) The survey was undertaken in June 2005 and 16 financial institutions (73 percent of total banks) participated in it.
etary transactions, while only 7.5 percent are transfers to third parties within the same entity and 2.8 percent are transfers to other entities. This highlights the importance of monetary transactions transfers between accounts by the same owner and within the same entity (61.6 percent) as opposed to transfers to other banks (24.1 percent). However, internet transactions have grown significantly, rising from 10 percent of the total in 2001 to 19 percent in 2005. Among the major obstacles that banks identified as a barrier for web-based financial services are low Internet penetration and lack of education in the use of this tool. For financial institutions surveyed by Asobancaria, there are no legal restrictions or regulatory measures that prevent the development of virtual banking. The increased number of monetary transactions that has been happening in recent years demonstrates that users have greater confidence in this channel of payment.

The development of e-money has been slow relative to other countries. Only a few products for electronic money-based software exist in Colombia. The BIS survey reported a product called “e-prepago” which focuses on purchases over the internet. “E-prepago” works with one of the leading banks and is a virtual card. It can be loaded from a checking or savings account and operates within the Master Card network of stores.

The use of electronic means of payment in Colombia is hampered by several demand and supply factors189.

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189 See Arbeláez and Zuluaga (2006) for details.
On the demand side, the low levels of bank and internet penetration, partly stemming from high informality and low income and education levels, are important obstacles to broader adoption of electronic payments\(^9\). Supply side factors include costly regulations (e.g. GMF and anti-money laundering provisions) and the operational costs of different types of bank accounts\(^9\) and payment services (see Figure 6). When payment instruments also include a credit function (e.g. credit cards), lack of information on the creditworthiness of potential borrowers could be another obstacle for the usage of this instrument.

\(^9\) According to Marulanda (2005), only around 28 percent of households have a savings account, which is the most commonly used banking product in Colombia.


2.2 INFRASTRUCTURE: EVOLUTION AND USAGE

2.2.1 Automated Clearing Houses (ACHs)

Retail electronic payments are cleared through two ACHs. These are CENIT (Compensación Electrónica Nacional Interbancaria) that is managed by the BR and is used mainly for low-value payments of the public sector, and ACH Colombia that is owned and used by banks (see next section for details). Both platforms offer direct credits (initiated by the payor, e.g. payroll deposits) and direct debits (initiated by the payee, e.g. utility payments) involving funds transfers across demand/savings accounts held by different banks\(^9\).

\(^9\) The vast majority of interbank transfers in Colombia until now have been direct credits.
2.2.2 Cheque Clearing

CEDEC (Sistema de Compensación Electrónica de Cheques) is the cheque clearing house operated by the BR. Since 1998, CEDEC has operated in the six main cities of the country, which represent about 90 percent of the value and volume of the cleared instruments at the national level. The physical interchange of documents is undertaken in the BR clearinghouses. In 13 other locations where the CEDEC does not operate but the BR has a branch, participants in the clearing session convene in the clearinghouse with the documents and with individual worksheets (planillas) of the values to be cleared. There is also a system of delegated clearinghouses operating in 31 locations, through which the delegated entity for each location transmits the net clearing positions of all participants to the closest BR office, which then proceeds to insert the information in the national clearing system. Cheques are paid to the final beneficiaries on the same value day in which they are presented to the credit institution by the customer.

CEDEC has introduced an important simplification in the cheque clearing process. The information related to each of the documents presented for clearing is captured and transmitted through CEDEC using MICR technology. The automation achieved through this application has enabled a substantial reduction in the cost of the processing of paper-based payment instruments. Automation of CEDEC processes has been matched by significant improvements in the efficiency of operational areas within the banks, cost reductions due to the elimination of process duplications, improvements in the quality and quantity of information from the banks in the context of their treasury operations, and better monitoring and oversight by the BR.

2.2.3 Payment Cards Networks

The main players in the payment cards market are Visa and MasterCard (both credit and debit instruments), and American Express and Diners (only credit cards). The card operators and clearing agents for Visa and Mastercard cards are Credibanco (VISA) with 22 affiliated banks, and Redeban Multicolor (MasterCard), with 16 affiliated banks. American Express and Diners credit cards are administered by commercial banks (Bancolombia and Banco Superior respectively) that are the only issuers of these cards. Of the 10 million debit cards currently operating in the market, Mastercard has a share of almost 60 percent and Visa the remaining 40 percent. Regarding POS transactions through cards, the market share at end-2005 was 32.5 percent MasterCard, 48.6 percent Visa, 12.6 percent Diners and 3.6 percent American Express.

2.2.4 ATMs and POS Networks

In Colombia, three networks administer the ATM and Points of Sale (POS) systems. Redeban Multicolor, which is the result of a merger of other entities that occurred in mid-2000; Servibanca, created in 1985; and ATH, created in 1991. Redeban Multicolor specializes in POS, while Servibanca and ATH focus primarily on the administration of ATMs. These networks are interoperable and are completely interconnected, meaning that the cardholder of an entity attached to a certain network can make transactions in terminals belonging to other networks. In addition, many banks have their own proprietary ATM networks.

The growth in the number of ATMs has stagnated in recent years, while POS terminals have continued to increase. The evolution of the number of total terminals installed in the country has followed two trends since the early 1990s. The first period lasted from 1993 to 1998, and was characterized by an average annual growth rate of 35.5 percent in the number of ATMs. By contrast, the second period (1999 to 2005) shows a clear stagnation in the expansion of ATMs, reaching an average growth rate of only 1.2 percent, with negative growth in the years 2000 and 2001. Regarding POS,
both their number and the number of transactions per terminal shows a steadily growing trend with 61,942 POS and $14.9 trillion value of transactions in 2005 (see Figure 7).

Colombia has a relatively low penetration of ATMs. The indicator of geographical penetration, defined as the number of ATMs for each 1,000 kilometers, was 4.1 in 2003. This result is similar to Brazil and Canada, but is well below the United States (38.4) and El Salvador (34.9). This indicator reflects the relative ease of geographic access to ATMs. The indicator of demographic penetration, defined as the number of ATMs per one hundred thousand inhabitants, is also among the lowest in the World Bank sample. The indicator of demographic penetration can be seen as a proxy for the number of clients for each cash dispenser: a high indicator indicates fewer customers per ATM and therefore greater ease of access. For Colombia, this indicator is 9.6, compared with rates of 24 in Chile and 121 in United States. While the geographical penetration largely depends on the country’s overall size, the demographic penetration indicator shows that Colombia exceeds only low-income countries such as Bolivia, Peru and Honduras. The data also indicate that the real value of withdrawals per transaction has remained fairly constant during the period under review, showing an increase of only 1 percent between the years 2001 and 2004, implying that the greatest total value of transactions through ATMs is largely due to an increase in the number of transactions made by cashiers.

Source: Asobancaria.
2.2.5 Cooperatives Network

Although cooperatives have traditionally been served by commercial banks, some of them have recently launched their own payments network. Cooperatives form part of the so-called economia solidaria, and are of two types: financial cooperatives (6, can hold third party deposits and are supervised financial institutions) and general cooperatives (around 230, can only hold member deposits and are not financial entities). Most cooperatives had been using Megabanco – the only bank of the cooperative sector – for their payments needs by striking bilateral services agreements with it, but its recent purchase by Banco Bogota raises questions about its future strategy. A group of Medellín-based cooperatives has recently launched a non-profit network called Visionamos to offer multiple back office and technological products to its members, including payments services (“Tepago” debit cards, POS and ATMs – together with Servibanca).

3. STYLIZED FACTS ABOUT THE ACH MARKET

3.1 EVOLUTION AND CURRENT MARKET STRUCTURE

The ACH market was created in the late 1990s as part of a BR program to modernize the national payments system. In particular, one of the pillars of the program launched in 1996 was the introduction of an ACH as a new low-value payments mechanism to reduce the prevalent use of cheques. This process culminated in the creation of CENIT, which was launched by BR in 1999. In spite of this, most commercial banks decided to proceed independently and created two private ACHs in the late 1990s, which merged in 2000 to form ACH Colombia (ACHC). Since that time, CENIT and ACHC have been the only two ACH platforms in Colombia.

Membership in the two ACHs has a high degree of overlap. CENIT members currently comprise all banks, two financial corporations, two financial cooperatives, the National Treasury in the Ministry of Finance (Ministerio de Hacienda y Crédito Publico, or MHCP), securities depository DECEVAL (Depósito Centralizado de Valores de Colombia), and all non-bank information operators. ACHC primarily serves commercial banks (except state-owned Banco Agrario) and effectively acts as their ‘back office’ for funds transfers purposes, leaving each bank to run its own business and set client fees as it deems appropriate. Banco Agrario, which has the largest branch network in Colombia and focuses particularly on rural areas, has chosen to work only with CENIT allegedly due to disagreements with other banks over the setting of interbank fees when using ACHC (see below).

In spite of overlapping memberships, CENIT and ACHC mostly cater to different market segments. CENIT is used primarily by the central government (low-value payments for service providers, pensions and salaries), BR, DECEVAL (payments to ultimate beneficiaries of private domestic debt), information operators (social protection-related transfers) and Banco Agrario. The vast majority of commercial banks, by

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193 The program arose partly in response to the findings and recommendations of an earlier World Bank study – see Listfield and Montes-Negret (October 1995) for details.

194 The electronic interbank credit and debit operations of CENIT began in 1999 and 2001 respectively.

195 Although CENIT initially provided direct access only to banks, its policy was subsequently amended to allow access by all credit institutions. In addition, at the request of the Colombian government, the BR’s Board approved in 2005 the opening of BR accounts by all information operators (including for those that are not credit institutions) solely for the purpose of facilitating the settlement of social protection-related payments. See Appendix II for a discussion of the social protection system in Colombia.

196 This market structure is not unique internationally: for example, the US has a similar structure with the Federal Reserve and private providers competing in ACH provision, although the former tends to dominate the market.

197 Decree 1423/1998 mandated that all service providers to central government should be paid via CENIT.
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virtue of the fact that they are shareholders in ACHC, direct their business to ACHC although their clients have the right (at least in theory) to choose an ACH to process their funds transfers. These banks only use CENIT when they have no option, i.e. when they need to make a payment to a beneficiary whose account is held at Banco Agrario or need to exchange information (in their role as information operators) related to social protection payments.

As a result, the growth in volume, whether measured in terms of number or value of transactions, has expanded at a different pace between the two ACH platforms (Figure 8). In particular, CENIT accounted for only 5 and 28 percent of the number and value of funds transfers respectively in 2006, although its market share has increased in 2007 due to its use by more market participants.\textsuperscript{198}

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure8.png}
\caption{ANNUAL TRANSACTIONS VOLUME: ACHC VERSUS CENIT (2000-06)}
\end{figure}

\textsuperscript{198} At the time of this paper’s preparation, the authors did not have transaction volumes for 2007 for both ACHs. However, there was apparently an important increase in CENIT’s use at the end of 2007 as one private bank switched its payments transfers deal flow from ACHC to CENIT.

3.2 SERVICES AND OPERATING STANDARDS

ACHC and CENIT offer same-day funds transfer services to their respective clients. Such services include both direct credits (salaries, pensions, dividends, suppliers etc.) and direct debits (mortgages, insurance,
public and utility services etc.), mostly of a recurring nature by corporate clients. As previously mentioned, funds transfers via ACHC are exclusively interbank in nature involving demand/savings accounts, but in the case of CENIT they may also involve MHCP, BR, DECEVAL or information operators. The MHCP had traditionally been one of the major users of CENIT as part of its plans to automate and centralize government payments via a single account at the BR, but has become less important with the increased use of CENIT by other participants.

ACHC has also built a separate online debit product called Botón de Pagos (Proveedor de Servicios Electrónicos, PSE). Under this scheme, a client that wants to pay for purchasing a product from a merchant’s website (e.g. an airline ticket) can access via PSE his bank account online, use ACHC’s funds transfer service to debit funds from there and credit the merchant’s bank account, and receive authentication of this transaction. While take-up of PSE was relatively small when it was first introduced (not surprisingly, given that credit cards are an alternative and preferred means of online payments), the introduction of a new social protection payments scheme has increased its use significantly (see below). In 2005 more than 16,000 transactions were processed through Botón de Pagos for a value of $267 billion.

Both ACH platforms have developed customized applications relating to the social protection system. As described in Appendix II, simplification efforts by the Ministry of Social Protection (Ministerio de Protección Social, MPS) have recently led to a unified electronic system to process social security and other mandatory payroll contributions. This system, entitled Planilla Integrada de Liquidación de Aportes (PILA), relies on so-called information operators (Operadores de Información, IOs) to process the information and pay the contributions via electronic funds transfers to the bank accounts of social protection administrators. The two ACH platforms compete in terms of attracting IO-related funds transfer business, although most IOs are banks and tend to exclusively use ACHC for this purpose. Concerns about confidentiality, concentration and the security of sensitive information led the MPS and MHCP to give exclusive legal responsibility of handling all information transfers across IOs to CENIT (Decree 1931/2006), which introduced this service (Servicio de Transferencia de Archivos Encriptados) in February 2007. While unable to handle information transfers, ACHC has developed an outsourcing product entitled SOI (Servicio Operativo de Información) for the customers of bank IOs (except Banco Agrario). SOI allows employers to file their PILAs (via the website of the originating bank IO) and to effect the funds transfer (via PSE), and then distributes the consolidated information to the relevant administrator (via the recipient bank IO that acts on its behalf) for reconciliation purposes.

Operating standards and processes across the two ACH platforms are fairly similar, with one major exception. In particular, helped by their overlapping membership, both platforms use similar messaging formats (NACHAM, with some minor modifications) and cycles of operation, perform multilateral netting and settle balances with the BR. One important current difference is that while ACHC’s PSE service can provide on-line confirmation of a debit transaction (used primarily for social protection-related payments), CENIT operates on a batch cycle and is thus unable to confirm the completion of a funds transfer until the next cycle.
The growth in ACH business volume has been driven by (at least) three specific factors in the case of Colombia. In addition to the generic demand and supply factors described in the previous section that affect the relative use of (and degree of substitution across) different payments instruments, there are also factors that are specific to the ACH market. These are described below and are: (1) banking market concentration and the degree of internalization of payment orders; (2) the evolution of government payments modernization efforts; and (3) the structure of Colombia’s social protection system.

The first business driver, particularly for ACHC, is banking market concentration and the extent to which banks can internalize payments orders. As the Colombian banking system becomes more concentrated due to merger activity, banks are increasingly able to internalize payments requests because the beneficiary and recipient of the funds have accounts in the same institution – the so-called “on us” clearing. For example, one large domestic bank reports that up to 80 percent of its payments orders can be internalized due to its extensive client base and branch network. A related factor is a bank’s target market segment given that most ACH business is corporate in nature; for example, one mid-sized foreign bank generates a very large payments flow – significantly in excess of its overall market position or ACHC share ownership – because it serves the payments needs of large corporations (suppliers, salaries etc.) but does not have a large network to internalize them and therefore has to rely on ACHC.

A second driver, particularly for CENIT, is the evolution of government plans for automating and centralizing payments. As described in Appendix I, the MHCP is currently engaged in a long-term modernization plan that includes the automation and centralization of government payments via a single Treasury account at the BR (Cuenta Única Nacional, CUN). As the CUN develops further and becomes applicable across the entire government (both national and sub-national), government payments will become more automated (less use of cheques) and centralized through CENIT. For example, if current plans to centralize payments of government pensions and salaries via CENIT by end-2008 are realized, this would substantially increase CENIT’s volume of transactions. These plans will also drive some business away from ACHC since the current practice is for individual ministries, municipal authorities and state-owned enterprises to strike bilateral deals with commercial banks in order for the latter to effect payments (using ACHC) to their employees, pensioners and suppliers.

The third driver that is becoming increasingly important for both ACHs is Colombia’s social protection system. Use of the PILA scheme and of IOs has expanded dramatically, with the number of contributing employees increasing from zero in early 2005 to over 5 million in June 2007, and has generated a new market for ACH providers in terms of information processing and funds transfers. For example, the number of PILAs prepared by ACHC as part of its SOI business line has risen from around 2,200 in early 2006 to around 90 thousand by mid-2007, while PSE transactions, which are also driven primarily by social protection-related business, have increased from almost 8 thousand to around 130 thousand over the same period. Related to the second driver, the government is planning to centralize social protection-related payments for public entities via CENIT, which would also drive some of the existing business away from ACHC. While the cumulative value of payments related to PILAs for the first half of 2007 (around 8 trillion Colombian pesos) only represented a few percentage points of the overall ACH funds transfer...
**BOX 1: DESCRIPTION OF FEE STRUCTURE FOR ACH FUNDS AND INFORMATION TRANSFER**

The fee structure for ACH funds transfers reflects the type of transaction and the involvement of different participants in the process. Different types of fees accrue to different participants, such as the funds transfer fee (paid by initiating client to originating bank$^1$), ACH fee (usually paid by the originating bank to an ACH), interbank fee (paid by originating bank via ACH to recipient bank), and funds reception fee (paid by ultimate beneficiary to recipient bank, where applicable).

![Diagram of fee structure]

where:
- $V =$ funds transfer fee charged by bank A to client A
- $W =$ sum of fees $X$ and $Y$, which are paid by originating bank A
  - (except for CENIT, when transaction involves social security)
- $X =$ ACH fee paid by originating bank A to ACH
  - (for CENIT, this is paid by bank B if transaction involves social security)
- $Y =$ interbank fee paid by originating bank A to recipient bank B via ACH
  - (for CENIT, this is zero if transaction involves social security)
- $Z =$ funds reception fee charged by recipient bank B to client B (if applicable)

The fee structure for ACH information transfers is fairly similar, although the participants can be different (bank versus non-bank Information Operators or IOs). A service fee can be charged by the originating IO to the employer (often as part of a broader package of services$^2$), while the former pays CENIT an ACH fee for the information transfer. The recipient IO, which acts on behalf of the administrator of the specific social protection scheme, pays an inter-operator fee to the originating IO via CENIT. In most cases, IOs also pay an outsourcing provider (ACHC-SOI, except for Banco Agrario and non-bank IOs) for helping them process the PILA information.

![Diagram of fee structure for information transfer]

where:
- $U =$ service fee charged by I.O. A to employer A
- $V =$ service fee paid by I.O. A to outsourcing provider (can be ACHC-SOI or other)
  - for its information processing services
- $W =$ fee X less fee Y, which is paid by originating I.O. A
- $X =$ ACH fee paid by originating I.O. A to CENIT
- $Y =$ inter-operator fee paid by recipient I.O. B to originating I.O. A via CENIT
- $Z =$ service fee charged by I.O. B to administradora

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$^1$ This fee is typically charged per transaction for retail clients and as part of a cash management package (scaled fee structure based on number of transactions) for corporate clients. In some cases, instead of a fee, there might be a so-called reciprocal requirement (resiprocidad) to hold a low-yielding minimum balance in the client’s deposit account with the bank. This type of compensation is particularly common for central/local government because the national budget (presupuesto nacional) does not apparently allow them to pay bank commissions for such services.

$^2$ This is not universally applicable, since one of the objectives of this scheme (at least in principle) is for the administrators to incur all information and funds transfer costs as opposed to the contributors.
business, this figure is expected to grow in importance going forward.

On the cost side, both networks are characterized by significant economies of scale and scope in their core business. While cost information was unavailable, both ACHs confirmed the presence of significant fixed costs and of the benefits from scaling up their operations and from leveraging them across different products. While CENIT currently operates with a much smaller volume of transactions than ACHC, it shares some of its operating staff and most of its information technology (both software and hardware) costs with CEDEC. In addition, CENIT relies on a BR-wide system (Servicios Electrónicos del Banco de la República, SEBRA) for its communications and security infrastructure, which allows it to process social protection-related information transfers. In the case of ACHC, its three products are supported by distinct but interconnected systems that leverage the same client base.

The aforementioned revenue/cost drivers and ownership of the two ACH platforms have influenced their respective pricing policies. In principle, ACHC’s pricing policy aims to ensure self-sufficiency by covering costs, financing any new investments without having to resort to external funding sources (no debt on its balance sheet), and providing dividends to shareholders whenever possible\textsuperscript{203}. On the other hand, CENIT aims to charge users on a cost-recovery basis, including opportunity and indirect costs. Both ACHC and CENIT earn a large proportion of their revenues by charging participants a fee for funds transfer services\textsuperscript{204}. CENIT is charging a flat fee per direct credit/debit transaction (115 pesos) while ACHC uses a two-tier pricing structure that tends to discriminate against smaller banks that do not generate sufficient funds transfers to cover the fixed monthly fee\textsuperscript{205}. In addition, CENIT charges originating IOs a fee for information transfer services, and this fee has become an important part of its total revenues. ACHC recently began to charge for its other two products, setting a per transaction fee for the processing of information (SOI) on behalf of IOs, and a two-tier fee for the related funds transfer process (PSE). These fees form part of a broader, more complex fee structure that involves different participants in the overall funds and information transfer process (Box 1).

The structure and method of determining interbank fees also differ between the two ACH platforms. Although interbank fees do not accrue to ACHC and CENIT, both of them act as conduits for notifying such fees to all members and for their collection\textsuperscript{206}. However, while recipient members individually define such fees (although they tend to be similar) and communicate them to CENIT, it is the ACHC’s Board of Directors that determines fees based on the recommendations of a committee drawn mostly from Board members (Comisión de Tarifas). According to its regulations, CENIT only permits a low single interbank fee for direct debits, which is most cases is 330 pesos per transaction. Its interbank fee structure for direct credits\textsuperscript{207} is based on one of two approaches: either a flat fee per transaction or a ‘scaled’ fee (tarifa escalonada) based on the geographical location of the recipient’s bank branch. The flat fee has been adopted by small and mid-sized Colombian credit institutions (typically 800 pesos per transaction), while the ‘scaled’ fee is used by the

\textsuperscript{203} There is no available information to confirm the profitability of ACHC’s business or the use of its profits.

\textsuperscript{204} There also exist other types of ACH fees (e.g. requests of additional information etc.) but they are relatively less important.

\textsuperscript{205} This comprises a fixed monthly fee per bank to cover a certain number of transactions, and a variable scaled fee (depending on volume and location of transactions) for all transactions above that threshold.

\textsuperscript{206} There are also inter-operator fees flowing through CENIT that, according to MPS regulations, must be paid by recipient IOs to originating IOs (and not vice versa).

\textsuperscript{207} In accordance with MPS requirements, neither CENIT nor ACHC permit interbank fees to be charged for social protection-related funds transfers.

\textsuperscript{208} More specifically, the criteria are: (1) whether the recipient bank is within certain pre-defined towns in Colombia; and (2) whether the originating bank also has a branch in that location.
bigger banks that can leverage their large branch networks. The fee difference in the latter case can be large, ranging from as little as 800 pesos per transaction to as much as 1.5 percent of the transaction’s value. By contrast, ACHC’s interbank fees are based on a two-tier pricing structure and are reportedly higher on average than those of CENIT. According to some market participants, ACHC’s interbank fee structure has not been greatly influenced by the fee structure chosen by individual banks in CENIT. Finally, it is worth noting that, while CENIT’s pricing policy (both ACH and interbank fees) is publicly available via the BR’s website, ACHC does not disclose its prices on the justification that its only clients are banks.

3.4 GOVERNANCE AND OVERSIGHT

As a private for-profit company, ACHC’s operations are determined by its main shareholders. Its current shareholding structure stems from the original allocation of shares between the two pre-existing private ACHs and by subsequent merger and acquisition activity. Fourteen banks, one trust company (fiduciaria) and one cooperative are the current shareholders, and nine of them have been elected to the Board of Directors. Share ownership tends to be proportional to bank size, with the largest bank in Colombia owning a 20 percent stake and the two main domestic financial groups (Aval and Antioqueño) controlling around 54 percent of all shares. ACHC’s current statute states that only banks can be members, while the Comisión de Tarijas reviews and proposes changes to the tariff structure.

CENIT’s operations are based on the legal foundation for BR involvement in the payments system. In describing its functions, Central Bank Law 31/1992 (Ley Orgánica del Banco de la República) states that the BR should study and adopt monetary, credit, and foreign exchange measures to regulate monetary circulation and, in general, the liquidity of the financial system, and the smooth functioning of the payment system both domestically and internationally. While the BR monitors and participates in the payments system as part of its role in preserving financial stability (direct provision of infrastructure services including via CENIT, collection of information, on-going dialogue with users etc.), it has not been responsible for retail payments systems oversight.

The function of retail payment systems oversight per se has been only partially implemented through a complex intertwine of different authorities’ roles. Regulation and supervision have focused on the type of institutions that are generally defined by the services that they provide. Thus, for low-value payment systems, the legal framework provides the basis for the regulation and supervision of individual entities providing payment services mainly focused on safety issues. However, the oversight function of the retail payments system as a whole with a broader scope (e.g. efficiency, access, competition etc.) has not been clearly established. Thus, there is an unclear delimitation of the different agencies’ responsibility in this respect. For example, financial entities are supervised by the SF, while other private non-financial companies – including payment systems participants such as ATM networks and payment card firms – are supervised by the Superintendency of Companies (Superintendencia de Sociedades, SSOC).

Supervisory responsibility for low-value payments systems lies primarily with the SF, although it mostly focuses on safety issues. Law 795/2003 assigned responsibility for the regulation of high- and low-value payment systems to BR and to the MHCP (in consultation with the BR) respectively. The MHCP issued Decree 1400/2005 that defines operating standards for low-value payment systems providers\(^{209}\) and as-

\(^{209}\) The definition of a low-value payments system is based on whether the average daily transaction value, based on a formula that is described in the Decree, is below a pre-defined threshold.
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signs supervisory responsibility to the SF. CENIT and ACHC are therefore supervised by the SF as payments systems operators on issues primarily relating to their safety and soundness\textsuperscript{210}. The ACH platforms, in their capacity as systems operators, have also developed operating standards for participants and – at least in the case of CENIT – they have the right to visit their members to verify compliance and to impose sanctions. These entities are also subject to the SF’s corporate governance standards, but the latter remain generic in character and mostly voluntary (adoption of Code of Good Corporate Governance Practices). Moreover, it is worth noting that although the SF has recently mandated the disclosure of financial services fees (deposit and loan accounts, payment cards, remittances etc.) by credit institutions on its website, this disclosure does not include the cost of interbank funds transfers.

Competition issues in low-value payments systems have recently been taken up by the Superintendencia de Industria y Comercio (SIC). Although the legal mandate for antitrust in the financial sector formally resides with the SF\textsuperscript{211}, the SIC – in its role as the de jure competition authority in Colombia (Law 155/1959 and Decree 2153/1992) – has been leading recent inquiries into payment card interchange fees and has become, by implication, the relevant antitrust authority for low-value payments systems. This has been confirmed by Decree 2999/2005, which mandates that anti-competitive commercial practices by low-value payments systems operators fall within the SIC’s scope. Given existing legal ambiguities regarding the responsibility for competition in the financial sector\textsuperscript{212}, there are currently discussions within the government to resolve this issue. The SIC briefly looked at the market for social protection-related information flows in 2006 at the request of MPS\textsuperscript{213}, but has not found a priori reasons to initiate an inquiry.

Although there are various initiatives relating to retail payments, there are no formal institutional coordination mechanisms. The Banking Association of Colombia (Asobancaria) has a payments systems working group that represents the views of the banking industry and coordinates new initiatives in this area, including some ad hoc cooperation over technical standards between the two ACH platforms. At the same time, the government has its own committee for developing electronic government payments led by MHCP, while the MPS and BR hold periodic meetings with IOs to discuss improvements in the current social protection payments scheme set-up. However, there is no formal process for ensuring periodic consultation of the various interested parties within the authorities as well as between them and the private sector.

\textsuperscript{210} Examples include operational standards, technological systems, risk management and anti-money laundering processes and procedures, and financial reporting requirements.

\textsuperscript{211} This stems from the Estatuto Orgánico del Sistema Financiero (EOSF), which was the body of laws and regulations for financial entities supervised by the former Banking Superintendency.

\textsuperscript{212} Since the EOSF did not cover securities-related firms whose regulation and supervision was primarily the responsibility of the old Superintendencia de Valores (Securities Superintendency), it is unclear whether the SF’s competition mandate extends across all its supervised entities. It is worth noting that the SF’s current mandate has only been exercised in the context of certain merger and acquisition activities (the SF is currently developing capacity to address other situations), while it is not clear whether general competition rules that are not specifically mentioned in the EOSF (e.g. abuse of dominant position, possibility for negotiated settlements) apply for the financial system.

\textsuperscript{213} At the time, MPS was concerned about the possibility that bank IOs: (1) were evading their obligations of ensuring accurate information transfers by outsourcing the relevant functions (including customer service and handling of complaints) to ACHC; (2) could be creating conditions for abuse of dominant position by potentially cross-subsidizing the cost of information transfers via the vertical integration of the ACHC in order to eliminate non-bank IOs from this market.
4 KEY ISSUES

Two major issues can be identified from the preceding discussion: the coexistence of two ACH platforms, and the structure of the oversight framework. The former relates to the effects on competition and efficiency from having two distinct ACH infrastructures, one of which is provided by the central bank. The latter refers to the appropriateness of institutional arrangements to ensure the right balance between different policy objectives. These two issues are discussed below and the experience of other countries, where relevant, is also mentioned.

4.1 COEXISTENCE OF ACH PLATFORMS

The two ACHs have generally coordinated in defining operational standards. In order to accommodate their overlapping bank membership, the two ACH platforms have cooperated early on in the definition of messaging formats and other NACHA operating standards. Thus, potential competition in the ACH market is not hindered by interoperability concerns and infrastructural barriers per se.

Although the presence of two ACH platforms has increased contestability for some market participants, this has been limited by discriminatory business practices. From a theoretical point of view, it could be argued that the coexistence of a public and a private ACH can be justified by the need to avoid a market monopoly that can affect the efficiency and cost of the services provided to customers. However, the two ACHs have traditionally catered to mostly different market segments, with ACHC and CENIT serving commercial banks and the central government/Banco Agrario/ non-bank IOs respectively. The presence of CENIT has certainly provided some market participants with a choice of platforms, namely Banco Agrario and other (smaller) banks that do not benefit from the current ACHC interbank fee structure as well as non-bank IOs. In such cases, revenue/cost considerations have been the main competitive driver: Banco Agrario is able to charge higher interbank fees in CENIT and thus leverage its extensive (and geographically dispersed) branch network214, while smaller banks and non-bank IOs are able to initiate funds transfers at a lower cost than having to use ACHC services. It is worth emphasizing that the barriers to greater competition and contestability did not arise naturally due to market forces, but rather as a result of decisions taken by the authorities and by banks (in the form of business practices) to direct traffic to specific ACH platforms.

One manifestation of partial market segmentation is distinct ACH access and pricing policies, which can be partly attributed to different governance arrangements. On the one hand, ACHC’s pricing policy is to ensure self-sufficiency and to provide dividends to shareholders whenever possible, while the two-tier interbank fee structure (also set by its Board) tends to benefit larger banks/shareholders. In addition, its statute does not accept non-banks as new members215, thereby leaving all potential clients (including other financial entities and non-bank IOs) to be served by its bank shareholders. On the other hand, CENIT has a cost recovery pricing mandate that includes an estimation of normal economic profit, but its sub-scale operations until recently had complicated this objective, at least on a stand-alone basis.

It is hard to evaluate the product variety and cost implications of the current ACH market structure on end users. Due to distinct market structures, institutional environments and financial sector characteristics in different countries, it is difficult to establish an appro-

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214 Banco Agrario argues, with some justification, that funds transfers to accounts in branches that are located in remote rural areas create high cash management costs (mainly due to transportation and security) since the beneficiaries often choose to withdraw those funds.

215 As previously mentioned, ACHC’s current shareholders include one trust company (fiduciaria) and one cooperative, although their shareholdings are small and exist solely for historical reasons.
IV. COOPERATION VERSUS COMPETITION IN COLOMBIA’S AUTOMATED CLEARING HOUSE (ACH) MARKET

Appropriate benchmark to assess Colombia in terms of the variety and cost of ACH products. There is no conclusive empirical evidence on the impact of concentration on the rate of innovation per se, although the existence of some barriers to direct competition between the 2 ACHs is not a positive sign. In the case of CENIT, its governance and mandate make it more responsive to the needs of one of its largest users (government). By contrast, the for-profit nature of ACHC and its ownership by commercial banks help internalize many of the costs and benefits of new product launches that should encourage faster development of new products, although much depends on the way that its governance structure shapes the incentives for doing so. Both ACH platforms have introduced innovative features in recent years, such as the acceleration of the timing of funds transfer rejections (next batch cycle as opposed to the following day), the development of new transaction formats (e.g. multiple attachments), and the introduction of direct debit and of PSE. On the cost side, the increase in the number of ACH transactions in recent years has led to some economies of scale (reduced cost per transaction). However, there is no available information to assess whether these cost savings have been passed on to end users via lower funds transfer charges, although the recent trend in fees by ACHC does not seem to support such a conclusion.

The coexistence of 2 ACHs has adverse effects on economies of scale and scope. Given the significant fixed costs reported by both ACHs, there are ‘macro level’ inefficiencies from having a duplication of infrastructures. These cannot be estimated without accessing data to identify the determinants and construct the shape of the ACH cost function, although evidence from other countries strongly suggests that scale economies are significant. CENIT enjoys lower economies of scale given its relatively smaller scale of operations, but it does benefit from some economies of scope by sharing technological and staff costs with other BR systems (e.g. CEDEC, SEBRA). While ACHC has greater economies of scale due to its size, differences in ownership structure across retail payments systems in Colombia have prevented it from clearing other payments instruments and thereby experiencing economies of scope. This has been the case in several European countries (Belgium, Finland, France, Italy, Netherlands, Portugal, Spain etc. – see Annex at the end of the book) whereby a single electronic platform handles the processing of various payments instruments, sometimes including even ATM and POS transactions and (dematerialized) paper documents.

4.2 OVERSIGHT FRAMEWORK

The multiplicity of relevant policymakers and the absence of adequate institutional coordination mechanisms have hindered the development of an effective oversight function. As previously mentioned, there is no general legal framework on payment systems provision – independently of the type of entity offering them – that would describe the objectives, participants and coordination mechanisms in this field. Supervisory and antitrust responsibility for low-value payments systems lies primarily with the SF and SIC respectively, although the former mostly focuses on safety issues and the latter has not reviewed the ACH market in detail. Moreover, in spite of the existence of several payments initiatives and ad hoc coordination arrangements, there is no formal process for ensuring periodic consultation of the various interested parties within the authorities as well as between them and the private sector. As a result, important governance, access and pricing considerations, and their effects on competition and efficiency, have not yet been analyzed or discussed jointly by all relevant parties.

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\[\text{In the case of the US, Bauer and Hancock (1996) and Bauer and Ferrier (November 1996) find that Federal Reserve ACH payment processing is both cheaper than paper check processing and subject to significant cost economies due to a combination of scale economies (volume growth), technological change, and falling input prices (decline in communications and computing equipment costs).}\]

\[\text{However, according to Adams et al. (2004), economies of scope do not appear to have been significant in Federal Reserve electronic payments processing.}\]
Oversight is also hindered by the lack of explicit government objectives and by the relatively minor involvement of the BR in this field. As mentioned in Appendix I, CENIT is considered by the MHCP to be a key element of the public budget strategy to automate government payments. There are several reasons cited for its preferential use—operational reliability, adaptability to government needs, confidentiality in sharing of sensitive information (social protection), and cost-effectiveness—but there is no public document that expounds these reasons in the context of an overall strategy to balance the various competing policy objectives and to further promote an efficient retail payments systems infrastructure. Moreover, the BR is mainly involved in indirect oversight of this market via its role as a system operator but not as a direct overseer. Even in those cases where the central bank remains involved in such provision, central banks keep the main oversight role with a clear separation between its role as overseer/regulator and as operator.

The complex oversight framework has led to a lack of trust and transparency among market participants. Anecdotal evidence suggests that the absence of regular coordination and communication among market participants—especially between the government and the private sector—has discouraged trust and has fueled negative perceptions between them. For example, parts of the government perceive ACHC as a potential monopoly and an unreliable partner because of its dominance by commercial banks, while the latter perceive certain government actions as giving unwarranted preference to CENIT in electronic payments. This lack of trust has also been created by, as well as contributed to, the unwillingness to disclose information, resulting in a lack of transparency as to the market’s functioning.

5 POLICY OPTIONS

There is no unique solution to address the aforementioned issues stemming from the historical evolution of the institutional set-up of the ACH market in Colombia. As is common in retail payments, multiple public policy objectives to maximize social welfare in this market require certain trade-offs to be made. In particular, the lack of an overarching objective—such as, for example, safety and stability as is the case for large-value payments systems—means that there is a greater need to strike the right balance between policy goals relating to safety and efficiency, reliability, competition, access and consumer/data protection. This is also illustrated by the large variety of ACH market structures and governance models across countries (see Annex at the end of this book), which are often shaped by historical experience. Policy-making in this area is also made more complex by the multiplicity of relevant actors. In the case of Colombia, these include the BR (ACH operator), MHCP (government payments modernization and financial regulation), MPS (social protection), SF (prudential supervision of ACH platforms), SSOC (supervision of non-financial entities) and SIC (competition). As a result, different policy measures will be driven by distinct overarching objectives.

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218 While there is not worldwide consensus about the scope of the oversight function, it is generally recognized that the central bank should be the main overseer of payment systems. See Bossone and Cirasino (July 2001) and BIS-CPSS (May 2005).

219 This perception exists in spite of the fact that the government has invited banks and ACHC to participate in consultations for all of its projects that involve electronic payments and transfers.

220 In the case of ACHC in particular, there is virtually no public disclosure of fee structures, operating rules, or of governance and decision-making mechanisms.

221 See Bossone and Cirasino (July 2001) for a discussion of public policy objectives in payments systems.

222 According to the BIS (March 2003), specific efficiency and safety goals include addressing legal and regulatory impediments to market development and innovation, fostering competitive market conditions and behaviors, and supporting the development of effective standards and infrastructure arrangements. A fourth potential objective mentioned in the document, concerns the provision of central bank services in the manner most effective for the particular market. Moreover, BIS (January 2006) states that one of the guidelines for national payment system development consists of expanding the availability of retail payment services via improved infrastructures.
objectives, each of them with its own advantages and disadvantages.

Two high-level policy options to modify the current status quo, driven by different overarching objectives, have been identified for Colombia and are briefly described below. These options are merely possible blueprints that would need to be sketched out and analyzed in much greater detail, while any reform decision would also be influenced by political economy considerations and financial system developments. The policy options are: (1) strengthening of competition between ACH platforms; and (2) consolidation into a unique ACH platform.

The first option maintains two separate ACH platforms but strengthens competition between them. Under this option, whose main objective is to increase contestability, the two ACHs compete for all customers irrespective of whether they belong to the public or private sectors. In order to achieve this, the semicaptive markets on both sides need to be liberalized by eliminating those business practices that prohibit choice and prevent fair pricing of services. Examples include the abolition of the Decree that forces government suppliers to use CENIT, and the explicit obligation by banks to let their clients choose the ACH via which they would like to complete the funds transfer. In addition, in order to ensure competition on an equal footing, both ACH platforms would need to modify and publicly disclose their pricing policies in order for end users to choose between them. Potential advantages of this option would include lower operational costs and thus better pricing for end users as a result of stronger incentives to become more efficient (X-efficiency), as well as greater product innovation and access (including for non-bank financial institutions) stemming from increased contestability. However, this option may not result in a stable competitive market over the long term, since a lot will depend on how competition plays out and whether one of the two platforms ends up dominating the market. Moreover, this option maintains the duplication of infrastructures and related inability to leverage economies of scale from merging them. In order to realistically apply this option in Colombia, it would be critical for the authorities to take a stronger pro-competitive stance and to rigorously monitor enforcement of non-discriminatory business practices and adequate public disclosure, particularly in order to protect and to provide options to the end users of banks and IOs.

The second option is the merger of the two infrastructures into a unique ACH platform. Under this option, whose main objective would be to maximize cost effectiveness, CENIT would be sold by the BR and folded into ACHC223 (or vice versa); the resulting ACH platform would then serve the needs of both the public and private sectors. The major advantage of this option would be potentially lower operational costs by leveraging economies of scale, which would presumably be reflected in lower overall pricing. Such an option would almost certainly create some dislocation irrespective of how it is implemented. For example, if it involves the sale of CENIT, then the current sharing of staff and systems between CENIT and other BR platforms (CEDEC, SEBRA) implies that the actual size of cost savings would need to be analyzed in greater detail and that the sale would need to be considered as part of a broader realignment of payments platforms by the BR. In addition, lower pricing might not materialize if the unified provider acts as an unrestrained monopoly, which could lead instead to higher fees, lower service standards and lack of innovation. Stronger governance arrangements and a robust oversight and antitrust framework would therefore be essential preconditions for the successful realization of the objectives of this option, otherwise it should not be pursued.

Some banks have apparently expressed privately their interest in such a transaction in the past.
Irrespective of the preferred option, there are two additional policy measures that could be taken to improve the functioning of the ACH market. These would address transparency and oversight framework issues identified in the preceding analysis that are common in other countries as well\textsuperscript{224}, and it would be worth considering them irrespective of the desired policy option and market structure going forward.

Enhancing transparency in the functioning of the ACH market would be a relatively straightforward way to dispel mistrust and further promote competition. There is a strong case for greater public disclosure of the operating arrangements of ACH platforms (i.e. shareholder structure, decision-making mechanisms, pricing and access policies etc.) – particularly for ACHC – in order to overcome mistrust among market participants and end users as well as to ensure a level playing field. This is the approach taken in other countries, such as in the EU as part of the Single European Payments Area (SEPA) initiative\textsuperscript{225}. The same argument applies for mandating the periodic public disclosure of bank fees for funds transfers, since it would support recent efforts by the SF to promote consumer protection and increase competition in financial services.

Strengthening of oversight arrangements, particularly via the establishment of robust institutional coordination mechanisms, is another important – albeit complex – policy measure. A stronger oversight framework would prevent potential regulatory gaps and promote a comprehensive approach to developing a more efficient and accessible electronic payments systems infrastructure in Colombia. This can be achieved by reviewing the current assignment of responsibilities across different government agencies and determining whether/how they can be re-arranged to ensure a more effective framework. A major element of this framework is the establishment of institutional mechanisms to promote coordination and information sharing between relevant public and private sector participants. In this regard, the experience of other countries in creating such vehicles (e.g. Payment Systems Board in Australia, Payments Council in the UK etc.\textsuperscript{226}) could be explored. As part of this initiative, the role of the BR in the Colombian payments system could also be examined and reconfigured in order to play the oversight role and act as a ‘catalyst for change’, i.e. by establishing a forum where all interested parties can engage in constructive dialogue about the development of the retail payments infrastructure in Colombia.

\textsuperscript{224} See Guadamillas, Stephanou and Gorjon (2008) for details.

\textsuperscript{225} See, for example, page 17 of the ECB’s (July 2007) fifth progress report on SEPA: “transparency of both services and pricing may drive competition, so that it may be particularly useful to small users with little or no negotiating power. However, given that prices for clearing services are to a certain extent negotiable between the parties to any given contractual arrangement (unlike retail consumer prices), it may only be viable to publish basic prices in the public sphere. . . All infrastructures, including those operated by NCBS [National Central Banks], which should set an example in this area, should publish their prices.”

\textsuperscript{226} See OFT (February 2007), Payments Council (2007), as well as the website of the Payment Systems Board in Australia (http://www.rba.gov.au/PaymentsSystem/payments_system_board.html) for details on the evolution, structure and mandate of these bodies.
IV. COOPERATION VERSUS COMPETITION IN COLOMBIA’S AUTOMATED CLEARING HOUSE (ACH) MARKET

The public sector is a heavy user of the retail payments system in Colombia, although current arrangements are mostly decentralized. As in other countries, the Colombian government receives and remits many types of retail payments (tax collection, salaries, pensions, purchases of goods and services etc.). Although the BR holds the MHCP Treasury’s single account (Cuenta Única Nacional, CUN), there is no designated system for payments or collections across the entire public sector. Decree 1425/1998 mandated that all service providers to central government should be paid via CENIT, while MHCP also uses CENIT for credit transfers. However, in most other cases, payments are made by the final executors of the national budget (individual ministries, sub-national authorities, state-owned enterprises etc.), which hold accounts with commercial banks and therefore rely, by implication, on ACHC. Taxpayers use the banking system as well as the physical branches of the tax agency (Dirección de Impuestos y Aduanas Nacionales, DIAN) to pay taxes, although DIAN also has an electronic payment system in place for large taxpayers. The main payment instruments used for collections continue to be cash and cheques in addition to credit transfers, with the funds being transferred to the CUN.

The MHCP has developed a strategy for the execution of the public budget throughout its overall process of planning, execution, monitoring and evaluation. Three different agencies are involved in the process: the MHCP, the National Planning Department (Dirección Nacional de Planeación, DNP) and the Presidency of the Republic (Presidencia de la República), each with different roles (see Figure I.1 below). The objective of this strategy is to harmonize the planning, execution and monitoring of the budget cycle. In order to implement this strategy, two information systems are already operating: the Sistema Unificado de Inversiones y Finanzas Públicas (SUIFP) administered by the DNP and the Sistema Integrado de Información Financiera (SIIF) administered by the MHCP. The SUIFP covers parts of the central government (Ministerios, Departamentos Administrativos, Entidades de Control and Establecimientos Públicos), state-owned entities (Empresas Industriales y Comerciales del Estado and Sociedades de Economía Mixta) and sub-national authorities (Departamentos and Municipios), while the SIIF covers the rest of central government (budget executing agencies, Administración Central Nacional and Establecimientos Públicos de Orden Nacional). The objective is to have all these systems connected in a single technological platform that allows for a functional autonomy of the different agencies involved.

The new public budget strategy intends to develop straight through processing (STP) from the service or good purchase commitment to the payment order. The public budget process includes three steps before any payment takes place: commitment (contract assignment), obligation (contract fulfillment) and payment order. In the past these processes have been separated and, thus, the payment order was done as a separate process once the commitment and obligation steps were finalized. The implementation of the new strategy includes an automatic link of all these steps finalizing with the payment order (pago a beneficiario final). Thus, the payment order information is starting to be generated in the commitment phase and it will be automatically processed once the obligation has been fulfilled. The intended objectives of this automatic process are:

• to diminish the administrative and financial procedures for the budget executing agencies;
• to diminish the government payment timing and, thus, the public sector providers’ financial costs;
• to allow for a more efficient cash management by the Treasury.

APPENDIX I: DESCRIPTION OF GOVERNMENT PAYMENTS MODERNIZATION STRATEGY

The public sector is a heavy user of the retail payments system in Colombia, although current arrangements are mostly decentralized. As in other countries, the Colombian government receives and remits many types of retail payments (tax collection, salaries, pensions, purchases of goods and services etc.). Although the BR holds the MHCP Treasury’s single account (Cuenta Única Nacional, CUN), there is no designated system for payments or collections across the entire public sector. Decree 1425/1998 mandated that all service providers to central government should be paid via CENIT, while MHCP also uses CENIT for credit transfers. However, in most other cases, payments are made by the final executors of the national budget (individual ministries, sub-national authorities, state-owned enterprises etc.), which hold accounts with commercial banks and therefore rely, by implication, on ACHC. Taxpayers use the banking system as well as the physical branches of the tax agency (Dirección de Impuestos y Aduanas Nacionales, DIAN) to pay taxes, although DIAN also has an electronic payment system in place for large taxpayers. The main payment instruments used for collections continue to be cash and cheques in addition to credit transfers, with the funds being transferred to the CUN.

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• to diminish the administrative and financial procedures for the budget executing agencies;
• to diminish the government payment timing and, thus, the public sector providers’ financial costs;
• to allow for a more efficient cash management by the Treasury.
CENIT is considered by the MHCP as a key element of the public budget execution strategy, although the rationale for its use has not been explicitly stated. Decree 1425 of 1998 creates the single account of the Treasury at the BR and the obligation to process payments of the National General Budget through CENIT. This Decree established a phased approach for the implementation of the CUN: it was implemented for central government since January 1999 and for state-owned entities since January 2001. It also creates a legal monopoly (Article 3) for the payment of service providers to central government through CENIT. Thus, there is a strategy of the government to leverage CENIT as part of the automation of Government payments. The main reasons for the use of CENIT indicated by the MHCP are:

- operational reliability and efficiency in processing batch payments;
- it can adapt its operations to government needs, such as to facilitate the integration of technological platforms and STP in the public budget execution;
- confidentiality in sharing of sensitive information (e.g. social security).

However, it is worth noting that there is no public document that identifies, analyzes and justifies the preferential use of CENIT as part of an explicit government strategy.
APPENDIX II: DESCRIPTION OF SOCIAL PROTECTION SYSTEM

Colombia’s social protection system is financed by a variety of payroll taxes, which created significant complexity in their processing. In addition to contributions for pensions, health insurance, and occupational hazard insurance, there are off-budget earmarked payroll taxes (parafiscales) for the National Training Service (Servicio Nacional de Aprendizaje, SENA), childcare (Instituto Colombiano de Bienestar Familiar, ICBF) and various family benefits and subsidies (cajas de compensación familiar, CCFs). The task of filing and transferring the required information and funds by an employer (aportante) was complicated by the variety of formats used, their manual nature (including the use of cheques), and by the existence of competing administrators (administradoras) for most programs among whom an employee can choose, such as pension funds (Administradoras de Fondos de Pensiones, AFPs), health insurance providers (Empresas Promotoras de Servicios de Salud, EPS), occupational hazard insurance providers (Administradoras de Riesgos Profesionales, ARPs) and CCFs.

Simplification efforts by the MPS have recently created a unified electronic system to process social security and other mandatory contributions. This system, entitled PILA (Planilla Integrada de Liquidación de Aportes), has been developed to combat tax evasion and improve financial control, and takes advantage of recent technological improvements in the financial system. Under this scheme, an employer (aportante) that needs to file a monthly PILA on behalf of his/her employees can use a so-called information operator (operador de información or IO) to process the information and to pay the contributions electronically via funds transfers. The same IO can be hired to do both functions on behalf of the employer, although two separate IOs can also be used. There are 21 licensed and competing IOs, which include 16 commercial banks and 5 other entities (Asocajas, Compensar, Enlace Operativo, Fedecajas and Pago Simple). Mandatory adoption of this scheme was introduced sequentially, starting with the largest firms and ending with small firms and self-employed individuals by September 2007.

The process of information and funds transfers differs depending on the IO (Figures 10 and 11). An employer can complete the funds transfer either by using ACHC’s PSE service when the IO has a contract with it (employer debits his bank account and credits the bank account of the administrator) or by using CENIT (IO debits employer’s bank account, credits IO’s own account in the BR, and then transfers the funds to the administrator’s bank account). The latter case applies to a few non-bank IOs (e.g. Asocajas) and to Banco Agrario, while the former case applies to all other IOs including commercial banks. While the MPS and MHCP have given exclusive legal responsibility of handling all information transfers across IOs to CENIT (Decree 1931/2006), most IOs use outsourcing providers to process such information. The most important provider is ACH-SOI, which is used by all banks (except Banco Agrario).

The aforementioned structure of social protection system flows has led to a complex mix of competition versus cooperation across bank and non-bank IOs. All bank IOs (except Banco Agrario) rely on ACHC’s information processing and funds transfer services, although they compete with each other – and with non-

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328 An alternative information and funds transfer scheme, entitled planilla asistida, is when the employer does not have a bank account or internet access (usually self-employed individuals and small firm owners) and therefore has to rely on an IO to complete the relevant transactions.

329 Of course, if the same bank-IO holds the accounts of both the employer and the administrator, such a transaction is internalized and does not have to flow through an ACH platform; the same applies for information transfers.
Figure 10: Social Protection System Flows – Non-Bank IOS

Figure 11: Structure of Colombia’s Social Protection System Flows – Bank IOS

Note: The above Figures assume that an employer already has a bank account and internet access (i.e. not a ‘planilla asistida’ situation).
bank IOs – to attract employers and social protection administrators as clients. At the same time, non-bank IOs have developed in-house systems or signed outsourcing contracts for processing information (PI-LAs), while they have to rely either on banks (ACHC) or on CENIT to complete the funds transfers for their clients. The latest available figures from MPS show that the market is not dominated by a few IOs (Figure 12), although this situation could change in the future.

FIGURE 12: MARKET SHARE OF IOS (JUNE 2007)

Source: MPS.
Note: The above Figure includes data on both active and retired contributors.
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ABSTRACT: Mexico’s market for bank retail payment cards at point of sales remains underdeveloped both with respect to international standards and vis-à-vis other emerging economies in the region. Is this because of the anticompetitive effect of high interchange fees (IFs)? To answer this difficult question, the authors first provide an in depth discussion of the economics of IFs. This allows drawing some general lessons on how IFs might affect competition and the development of an effective retail payment system. Then the authors focus on the Mexican experience with IFs setting, looking at the main trade-offs regulators face, and discuss the policy challenges ahead.

KEYWORDS: Mexico, Interchange Fee, Credit Card, Retail Payment System, Mexico, Financial Regulation, Competition Policy.
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MOTIVATION OF THE STUDY

To foster the development of an efficient retail payment system, in recent years the Bank of Mexico has provided increasing attention to the structure of the non-cash payment systems, specially the credit and debit card payments in Point of Sales (POS). A number of measures have already been undertaken to promote greater competition in the payment systems. Among these, the introduction of new transparency rules for banks’ charges and the removal of restrictions to access to the common inter-bank infrastructure for electronic fund transfers (EFT) should be mentioned.

Despite such measures, Mexico’s market for bank retail payment cards in POS remains somehow underdeveloped, both with respect to international standards and vis-à-vis other emerging economies in the region. The Mexican authorities are concerned that lack of competition may be one of the culprits, and have been discussing how to foster competition and increase the depth of the credit and debit card market including a reduction of interchange fees (IFs).

Though a very technical issue, IF setting has recently been under scrutiny around the world. Academics have justified their existence as a mechanism to balance out the issuing and acquiring activities within card networks, in the context of two sided markets; they even have provided several theoretical formulations to optimally set the IF under a wide variety of assumptions. The industry – card associations and banks – agrees that the IF acts as a balancing tool between the two sides of the market. However, it has failed to show that the actual fee level is set following an optimization process. Furthermore, the IF in real life is set in a non-transparent manner and has been treated as a “business secret”. Whether the IF setting is done by card associations or by banks’ associations it raises suspicions because it emerges as an agreement between competitors and, although it is a monetary transfer between the acquiring and the issuing bank, it is ultimately paid by merchants and consumers.

Legislators, regulators and consumer associations in several countries have voiced their concerns that the IF could be used as a collusive tool between competitors. In particular, the IF imposes a minimum to the merchant service fees (MSF); therefore, a high IF may leave out of the market those merchants with small margins that are unable to afford such fees. On the other hand IFs are often redistributed, at least partly, to cardholders through the use by issuers of rebates in cardholder fees, cash back bonuses and rewards (typically for credit cards).

The Mexican Congress has been concerned with the level of banking charges to consumers in general; therefore, in 2004 it expanded Banco de México’s regulatory attributions, including the power to set IFs.

Confronted with the above problems, and in order to get a better understanding of whether the current situation requires forms of direct regulatory intervention, in this report we look at the role that IFs play in the credit card industry, drawing from the economic literature as well as from other country experiences.

The report is organized as follows. The first part focuses on the lessons that can be driven from the economic literature on IFs, and highlight the main trade-offs regulators face. The main author is Jean Charles Rochet. The second part describes the Mexican experience and the policy challenges. The main authors are Sara Castellanos, Ricardo Medina, Alberto Mendoza, José Luis Negrín and Francisco Solís. In the final part the authors focus on the main lessons and look at the policy challenges ahead.
1 UNDERSTANDING INTERCHANGE FEES

1.1 BASIC CONCEPTS

Payment cards are gradually becoming one of the most popular non-cash payment instrument all around the world.

Although different business models for non-cash payment instrument coexist, the most successful systems, among which the two largest international card schemes, Visa and MasterCard, are joint ventures between thousands of banks. They are called four-party systems because for most transactions, the bank of the customer and the bank of the merchant are different. The customer’s bank is known as the (card) issuer and the merchant’s bank as the (transaction) acquirer. Therefore, in a four party system the payment service is provided jointly by two providers (the issuer of the card and the acquirer of the payment) to the two users\(^{230}\) (the cardholder and the retailer). The four-party model has also been adopted by other card schemes. In several countries, for example, bank associations have successfully developed domestic debit card schemes that are also run as four party systems.

The IF is an inter-bank transfer that occurs every time a card payment is realized in a four party system. This

\(^{230}\) A specificity of card payment services is that, by definition, they are jointly provided to two users, the payer and the payee. As Farrell (2006) puts it, the real customer is the couple cardholder-retailer. Payment systems are thus an example of a two sided market. Other examples are TV channels, newspapers, Internet portals or telecommunication networks.
transfer typically (but not always) flows from the acquirer to the issuer. It reallocates the total cost of the card payment between the two providers (issuer and acquirer). This fee can be set bilaterally by the two banks or globally at the level of the association of banks (e.g., Visa). In this case it is known as a multilateral interchange fee (MIF).

It is important to understand that each of the two banks involved (the issuer and the acquirer) is able to charge a fee to his own customer (the cardholder for the issuer and the retailer for the acquirer) but that the payment service is provided jointly to these two customers. The IF is thus a way for the two banks to share the total cost of this joint service. It influences the fee structure, which is the way the card payment service is priced to the two customers, as well as the profitability of issuing and acquiring activities. In a perfectly-competitive setting, the IF is passed through one for one to the two sides of the market, and therefore only influences the fee structure, since the total fee is constant. In a non competitive setting by contrast, cardholder and merchant fees may be less sensitive to the IFs. In particular, if the pass through rate (defined as the fraction of cost variations that are transmitted into user prices) is higher on the acquiring side than on the issuing side, an increase in IFs will result in an increase in the total marginal user price (defined as the sum of marginal fees for cardholders and merchants) and therefore on the total profit of banks (issuers and acquirers).

The levels of interchange fees and their determination mode vary a lot across countries and across systems, but they are often collectively determined at the network level. This collective determination as well as other rules such as the “honor-all-cards” or the “no surcharge rule” have been challenged by retailers associations, antitrust authorities and regulators in many countries (USA, Israel, UK, EU, Australia, among others). Partly in response to such challenges, a theoretical analysis of the role of interchange fees in four-party payment card systems has been recently developed. A few econometric studies have also started to test the empirical validity of the prediction of such models.

The objective of this first part of the study is to provide a non technical summary of such recent academic literature and to help to shed some light in the on-going debate about whether interchange fees may be excessively high and whether there is scope for the regulators to intervene. It is organized as follows: Section 1.2 provides a brief description of the payment card industry, and summarizes some episodes of litigations and interventions of antitrust tribunals and regulatory authorities. Section 1.3 presents the “doctrines,” that is the point of views of the different stakeholders: system operators, retailers’ associations, competition authorities and regulators. Section 1.4 presents some facts: how interchange fees impact the fees paid by retailers and cardholders, and the volume of card payments. We also discuss the frequency of surcharging. Section 1.5 contains a summary of the main lessons that can be drawn from economic analysis.

1.2 THE PAYMENT CARD INDUSTRY AND RECENT EPISODES OF PUBLIC INTERVENTION ON IFS

This section briefly sketches some important features of the payment card industry and describes recent episodes of public intervention. For a detailed account of the payment card industry, the reader is referred to Evans and Schmalensee (2005), where the history of this industry is presented in detail, and other examples of antitrust cases are analyzed.

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231 In the Australian Electronic Funds Transfers at Point Sale (EFTPOS) system the transfers flows the other way round.


1.2.1 Different business models

An important feature of the payment card industry is that different types of payment cards coexist, and that they typically follow different business models. The most successful are of two types: proprietary cards that are provided by closed (or three party) systems like Amex or Discover and general purpose cards that are offered by open (or four party) systems.234 By definition, the question of IFs is only relevant for four party systems.

Each bank in an open system issues its own range of payment cards which provide cardholders with access to the whole system. Bank associations have often adopted specific by-laws,235 usually referred to as “honor-all-cards” rules or “honor-all-issuers” rules, which provide cardholders with the guarantee that their card will be accepted by a retailer affiliated with the card network, independently of the identity of the bank that has issued the card. The “honor-all-cards” rules goes further than the “honor-all-issuers” rule, in that it requires retailers to accept all cards, e.g. debit and credit, issued by the network members. In the USA this “honor-all-cards” rule has been abandoned by Visa and MasterCard in 2003, following a settlement in the Wal-Mart class action suit.

Several types of cards coexist, differing in the payment options offered to the cardholder by the issuer. In the case of charge cards, the issuer sends a bill to the cardholder at the end of the month. Credit cards also offer a credit facility to the cardholders. In the case of debit cards, the issuer withdraws the funds directly from the account of the cardholder, and finally there are stored value cards, where the cardholder prepaids a certain amount that he uses later for his payments.

1.2.2 Proprietary systems

In a proprietary system, cards are issued and merchants are signed up directly by the payment system and not by member banks. Figure 2 represents the fees associated with a card payment in a closed (or proprietary) system such as American Express or Discover.

The main feature of a closed system is that it is able to set directly the two prices faced by the final users: a fee (or subsidy) to the cardholder; and a charge to the retailer (called a ‘merchant service charge’, MSF).

1.2.3 Open systems

Figure 3 represents the fees associated with a card payment in an open network.236 This time, user prices—dare not set by the network, but by individual banks. They result from competition between issuers and acquirers on downstream markets. Note that, in practice, the transaction fee paid by customers (buyers) is often zero (for debit cards) or even negative (for credit cards). A negative transaction fee means that customers receive money such as cash-back bonuses or incentives such as air miles every time they use their card. Where-as a negative price is impossible in standard one-sided industries (it would lead consumers to “buy” the good even if they do not want it, just to get the “subsidy”) it is a frequent feature in two sided platforms such as media, where one side of the market (readers, viewers) does not pay anything or is even subsidized, while the other side (advertisers) pays more than the total cost of the interaction.

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234 It is sometimes claimed that open party systems can function without IFs and the examples of Interac in Canada and Interpay in the Netherlands are made. This is a misinterpretation: these systems do have an IF; but it has been decided to set it to zero. In a payment card system, every time the bank that has issued the card differs from the bank that has acquired the payment, these two banks (the issuer and the acquirer) have to decide how they share the cost of the payment. Thus there is always an IF; be it set multilaterally or bilaterally, compulsorily, or by default. The only situation where there is no need for an IF is when the issuer and the acquirer coincide (on-us transactions), because in this case there is only one provider of the payment service. This is always the case in a three party system.

236 Another important by-law, that is not always adopted, is the “no-surcharge” or “no-discrimination” rule. It is discussed in Rochet and Tirole (2003) and Gans and King (2003).

236 For simplicity, this figure neglects system fees, which are much smaller than interchange fees.
1.3 DOCTRINES

Interchange fees have an important impact on the economic surplus created by payment card systems and more visibly on the repartition of this surplus between the different stakeholders: the systems themselves, the member banks, the retailers and the consumers.

It is not surprising that these different stakeholders have elaborated partially conflicting doctrines that give their specific interpretations of the role of IFs and how they should be determined. This section, presents a summary of these different doctrines. It must be emphasized that while each of them captures some elements of the real role of IFs, none of them gives a globally balanced view that can be trusted upon in order to guide public policy. We will try to provide such more balanced view in Section 3.

1.3.1 The point of view of the networks

There is some variation (over time and across systems) in the official doctrine of the card networks, but they essentially view IFs as a way to ensure a “fair” allocation of costs between issuers and acquirers. Indeed, a card network is a joint venture between a large number of banks, and such a joint venture can only function properly if each participating bank gets a fair share of both the costs and the benefits.

Another preoccupation of banking associations is whether IFs contribute or not to the maximization of the value created by the system, measured either by the overall profit of participating banks or, more broadly, by the economic surplus that it creates, which also includes the surpluses derived by the two categories of users: retailers and consumers.

In practice, card networks use more or less transparent methodologies for setting IFs which, ultimately, result
1.3.2 The point of view of merchants’ associations

Merchants’ associations claim that “IFs are just an artificial way to put the burden on them.” They argue that, for commercial reasons, retailers are somehow forced to accept cards even if merchant services charges are higher that the benefit they (the merchants) obtain from card payments. They also claim that banks use this situation at their own advantage and increase IFs so to inflate merchant service charges and obtain supra competitive profits by “taxing retailers and subsidizing cardholders.” To avoid this situation, merchants’ associations tend to favor the “abolishment” of IFs, that is a mandatory zero level, so that each side pay its own costs making the analogy with the “at par” regulation of US cheques.

This doctrine is often complemented by an analysis of the “distortions” that IFs are supposed to generate: For example it is often argued that retailers are forced to inflate retail prices to cover IF costs, which implies that cash users subsidize card users. This is viewed as a reason for abolishing the no surcharge rules. Another often claimed distortion is that “debit transactions subsidize credit transactions” and generate a “parasit-
ic" behavior by “transactors” or “convenience users” who do not need the credit facility and only pay by credit card because they enjoy cash rebates and other forms of rewards.

1.3.3 The point of view of (most) Competition Authorities

Networks and merchants are not the only ones to have strong views about IFs, public authorities also do. Indeed, the price structure of card networks have lately become the object of scrutiny of several Regulators, Competition Authorities, and Courts of Justice around the world (see Box 1). In many countries Regulators have found that the IF is set in a non-transparent and non-competitive way through an agreement between competitors. Furthermore, consumers and merchants, whose fees are influenced by IFs, do not participate in any way in such setting. This may hinder the development of the payment card market.

While there is no unanimity among Competition Authorities about how to “deal” with IFs, and whether they should be regulated, the dominating doctrine is that card issuers incur costs for some activities that do not benefit (directly) their customers but benefit instead the customers of the acquirers (the retailers). Therefore IFs are viewed by these Competition Authorities as a “justifiable” fee that remunerates these services and compensates the issuers for the costs incurred on behalf of the customers of acquirers. However, regulators are also worried that networks may set

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**BOX 1 RECENT EXAMPLES OF REGULATORY ANTITRUST ACTIONS**

In Australia, the Reserve Bank of Australia (RBA) introduced in 2003 a regulation of IFs on Visa and MasterCard credit cards. They identified too much credit card use as a result of cardholder subsidies through IFs. The RBA reduced the IF by half for associations and permitted surcharging. The impacts of this intervention are not very pronounced. Marginal prices at point of sale did not change much and there is no significant effects thus far on overall card use. This regulatory action is currently being reviewed.

In the UK, the Office of Fair Trading (OFT) claimed that the IF was being set too high by MasterCard. The OFT ruled that a collective agreement between members of MasterCard UK Members Forum from 2000 to 2004, including major banks, setting a multi-lateral IF, restricted competition. In addition, The OFT is currently investigating an agreement between Visa members on the UK domestic multi-lateral IF. The competition body suspects that the agreement between Visa and its issuing members is anti-competitive.

In 2001, Wal-Mart initiated a class action against the “honor-all-cards” rule, on the grounds that it constituted an illegal tie-in between the credit card market and the debit card market. This class action involved more than five million U.S. merchants. In 2003, Visa and MasterCard agreed to stop tying the acceptance of debit to the acceptance of credit cards, and to pay over $3 billion in damages to the merchants. An economic analysis of the “honor-all-cards” rule is provided in Rochet and Tirole (2006a).

In Spain (2006) the Competition Authority (TDC) has used moral suasion with Spanish banks to reduce IFs (from 1.80 percent to 1.40 percent). Similar actions are currently envisaged in Israel, Poland, Colombia and Portugal. The Bank of Mexico is also concerned by the level of IFs and is using moral suasion to reduce their level (see part 2 of this study).

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239 In the terminology of credit card systems, “transactors” or “convenience users” are consumers who never carry any balance on their credit account, and therefore never use the credit facility offered by their card. They use their credit card only to get the rewards offered by the credit card companies such as cash backs, air miles and coupons. The other category of credit card users are the “revolvers” who use this credit facility and therefore pay interest on their credit balances.
excessively high IF that—by setting a floor to merchant fees—may be instrumental to extract monopoly rents.

This doctrine has two corollaries:

- IFs should be set (and eventually regulated) on the basis of issuers’ costs, so as to avoid supra competitive profits that banks could generate by artificially inflating the level of their costs.

- It can be expected that IFs decrease over time, due to the technological progress that decreases the costs of issuers, and to increasing competition between these issuers.  

The first of these corollaries has been put in application by several Competition Authorities around the world. However there is still a lot of disagreement about which of the costs of the issuers should be considered ‘admissible’ to be included into the regulatory cap on IFs (for more detail see Appendix I).  

This doctrine is based on a “vertical” view of payment systems, where issuers would provide services to acquirers who themselves would service retailers. As we argue in the next section this view is flawed: it completely neglects the fourth party, namely the consumer.

Payment systems are in reality two sided markets with two users (the merchant and the consumer) that should be given equal standing. This is partially recognized by some competition authorities, such as the DG Comp of the European Commission (in the Visa decision DG COMP case 29.373 of July 2001). While DG Comp formally accepts the two-sided market analysis—and therefore recognizes the pitfalls of a cap on IFs based on issuers’ costs—it has considered such a cost-based cap on interchange fees as a transparent standard that allows preventing excessive IFs for credit.  

1.4 ECONOMIC ANALYSIS

1.4.1 Usage Externalities

From the point of view of economic analysis, a card payment is a very peculiar service: it is by definition jointly offered to two users, the buyer and the seller, but only one of them, typically the buyer, decides whether to use it or not. In other words, the buyer decides alone but his decision impacts also the seller. Using the vocabulary of economic analysis, such a pattern is called an externality. More precisely, when a cardholder decides to pay by card, instead of cheques or cash, he exerts two types of externalities:

- He modifies the operating cost of the retailer, who has to pay the merchant service charge (which we denote by \( p^r \)) but, in compensation, benefits by avoiding the cost of the alternative payment instrument (which we denote by \( b^r \));

- He modifies the net cost of the banks, which incur a total cost \( c \) (the marginal cost of a card payment) but collect the merchant service charge \( p^r \) from the merchant.

The total usage externality exerted by the cardholder on the rest of the economy is therefore equal to \( (p^r - b^r) + (c - p^r) = c - b^r \).

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140 This does not seem to be confirmed by empirical evidence, especially in the USA. Competition Authorities view this as an indication that there is something wrong in the determination of IFs. This is often used as an argument in favour of regulating IFs. However, as will be explained in Section 1.4 below, a proper economic analysis shows that although technological progress and increasing competition can be expected to reduce the total price of payment services. But there is no reason why they should also necessarily lead to a decrease in IFs, which determine relative prices paid by retailers and consumers.

141 See Appendix I.
1.4.2 Efficient Usage of Cards

Efficient usage of cards is obtained (i.e., social welfare is maximized) when the cardholder faces the correct price signal. To achieve this, the cardholder fee must be equal to the total usage externality. The condition for efficient usage of cards is thus: \( p_b = c - b^i \). Of course the price \( p^s \) paid by sellers must also be lower than the maximum price that they are ready to pay: otherwise merchants may reject cards. But once this condition is guaranteed (we discuss it in more detail below), the customer is in the driver’s seat in that she alone chooses the means of payment. This is why efficiency of card usage is fundamentally governed by the cardholder fee \( p_b \). If the cardholder fee is too low, there is excessive card usage. If it is too high, cards are insufficiently used.

The analysis is more complex when different types of cards (say, debit and credit) are taken into account. In this case the condition for efficient usage of cards is that the cardholder fee for each card has to equal the difference between the total cost of the card payment for the banks and the avoided cost by the merchant (by not having to use cash or cheque).

1.4.3 How to set interchange fees so as to obtain efficient card usage?

The seminal paper of Baxter (1983) was the first to analyze the role of interchange fees for promoting efficient usage of payment cards. Social welfare is maximized if a card payment occurs whenever social benefits exceed social costs which is the sum of consumers’ (buyers) costs and merchant’s ones (seller): \( b = b^b + b^i \geq c = c^b + c^i \). Competition (even perfect) on downstream markets is not enough to guarantee this, since marginal cost pricing on both sides of the market \( (p^b + c^b) \) implies that the card is used whenever: \( b^b \geq c^b \) and \( b^i \geq c^i \). Except in the unlikely case where \( b^i = c^i \), this leads to inefficient usage. However, Baxter (1983) shows that efficiency can be restored with an appropriate IF.

Indeed suppose that the IF is set by a public authority, who seeks to maximize social welfare. By choosing an interchange fee \( a^d = b^i - c^i \), the public authority modifies the marginal cost of issuers to \( c^i - a^d = c^i + c^b - b^i = c - b^i \). If issuers are perfectly competitive, they then set a cardholder fee \( p^b \) equal to their net marginal cost \( (c - b^i) \), which corresponds to the usage externality inflicted by the cardholder to the rest of society. This level of the cardholder fee leads to an efficient usage of cards. Baxter’s interchange fee \( a^d \) thus allows a perfect internalization of the usage externality, provided that \( p^s \) does not exceed the maximum price acceptable to merchants. This last condition is satisfied if acquirers are perfectly competitive, in which case \( p^s = c^s + a^d = b^s \), but it is also true if acquirers’ margin is not too high.

Note that the optimal interchange fee is merchant specific: contrarily to what a cost based approach would give, the interchange fee that perfectly internalizes the usage externality may differ across retailers, depending on their relative costs of card and cash transactions.

1.4.4 Who should pay for issuer margins?

Baxter’s level of interchange fees would only be appropriate in a hypothetical world where banks are perfectly competitive. In practice banks do not set prices equal to their marginal costs, in particular because they have to recoup the large fixed costs incurred from their investments in payment networks. In particular, issuers’ margins are not zero.

\[ \text{Carlton and Frankel (1995)} \] give (in theory) an alternative way to internalize the externality, namely differentiated prices for cash and cards: \( p^d = p, p^e = p + c^i - b^i \). But surcharges are seldom used in practice: this phenomenon has been termed “price coherence” by Frankel (1998).
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The question of who should pay for these margins depends on the point of view adopted by the decision maker. If the objective is maximizing social welfare (which incorporates issuers’ margins, denoted by $m$) the optimal price signal for the buyer (who chooses the payment instrument) is still $p^B = c - b^*$. This means that issuers’ margin $m$ should be paid by the merchant, or alternatively that the interchange should be $a^o + m$, that is equal to Baxter’s level plus the issuers’ margin.

If, on the contrary, the objective is to maximize consumer surplus (which does not take into account issuers’ margin) then Baxter’s reasoning is still valid. The level of the IF that maximizes consumer surplus is still Baxter’s level $a^o = b^* - c^*$ and the merchant is exactly indifferent (but not the banks) as to the choice of the payment instrument by the cardholder. This is what Farrell (2006) has called the Merchant Indifference Criterion.

In practice, the choice between Social Welfare and Consumer Surplus as an objective function depends on the precise agenda given to the Competition Authority, and thus may differ from one country to the other. However, from the point of view of economics analysis, the question of the appropriate choice between the two criteria of social welfare versus consumer surplus depends on the type of competition between banks. If issuers’ profits are reinvested into the payment card systems in order to improve their capacity and safety, or into innovations that ultimately benefit consumers, then it is legitimate to incorporate them into the objective function of the public authorities. If, on the contrary, issuers profits are either distributed to banks’ shareholders or dissipated into marketing campaigns or mail solicitations that do not generate new volume of card payments, then issuers’ margins should no be taken into account when evaluating the efficiency of card payments.

1.4.5 Interchange fees and network development

Since IFs balance the interest of cardholders and merchant, the level of IFs that maximizes network development depends on the relative willingness of the two to use or accept the card. More precisely, if the binding constraint is the willingness of cardholders to use cards, then it is likely that an increase in IFs fosters usage. Instead, if the binding constraint is on the merchant willingness to accept it, then a decrease in IFs that reduces MSF is more likely to be the right policy. In a “mature” network, where almost all consumers own at least one card and almost all retailers accept them, the driving force is the usage externality, that is governed by the cardholder’s decision to use her card or not. In a less mature system like Mexico, where a large fraction of consumers do not have cards, and a large fraction of retailers do not accept these cards, the optimal interchange fee is more difficult to determine in practice, as it depends on the elasticities of demand for payment cards services on both sides of the market (see for example Rochet and Tirole 2003 and 2008 for a detailed analysis).

1.4.6 Debit vs. Credit

Most of the existing economic analysis of payment systems, for the sake of simplicity, assumes that the consumers’ choice is between cash or a single type of payment cards. In such models, there is no trade off between credit and debit cards. Since the question of how to promote an efficient use of different payment instruments is critical for regulatory bodies, there is a crucial need for developing analytical models where the substitutability between debit and credit cards is explicitly captured.

This is not an easy task, because the conditions characterizing efficient use of payment means are more complex to obtain, and because multiple distortions exist, due to the interaction between several actors with dif-
different objectives. Consider for example the substitutability between credit and debit cards. For some transactions (such as “impulse purchases”), credit cards are the only possible means of payment for the consumers that do not have an easy access to other forms of credit. This means that the benefit derived by retailers from credit card acceptance is very high for these transactions, since they can lose the sale if they do not accept credit cards. This explains that some retailers might be ready to accept very high fees for these transactions. By contrast, debit cards are perfect substitutes to credit cards for smaller transactions or for liquid consumers who have enough funds on their bank account. The main reason why these “convenience users” might still prefer to pay by credit cards is that they get “negative fees” in the form of cash back bonuses, air miles or other forms of rewards.

From a social welfare point of view, it seems likely that credit card transactions of the first type (when the credit facility is really needed) are beneficial; while the second type of credit card payments (by convenience users) are inefficient. Since these two types of transaction are difficult to distinguish ex ante, social efficiency may only be attainable if an “incentive compatibility constraint,” is imposed, requiring that the price of debit card payments is lower than that of credit card payments:

\[ P_D^O \leq P_C^C \]

In the perfectly competitive benchmark, cardholder fees are equal to the net costs of issuers, namely

\[
P_D^O = c^O - a^O, \quad P_C^C = c^C - a^C,
\]

where as before \(c^k\) and \(a^k\) denote respectively the issuer cost and the interchange fee for cards of type \(k\) (\(k = D\) for debit and \(k = C\) for credit). The above “incentive compatibility constraint” then amounts to introducing a cap on credit interchange fees:

\[ P_D^O \leq P_D^C \iff a^C \leq a^D = c^C - c^D \]

If the debit interchange fee \(a^D\) and the marginal cost \(c^D\) of debit payments for issuers are small, this cap is essentially based on the issuer’s cost \(c^C\) for credit transactions.

Note that such a cap is similar to the cost-based regulations imposed to credit card interchange fees in some jurisdictions. However, the rationale for such a regulation is very different from the one that is usually given, namely that IFs correspond to a fee for service paid by the acquirer to the issuer. Here the motivation for this cap is to provide the appropriate incentive for cardholders to use the socially efficient payment instrument according to the type of transaction they are involved in.

1.5 STYLISTED FACTS

In the last section of this first part we provide some stylized facts that might be helpful in shedding some light on the trade-offs that we have discussed in the previous sections and that can guide us in the analysis of policy dilemma’s that the Mexican authorities have and still are facing in promoting a more efficient payment network.

Fact 1. IF reductions are passed to a great extent into Merchant Service Charges (MSFs) but to a lesser proportion into cardholder fees and reward programs.245

In Australia for example, as a consequence of the RBA reform in 2003, IFs for credit cards were reduced roughly by half (0.80 percent to 0.45 percent for electronic transactions, 1.20 percent to 0.60 percent for standard). Garcia Schwarz et al. (2005) show that the reaction of acquirers was to reduce merchant service charges by the corresponding amount. By contrast,

\[ \text{We have to be careful here, since empirical evidence on this fact is limited, as far as we know to the cases of Australia and Mexico.} \]
cardholders rewards were only reduced by roughly 25 percent and issuers gross revenues (not including IFs and therefore corresponding to cardholder fees) increased by roughly 40 percent (RBA 2005); which was not enough to cover the reduction in IFs. The robustness of this feature needs to be checked carefully by empirical studies of other payment card systems in other countries. If it turns out to be robust, it would mean that IFs have an asymmetric impact on user prices on the two sides of the market, and also that the total profit of banks increases with the level of IFs (issuers profit increase with the level of IFs, while acquirers profit are roughly independent of IFs). Another interesting fact that seems to emerge from the Australian experiment is that the reduction in merchant service charges did not have any sizeable impact on retail prices (Garcia Schwarz et al 2005).

Fact 2. Cardholders react to changes in fees.

It is clear that retailers often react negatively to high merchant service charges. There is ample anecdotal evidence for this, starting by the “Boston fee party” in the USA in 1991. Other examples are given by the numerous collective reactions of retailers against high IFs, either through judicial actions, or through lobbying of public authorities.

What is less well known is that cardholders also often strongly react to changes in their fees. For example the recent empirical work of Zinman (2007) shows that a large proportion of consumers’ choices between credit and debit card payments at the point of sale can be explained by price optimization: “pecuniary cost minimization account for at least 38 percent of cross-sectional debit use over the period 1995-2004 (and 50 percent for 2004 only). Similarly, Ching and Hayashi (2007) show that the presence of reward programs increases substantially the frequency of usage of payment cards.

It is true that cardholder transaction fees are less visible than merchant service charges. Very often indeed there are even no such fees for debit cards, while those for credit cards are typically negative and difficult to measure. For these reasons, the price elasticity of consumer demand for card payments is very difficult to estimate. It is very hard to predict, for example, how consumers would react to an introduction of positive transaction fees for debit. Similarly an important parameter for public policy is the elasticity of substitution between debit and credit card payments, but this elasticity would be very difficult to estimate. In any case, individual data would be needed as very little can be inferred from aggregate data. In Australia, for ex-

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146 These reactions are often collective, because retailers often argue that they are caught into a “prisoner’s dilemma” situation. They claim that, individually, they are “forced” to accept cards by the pressure of their customers, but collectively they would be better off rejecting them. This is why retailers associations are often at the forefront of lobbying in favor of reducing IFs or even mandating zero IFs.  
147 In 1991, several restaurants in Boston started accepting and encouraging the use of Visa and MasterCard because of their far lower fees as compared to American Express’s fees at the time (which were about 4 percent for each transaction versus around 1.2 percent at the time for Visa and MasterCard). A few even stopped accepting American Express credit and charge cards. The revolt, known as the “Boston Fee Party” in reference to the Boston Tea Party, quickly spread nationwide to over 250 restaurants across the US, including restaurants in other cities such as New York City, Chicago and Los Angeles. In response, American Express decided to reduce its discount rate gradually to compete more effectively and add new merchants to its network such as supermarkets and drugstores. Many elements of the exclusive acceptance program were also phased out so American Express could effectively encourage businesses to add American Express cards to their existing list of payment options.

148 As an illustration, the bosses of 14 major retail companies in Europe, and the President of EuroCommerce, an association representing over 6 million retailers of all sizes, have recently signed a letter to the European Commission calling for the effective abolishment of IFs. EuroCommerce Secretary General Xavier Durieu said: “The current system of interchange fees on cards is profoundly unfair, distorts competition and is a blatant violation of competition law. A Single European Payment Area (SEPA) for cards based on MIF products such as Maestro and V Pay will deliver the opposite of its promises, with less competition and higher prices for consumers. Retailers should only pay for the services from which they benefit.”

149 Negative transaction fees correspond to cash back bonuses, air-miles and other kinds of rewards. Of course cardholders also sometimes pay annual fees but these annual fees do not impact usage of cards, but only the number of cards in circulation.

150 Also, debit cards are often bundled with current account services, which makes their pricing almost invisible.
ample, it is very difficult to detect any change, at the aggregate level, in credit card use, in spite of the sizable changes in cardholder fees, after the RBA mandated a decrease in IFs.

Fact 3. Price structure matters in payment card systems.

A consequence of the fact that users react to price changes, on both sides of the market, is that the choice of a price structure is a crucial business decision for a payment card system. Closed systems like AMEX (that do not have explicit IFs) pay a lot of attention to the fee structure. Visa and MasterCard often react to each other’s changes in IFs. The fine tuning of the “balancing act” between the two sides of the market is a delicate business decision. Of course, the fact that public authorities also pay a lot of attention to IFs should normally mean that they are themselves concerned with the price structure of the payment card systems. However in practice, public scrutiny is focused on the more visible merchant service charge. The vertical model often used by public authorities is not relevant, since it completely neglects one side of the market.

Fact 4. When retailers can surcharge cards they seem reluctant to do it.

Surcharging on credit card transactions has been permitted in the UK since 1989 and more recently in other countries like Australia, the Netherlands, Sweden and Switzerland. Empirical studies in the Netherlands (ITM Research 2000) and Sweden (IMA Market Development 2000) indicate that very few merchants do surcharge. In Australia only about 14 percent of very large merchants and 5 percent of very small merchants do surcharge, most of the time they apply the same surcharge rate to all credit and charge cards. When they apply different surcharge rates they are on average of 1 percent for Visa and MasterCard and about 2 percent for American Express and Diners Club cards (RBA, 2007). Nevertheless, in the case of Mexico, where providing discounts for cash payments is allowed, it is rather common to see such price discrimination between payment mechanisms. This practice is extended among small merchants, and it also occurs in some larger stores.

2 UNDERSTANDING INTERCHANGE FEES IN MEXICO

In Mexico, the Central Bank Law (Ley del Banco de México, LBM hereinafter) establishes among the main functions of the Central Bank of Mexico (Banco de México, BM, hereinafter) “promoting the sound development of the financial system and fostering the proper functioning of payment systems.”252 The same law gives BM powers to regulate payment systems253 to accomplish such mandate.

Although card payments are more efficient than cash payments in many transactions (Humphrey, Willeson, Lindblom and Bergendahl, 2003), in the early part of this decade they were used in relatively few establishments in Mexico. BM identified high MSF at point of sales (POS) as a possible cause for the scant use of payment cards, and became worried that this partly reflected the mechanism that banks used to set IFs. As in many other countries, issuers and acquirers in Mexico used to set IFs based on a non-transparent mechanism with no regard to competition issues. This situation has changed since 2005.

In this part of the study, we illustrate the evolution of IFs in Mexico. In the first section, we briefly describe

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251 Even though closed systems do not have explicit IFs, one can infer “implicit IFs” by looking at their fee structure and estimating the level of IFs that a four party system would set in order to obtain the same fee structure. An important empirical question is to compare their “implicit” IFs with those of open systems.

252 See LBM, Article 2.

253 See LBM, Article 24.
FIGURE 4: STRUCTURE OF NON CASH PAYMENTS, EXCLUDING CASH WITHDRAWALS IN MEXICO, 2001-2007

TABLE 1: NUMBER OF DEBIT AND CREDIT CARDS IN MEXICO AND NUMBER OF TRANSACTIONS, 2001-2007

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Debit and Credit Cards in Mexico</th>
<th>Million of transactions with payment cards at</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Credit</td>
<td>Debit</td>
</tr>
<tr>
<td>2001</td>
<td>6,080,481</td>
<td>29,759,551</td>
</tr>
<tr>
<td>2002</td>
<td>7,822,364</td>
<td>32,383,132</td>
</tr>
<tr>
<td>2003</td>
<td>9,403,201</td>
<td>32,186,585</td>
</tr>
<tr>
<td>2004</td>
<td>11,649,617</td>
<td>31,782,271</td>
</tr>
<tr>
<td>2005</td>
<td>14,700,605</td>
<td>36,072,352</td>
</tr>
<tr>
<td>2006</td>
<td>20,465,847</td>
<td>47,770,590</td>
</tr>
<tr>
<td>2007</td>
<td>24,088,526</td>
<td>50,778,809</td>
</tr>
</tbody>
</table>

Source: Payment System Statistics, Banco de México.
1. BACKGROUND

Mexican retail payments rely heavily on cash. Among non-cash payments, until 2006 cheques were the most important instrument (Figure 4). Although the number of (credit) cards has grown substantially in the last years, as well as the number of card payments, cash withdrawals at ATMs still represent a very large share of card operations (Table 1). It is also important to notice that while the number of transaction at POS terminal per capita is in line with that of countries with similar level of development the number of POS per inhabitants is instead much lower (see Figure 5). In order to understand the reasons of such “underdevelopment” it is important to look at the institutional characteristics of the Mexican payment system.

2.2 INSTITUTIONAL FEATURES

In Mexico, any bank may issue debit and credit cards. Several store chains issue credit cards as well, but these are not general acceptance cards so that the latter are almost always issued by banks. Banks issue Visa-branded or MasterCard-branded credit cards with a wide variety of characteristics. All acquirers are banks,

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254 All POS and ATM transactions in Mexico are on line; those at POS are signature based and those at ATM are PIN based.

255 There is only one non-bank that issues credit cards in Mexico (Cetelem), and its market share is very small.
and all issuers and acquirers participate in an intercon-
nected four party system with two switches.256 One is
E-Global, which is owned by the two largest banks in
the system and serves them almost exclusively, and the
other one is PROSA, which serves all the remaining
banks and is owned by a subset of them.

In the last few years, several banks have entered both
the issuing and acquiring markets. The concentration
on both sides of the markets has decreased (Table 2),
and does not seem high by international comparison.257
However, the main issuers are also the main acquirers,
and in about one third of the total number of transac-
tions, the issuer is also the acquirer (“on/us”).

The current development of the card market in Mex-
ico was strongly influenced by the rules and regula-
tions set both by banks and card associations. Mexico’s
Bank Association (Asociación de Bancos de México,
ABM hereinafter), which is the body in charge of the
market self-regulation, originally adopted most of the
MasterCard and Visa rules, such as the “no surcharge
rule”258, the “honor all cards rule”259, and the “only issu-
ers may become acquirers.”260, 261 These rules, however,

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Points of Sale (POS)</th>
<th>Payment cards</th>
<th>Number of transactions at POS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Credit</td>
<td>Debit</td>
<td>Issuer</td>
</tr>
<tr>
<td>Number of Banks</td>
<td>8</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>Market share of 2 largest banks (%)</td>
<td>55</td>
<td>50</td>
<td>65</td>
</tr>
<tr>
<td>Market share of 4 largest banks (%)</td>
<td>85</td>
<td>82</td>
<td>89</td>
</tr>
<tr>
<td>Herfindahl index</td>
<td>2,113</td>
<td>1,910</td>
<td>2,570</td>
</tr>
</tbody>
</table>

Source: Payment System Statistics, Banco de México.

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256 American Express also operates in Mexico as a three party system, but we leave
it out of the present analysis.

257 Across EU countries, the HH average for acquires in 2004 is around 5500 for
credit and debit, and most of the countries are above 3000 (see Commission of the
European Communities, 2007).

258 This rule forbids merchants from overcharging those who pay with cards.

259 This rule forces merchants to accept all cards having the association’s brand,
regardless of the card issuer and the card type.

260 In some less than mature markets, the associations set a rule by means of
which only issuers may become acquirers.

261 As we mentioned before, banks in Mexico may issue Visa or MasterCard
branded cards. The reason is that the ABM never adopted the so called “duality rule”
that prevents banks that issue an associations particular brand of cards from issuing
other associations’ cards. In 1996, the CFC received a complaint from American
Express against Visa, claiming that the latter would not permit associated banks
to issue American Express cards. Later on, Visa informed the Commission that it
would not prevent its associated banks from dealing with competing brands, so the
Commission considered that the issue was solved.
have been changing since the early 1990s in part as a response to regulators’ concerns and demands.

For instance, the no surcharge rule was altered in 1993. To answer a request by the Federal Competition Commission (Comisión Federal de Competencia, CFC), the three largest banks in Mexico at that time (Bancomer, Banamex and Serfin) signed an agreement with the CFC that sought to prevent price fixing, unfair charges and other anticompetitive practices in the credit card market. As a result of the agreement, acquirers maintained the surcharge rule but they allowed merchants to offer discounts for cash payments.

In 2004, the Mexican Congress issued the Law for Transparent and Orderly Financial Services (Ley para la Transparencia y Ordenamiento de los Servicios Financieros, LTOSF). This Law gave Banco de México explicit power to assess competition in the banking industry and to regulate retail payments systems, in particular, IFs. As a consequence of this mandate, the central bank started to analyze more thoroughly the characteristics and rules of these systems.

The LTOSF specifies fee regulation as the central bank’s main tool. However, the regulating of banks’ commissions is an extremely difficult exercise that modern central banks tend to avoid unless absolutely necessary. The BM has thus decided to adopt a different regulatory approach to encourage the use of the most efficient payment systems and foster banking competition (Ortiz, 2005).

To achieve this, in the last few years, the BM has taken several measures that may be grouped into three types: (1) making banks’ charges more transparent; (2) removing any restriction to market participation and entry; and (3) using moral suasion to influence fees.

Let us briefly describe some of the most salient measures that the BM implemented for card payments:

In June 2003, to make service charges more transparent, the BM required banks to provide all information about fees and charges on payment instruments in their websites and branch offices and to inform BM in advance about any changes—to their fees and charges before these become effective. Also, banks must now report any change to their maximum commissions and fees to the central bank, which in turn will publish them in its website (August 2003). The BM has also published in its website and in the press the IFs that issuer banks charge to acquiring banks for payments with credit and debit cards at POS (2006 and 2007), as well as the maximum Merchant Service Fees (MSF) that acquiring banks charge to merchants for those transactions (August 2003).

To remove participation restrictions and entry barriers, BM has also eliminated regulations that banned non banking institutions’ participation in retail payments clearing houses. The “honor all cards rule” was also modified in 2005, so that merchants can accept only credit or debit cards (that is an “honor all issuers rule”). The card associations’ rule stating that “only issuer banks can become acquiring banks” is still in place, partly because most banks already issue cards. Visa, MasterCard and some banks have expressed some safety concerns about participation criteria that are too lax.

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262 A new version of the LTOSF was issued in 2007 to add important transparency and consumer protection measures. Nevertheless, all the Central Bank’s powers regarding the regulation of IF remained unchanged.

263 See LTOSF, Article 4th.

264 Among the difficulties of regulating fees it is worth mentioning the fact that banks provide a variety of bundled services, which makes cross subsidization and indirect pricing common practices; and that the usual mechanisms for price regulation (such as cost based methodologies) do not seem appropriate in banking services, since this market is not a natural monopoly.

265 Actually, this approach closely resembles the BIS recommendations for involvement of central banks in retail payment systems (see “Policy issues for central banks in retail payments”, Committee on Payment and Settlement Systems, BIS, March 2003).

266 See Negrín (2005) and the 2006 Financial System Report (Reporte sobre el Sistema Financiero) for more details.
In 2004, BM suggested the banks to develop a mechanism to determine the IFs, consistent with promoting the most efficient payments mechanism. In the following section, we describe in more detail the mechanism to set IFs that was in place before the payment card market was scrutinized by the BM and the one that the ABM proposed in response to BM’s review request.

2.3 THE MECHANISM TO SET IF IN MEXICO

2.3.1 The mechanism in place between 1995 and 2005

As we discussed in part 1 of this study, the IF scheme of credit and debit card markets usually receives careful scrutiny from competition or financial authorities. In particular, high IFs level has often concerned authorities as it might set a floor for the acquiring banks’ MSF on card transactions. An excessively high IF might thus hinder merchants’ acceptance of card payments.267

In Mexico, the ABM sets the domestic IF for the four-party system, with Visa and MasterCard having a very limited role. In 1995, after the agreement among the CFC and the major banks, the IFs were set as a multilateral charge flowing from acquiring to issuing banks. Until August 2004, the levels of IF did not change significantly, despite the drop of some of the costs related with data processing and the opportunity cost of money, as well as the improvements in payment cards risk management. Both credit and debit card transactions were under the same scale, which was based on merchants’ yearly card sales volume. There were 5 different categories, with higher fees associated to lower transaction values (Table 3). Members of the national association of department stores (Asociación Nacional de Tiendas de Autoservicio, ANTAD) bargained for a different scale for debit cards, and got a fixed 0.90 MXP IF per transaction.268

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267 See, for instance, “Investigation of the multilateral interchange fees provided in the UK domestic rules of Mastercard UK Members Forum Limited (formerly known as MasterCard/Europay UK Limited)”, Decision of the Office of Fair Trading, No. CA98/05/05, United Kingdom, 6 September 2005.

268 Before the 0.90 MXP fee per transaction was in place, the ANTAD scheme consisted of a set of 10 brackets of non-proportional fees. The criterion to assign an ANTAD merchant to a bracket was the number of yearly transactions performed by that merchant. The (simple) average level of the ANTAD-debit IF was approximately 0.84 US dollars. Interestingly, this scheme dated from 1997, when the CPC investigated a complaint raised by some merchants that refused to accept debit cards. The problem was solved through the agreement between banks and ANTAD members to set up the special debit IF schedule for ANTAD merchants’ transactions. The investigation was closed in 1999, without reaching a formal conclusion on the anti-competitiveness of a multilateral IF agreement.
The IF schedule’s dependence on merchants’ transaction value seemed especially unsuitable to promote the POS network development in a country like Mexico where there are many small commerce and service establishments. Also, it seemed inappropriate to charge the same fees for debit and credit when for the latter the issuer incurs in the costs of a free financing period for many users, has a higher risk payment and offers reward programs. Moreover, while these IF levels seemed high when compared to international standards, ANTAD fixed fee was lower than the one in use in several countries, and this provided ANTAD merchants another advantage over small shopkeepers. Therefore, although the scheme certainly facilitated the interconnection among all participants, it did neither promote the use of payment cards at POS nor provide a level playing field for merchants.

The ABM agreed that the IF scale was not supporting either network development or the use of cards at POS and, thus, made some changes (Table 3). In February 2005, it reduced the credit cards IF by 43 basis points on average and eliminated the highest bracket. In non-ANTAD transactions with debit cards, the IF was reduced twice between August 2004 and August 2005, by 134 basis points on average. Although these changes reduced the average IF, and lowered the IF for debit card more than for credit cards, most of the pre-existing shortcomings remained. The ABM then decided to develop a new mechanism to set the IF and made a proposal in that direction.

2.3.2 The ABM 2005 methodology to set IF

The ABM presented its new methodology to set the IF in October 2005. It estimates a reference IF for credit and debit cards separately, based on a model that balances the weighted issuing and acquiring banks’ profits (net of interchange) through the IF, in the spirit of Visa’s methodology, as described in Wright (2000). These reference fees are then adjusted for several business categories. The original model uses a three stage framework to determine the IF. However, during 2007 the ABM proposed a few modifications to the original model.

To calculate the equation that determines the reference IF, the ABM gathered data on income, costs, volume and value of POS transactions with credit and debit cards from 6 issuer and acquirer banks. Furthermore, to take into account network growth in this calculation, an expected network growth rate was added in a somewhat ad hoc manner to Wright’s equation. So, although the reference fee model seems a more transparent mechanism than the previous one, the proposal’s anchor is a methodology that has a focus on the recovery of issuer costs.

Once the reference fee is determined, the methodology used the results from a survey among cardholders and merchants from 22 different business categories to roughly estimate the influence of four “idiosyncratic factors” (market penetration, share of earnings, sales sensibility to card rejection, and sales sensibility to a variation in the IF) on card usage and acceptance.

\[
R_i + a - c_i - C_i = R_a - a - c_a - C_a
\]

where \( R_i \) and \( R_a \) represent the per transaction revenue for issuers and acquirers, respectively; \( c_i \) and \( c_a \) are the per transaction variable issuer and acquiring costs; \( C_i \) and \( C_a \) are the per transaction fixed issuer and acquiring costs; \( a \) is the interchange value per transaction. Gans and King (2003) also provide a description of the Visa methodology and compare it with other alternatives.

Wright (2000) states a simple formula:

\[
R_i + a - c_i - C_i = R_a - a - c_a - C_a
\]

In effect, Gans and King (2003) have observed that the balancing formula of Wright (2000), the MasterCard approach, the Frontier Economics approach, the Avoidable Cost approach and the Reserve Bank of Australia (RBA) approach basically differ as to whether they include issuer revenues to offset those costs, whether they include fixed issuer costs, and also in the components that comprise marginal issuer costs. Let us add that these approaches’ basis has been thoroughly criticized by the proponents of two sided market models (Gans and King, 2003; Schmalensee, 2002; Evans and Schmalensee, 2005; Wright, 2001, 2003; Rochet, 2003; and Rochet and Tirole, 2004).
Then the reference fee was adjusted to obtain a particular IF for each business category according to the influence of each factor.272

Clearly, this stage seeks to bring into consideration consumer and merchant diversity, which is not taken into account in the balancing formula, nor is an element commonly dealt within theoretical economic models. For example, most two sided market models assume that there is one type of consumer and one type of merchant whose marginal costs and benefits from using cards determine the market equilibrium.

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272 The reference fee increased in 5 or 2.5 basis points for credit and debit cards, respectively, if a factor resulted highly relevant. In turn, when the factor resulted low, the reference fee was reduced in 5 or 2.5 basis points accordingly.
and the optimal fee. On the other hand, both profit and social welfare optimization may call for some price discrimination.

After the 22 business categories’ fees were calculated, in the original model there was one last adjustment by “exogenous factors” that sought to simplify the IF category scheme and provide incentives for payment cards use in specific sectors, grouping these categories into in 6 “families” or “business groups.” This aspect of the proposal seemed particularly unclear and had no technical basis, given the previous stage effort to bring into consideration consumer and merchant diversity.

During 2007 the ABM improved on the previous methodology by gathering more consumer and merchant data. This allowed them to get rid of the last stage by having a more explicit dependence of the specific IF on whether in a business category the number of transactions has grown faster or slower than the number of POS, to determine adjustments’ signs and sizes.

2.3.3 The effects of the new methodology

The new methodology set by the ABM represented important advances in terms of efficiency. The scales were set according to business type rather than on merchants’ monthly transaction value, which mitigates the discrimination against small merchants. The reduction of debit card IFs was deeper than that of credit cards; this reduces the discrimination against debit card usage at POS. Further, the reduction in both debit and credit cards IFs was considerable, which under certain circumstances, tends to promote POS deployment and card acceptance at merchants.

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273 In regards to card payments, these marginal costs and benefits vary depending on multiple characteristics. Particularly, there are some types of merchants whose willingness to accept card payments may be more elastic to the idiosyncratic elements mentioned before (or others). Likewise, some consumer types have more elastic demands for cards. For instance, it is well documented that in the United States young people are more willing to pay with electronic instruments (bank cards, electronic funds transfers, etc.) and less willing to pay with checks, while older people have opposite preference ranking among these instruments. See Black and Morgan (1999) or Klee (2006), for more details.
The IF set in 2006 according to the new methodology reduced the prevailing average weighted (per transaction) IF by 24 percent in credit cards and by 42 percent in debit cards; the maximum IF fell from 2.70 percent to 1.95 percent in credit cards and from 1.94 percent to 1.15 percent in debit cards, see Table 4.

Despite such reductions, there was still evidence that the IF schedules needed further adjustments. In the first place, compared to other countries, the IF in Mexico still seemed high (Figure 6); secondly, there were some indications that the acquiring side of the market was less developed than the issuing. We refer the reader to Appendix II for a detailed analysis of the Mexican retail payment system and the changes it experienced during this period. Finally, the maximum MSF for credit and debit cards in Mexico still seemed high compared to those in other countries, albeit their level may be a substitute for other explicit charges, such as a monthly fee for the POS, additional charges for terminal’s service and maintenance, additional charges for telecommunications and terminal’s inter-connection;
FIGURE 7: NUMBER OF POS AND PAYMENT CARD OPERATIONS AND YEARLY GROWTH RATES

Source: Payment System Statistics, Banco de México.

FIGURE 8: PERCENTAGES AND RATIOS OF TRANSACTIONS AT POS WITH RESPECT TO CARDS AND ATM

Source: Payment System Statistics, Banco de México.
or the paper and ink for the POS. In addition, some studies show that in several countries the bundling level of acquirer services is related to the MSF level; that is, the higher the level of bundling, the higher the MSF is. For Mexico we observe an intermediate bundling level whereas the MSF for debit cards is the highest among the sampled countries (Table 5).\footnote{See Jones and Jones (2006) for more details.}

In view of this evidence, during 2007 the ABM adjusted its methodology to set the IF; as a consequence, in January of 2008 it modified the IF schedule again (see Table 4). The average weighted IF for credit card transactions was diminished to 1.61 percent; all IF business categories were adjusted down. In turn, while the IF structure for debit card transactions was not changed, the maximum charge per transaction was reduced from MX$13.50 to MX$9.50. These schemes will be in place until April 2009. During this time, the ABM will continue reviewing the methodology to set IF in order to improve it.

2.3.4 Comments about the ABM Methodology

The ABM Methodology seemed to have limitations with respect to the quality of data and to the model itself. With respect to the data, issuer and acquirer costs figures were very incomplete as only a few banks provided their data to the ABM. With respect to the model:

- ABM claimed, with no basis, that the model maximized use of payment cards. In particular, the network growth rate is included in an ad hoc manner. This point was partially attended by the methodological adjustments applied in 2008;
### TABLE 6: IF SHARE OF THE MAXIMUM WEIGHTED AVERAGE MERCHANT SERVICE FEE FOR DEBIT AND CREDIT CARD BY BUSINESS CATEGORY 2008

<table>
<thead>
<tr>
<th>Business category</th>
<th>Debit card</th>
<th>Credit card</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MSF</td>
<td>IF</td>
<td>IF share of MSF</td>
<td>MSF</td>
</tr>
<tr>
<td>Charity</td>
<td>0.26%</td>
<td>0%</td>
<td>0.00%</td>
<td>0.21%</td>
</tr>
<tr>
<td>Gas Stations</td>
<td>0.92%</td>
<td>0.50%</td>
<td>54.48%</td>
<td>1.35%</td>
</tr>
<tr>
<td>Schools and Colleges</td>
<td>1.58%</td>
<td>0.75%</td>
<td>47.32%</td>
<td>1.97%</td>
</tr>
<tr>
<td>Government</td>
<td>1.72%</td>
<td>0.75%</td>
<td>43.53%</td>
<td>2.07%</td>
</tr>
<tr>
<td>Wholesales Stores</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fast Food</td>
<td>1.87%</td>
<td>0.75%</td>
<td>40.10%</td>
<td>2.63%</td>
</tr>
<tr>
<td>Pharmacies</td>
<td>2.08%</td>
<td>1%</td>
<td>48.09%</td>
<td>2.70%</td>
</tr>
<tr>
<td>Tolls</td>
<td>1.89%</td>
<td>1%</td>
<td>52.81%</td>
<td>2.50%</td>
</tr>
<tr>
<td>Parking Lots</td>
<td>2.42%</td>
<td>1%</td>
<td>41.28%</td>
<td>3.23%</td>
</tr>
<tr>
<td>Supermarkets</td>
<td>1.81%</td>
<td>1.10%</td>
<td>60.76%</td>
<td>2.50%</td>
</tr>
<tr>
<td>Passenger Land Transp.</td>
<td>2.08%</td>
<td>1.10%</td>
<td>52.99%</td>
<td>2.59%</td>
</tr>
<tr>
<td>Car Rental</td>
<td>2.05%</td>
<td>1.10%</td>
<td>53.59%</td>
<td>2.55%</td>
</tr>
<tr>
<td>Travel Agencies</td>
<td>1.92%</td>
<td>1.10%</td>
<td>57.19%</td>
<td>2.55%</td>
</tr>
<tr>
<td>Hotels</td>
<td>2.09%</td>
<td>1.10%</td>
<td>52.71%</td>
<td>2.57%</td>
</tr>
<tr>
<td>Entertainment</td>
<td>2.17%</td>
<td>1.10%</td>
<td>50.64%</td>
<td>2.83%</td>
</tr>
<tr>
<td>Airlines</td>
<td>1.41%</td>
<td>0.75%</td>
<td>53.23%</td>
<td>2.39%</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>1.80%</td>
<td>1.15%</td>
<td>64.04%</td>
<td>2.10%</td>
</tr>
<tr>
<td>Insurance Companies</td>
<td>2.02%</td>
<td>1.15%</td>
<td>56.98%</td>
<td>2.66%</td>
</tr>
<tr>
<td>Hospitals</td>
<td>2.00%</td>
<td>1.15%</td>
<td>57.62%</td>
<td>2.66%</td>
</tr>
<tr>
<td>Restaurants</td>
<td>2.44%</td>
<td>1.15%</td>
<td>47.20%</td>
<td>2.95%</td>
</tr>
<tr>
<td>Retail Sales</td>
<td>2.31%</td>
<td>1.15%</td>
<td>49.83%</td>
<td>3.07%</td>
</tr>
<tr>
<td>Others</td>
<td>2.58%</td>
<td>1.15%</td>
<td>44.53%</td>
<td>3.14%</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>1.88%</td>
<td>0.95%</td>
<td>49.00%</td>
<td>2.44%</td>
</tr>
</tbody>
</table>
the ABM introduced a special growth rate for the network size and another for the transaction amount. Nevertheless, these growth rates still are exogenously set.

- The idiosyncratic factors adjustment was not based on the demand elasticity for POS services; however, the merchant sector separation proposed was an acceptable proxy. As mentioned before, this stage was greatly improved for the 2008 IF estimation.
- The adjustment based on exogenous factors in order to simplify the IF structure and provide incentives to certain sectors seemed arbitrary, so it was eliminated in the most recent IF setting.

2.3.5 Trends in the bank payment cards market since the new IF are in place

Infrastructure and transactions

Since 2004, card payments in Mexico have increased faster than before. By the end of 2007, the number of POS installed was 418,237, as compared to 129,799 in 2002. Operations at POS exceeded 698 million by the end of 2007 as compared to 135 millions in 2002. Of the 2007 operations, 48 percent are with credit cards and 52 percent with debit cards. In addition, transactions per card have increased for both credit and debit and the use of debit cards is also increasing in relation to the number of cash withdrawals at ATM (Figure 7). It is important to notice that the increase in card usage in Mexico cannot be attributed to IF adjustments only.
### TABLE 7: DISTRIBUTION OF MERCHANT SERVICE FEES IN 2005 AND 2006 AMONG BUSINESSES THAT ACCEPT CREDIT CARDS, BY BUSINESS CATEGORY

<table>
<thead>
<tr>
<th>Categories</th>
<th>IF 2006 (%)</th>
<th>Merchant Service Fees</th>
<th>Difference¹</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Average</td>
<td>(2006-2005)</td>
</tr>
<tr>
<td></td>
<td>2005 (%)</td>
<td>2006 (%)</td>
<td></td>
</tr>
<tr>
<td>Colleges and Universities</td>
<td>1.25</td>
<td>3.21</td>
<td>2.87</td>
</tr>
<tr>
<td>Pharmacies</td>
<td>1.75</td>
<td>3.18</td>
<td>2.78</td>
</tr>
<tr>
<td>Hospitals</td>
<td>1.95</td>
<td>2.98</td>
<td>2.86</td>
</tr>
<tr>
<td>Hotels</td>
<td>1.80</td>
<td>2.55</td>
<td>2.35</td>
</tr>
<tr>
<td>Other</td>
<td>1.95</td>
<td>2.98</td>
<td>2.74</td>
</tr>
<tr>
<td>Restaurants</td>
<td>1.95</td>
<td>2.86</td>
<td>2.64</td>
</tr>
<tr>
<td>Supermarkets</td>
<td>1.80</td>
<td>2.97</td>
<td>2.54</td>
</tr>
<tr>
<td>Air Transport</td>
<td>1.80</td>
<td>2.63</td>
<td>2.43</td>
</tr>
<tr>
<td>Land Transport</td>
<td>1.80</td>
<td>2.90</td>
<td>2.57</td>
</tr>
<tr>
<td>Retail Sales</td>
<td>1.95</td>
<td>2.96</td>
<td>2.74</td>
</tr>
<tr>
<td>Total</td>
<td>2.85</td>
<td>2.63</td>
<td>-0.22***</td>
</tr>
</tbody>
</table>

Source: Survey of Means of Payments Usage (Encuesta a usuarios de medios de pago, ENUM), INEGI and Banco de México, 2006.

¹/ ***, **, * Significant difference at 1%, 5% and 10% level, respectively.

### TABLE 8: DISTRIBUTION OF MERCHANT SERVICE FEES IN 2005 AND 2006 AMONG BUSINESSES THAT ACCEPT DEBIT CARDS, BY BUSINESS CATEGORY

<table>
<thead>
<tr>
<th>Categories</th>
<th>IF 2006 (%)</th>
<th>Merchant Service Fees</th>
<th>Difference¹</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Average</td>
<td>(2006-2005)</td>
</tr>
<tr>
<td></td>
<td>2005 (%)</td>
<td>2006 (%)</td>
<td></td>
</tr>
<tr>
<td>Colleges and Universities</td>
<td>0.75</td>
<td>2.80</td>
<td>2.42</td>
</tr>
<tr>
<td>Pharmacies</td>
<td>1.00</td>
<td>2.90</td>
<td>2.33</td>
</tr>
<tr>
<td>Hospitals</td>
<td>1.15</td>
<td>2.68</td>
<td>2.51</td>
</tr>
<tr>
<td>Hotels</td>
<td>1.10</td>
<td>2.29</td>
<td>2.05</td>
</tr>
<tr>
<td>Other</td>
<td>1.15</td>
<td>3.18</td>
<td>2.89</td>
</tr>
<tr>
<td>Restaurants</td>
<td>1.15</td>
<td>2.51</td>
<td>2.19</td>
</tr>
<tr>
<td>Supermarkets</td>
<td>1.10</td>
<td>2.62</td>
<td>2.02</td>
</tr>
<tr>
<td>Air Transport</td>
<td>0.75</td>
<td>2.02</td>
<td>1.79</td>
</tr>
<tr>
<td>Land Transport</td>
<td>1.10</td>
<td>2.41</td>
<td>1.90</td>
</tr>
<tr>
<td>Retail Sales</td>
<td>1.15</td>
<td>2.99</td>
<td>2.28</td>
</tr>
<tr>
<td>Total</td>
<td>2.53</td>
<td>2.23</td>
<td>-0.30***</td>
</tr>
</tbody>
</table>

Source: Survey of Means of Payments Usage (Encuesta a usuarios de medios de pago, ENUM), INEGI and Banco de México, 2006.

¹/ ***, **, * Significant difference at 1%, 5% and 10% level, respectively.
V. THE ROLE OF INTERCHANGE FEES IN MEXICO’S RETAIL PAYMENT SYSTEM

In fact, in addition to the existing trend, there are a number of measures promoted by the authorities that came into effect at about the same time. Besides the measures implemented by the central bank described above (section 2.2), a particularly important one was the creation, in November 2004, of the Electronic Payments Infrastructure Fund (Fondo de Infraestructura de Medios de Pago Electrónicos, FIMPE) by the Federal Government.

The FIMPE is a private, non-profit-making trust fund formed by acquirers. It aims at promoting and extending access to the electronic payment network among small and middle size business, as well as to increase consumers’ usage of them. In order to develop the program, the Mexican Government granted a 3,100 million MXP fiscal incentive for installing POS terminal for the next three years. FIMPE programs includes banking card usage promotion and first time free POS installation on commercial and service business. It is believed that FIMPE highly contributed to POS installation at small merchants from 2005 to 2007.

As we know from the first part of this study, a decrease in IF affects, albeit differently, both the MSF that acquirers charge to merchants and the benefits provided by issuers to card holders (RBA, 2004).

In Mexico, the decrease of the IF has been followed by decreases of the maximum MSF (Figure 9). In particu-
lar, fees for small businesses, such as restaurants and retail stores, have dropped to almost half their levels of 2004. Nowadays, the IF represents about 66 percent of the maximum MSF for credit cards, and 49 percent for debit cards275 (Table 6).

To investigate the pass-through from the IF reductions to the MSF, at the end of 2006, the BM carried out a survey among commercial and service firms.276 More precisely, the questionnaire asked the MSF banks charged to card accepting businesses then and in the year before, so to capture the effect of the most recent scales’ change. Results show that almost all sampled firms that accepted credit cards reported lower MSF in 2006 than in 2005. Actually, the whole distribution of MSF both for credit and debit shifted toward lower levels (Figure 10).

For credit cards MSF, there was an average reduction of 22 basis points or 8 percent across all business categories; in pharmacies and supermarkets the reduction was close to 40 basis points or 40 percent (Figure

275 This proportion was calculated by dividing the implicit system IF by each acquirer’s weighted MSF average, separately for debit and credit cards. In order to get the IF, the effective IF interchange income paid by every acquirer in September, 2006 was divided by the total value of interbank transactions processed by these acquirers during September, 2006 separately for debit and credit cards. In order to get the MSF maximum weighted average, the maximum MSF for each acquirer and business category by late 2006 was weighted by the value of transactions processed by these acquirers in each business category during September, 2006. On the other hand, the ABM reported an effective average MSF of 2.34 percent for 2006, including both credit and debit cards. If we consider this figure, the total IF for both cards amounts 61.91 percent of the MSF (Source: Estudio de Tendencias de Tasas y Comisiones Cobradas y la Oferta de Productos de la Banca al Menudeo en México, Periodo 2004-2006, Deloitte, 2007).

276 The survey was carried out with the collaboration of INEGI. It is based on a sample of around 1,000 firms extracted from three firms’ surveys that INEGI performs in a periodical basis. However, since the sample contained a majority of large firms, it is not possible to make statistical inferences for the whole firm population.
It is also interesting to notice that the margin of the MSF to the IF was, on average, 112 basis points in 2005 and diminished to 85 basis points in 2006. Hence, in the survey period the IF passed from representing about 62 percent of the MSF to 68 percent.

Among the surveyed firms that reported accepting debit cards, most of them also claimed that the MSF charged in 2006 was lower than in 2005; the average reduction was 30 basis points or 12 percent (Table 8). At the business category level, in supermarkets and pharmacies the reduction was around 60 percent. However, despite the fact that MSF diminished more for debit than for credit cards; the margin of debit MSF to IF continues to be higher. It decreased from 156 to 120 basis points, so the IF shares in the MSF changed from 40 percent to 47 percent in the analyzed period.

It is more difficult to assess the effect of IF reductions in cardholder benefits because the banks’ rewards and pricing schemes have many components; nevertheless, it is clear that banks have kept on promoting their credit card products through many different reward schemes (Table 9). Additionally, both opening fees and annual commissions that banks charge on credit cards have been decreasing since 2003 (Figure 11).

2.4 LESSONS FROM THE MEXICAN CASE STUDY

The Mexican experience regarding the setting of IF leaves a number of open questions on the approach that has been followed so far.

Given that IFs for debit cards transactions in some countries are set ad valorem and in other countries they are set as a fixed fee per transaction, it would be important to investigate more about the trade offs in terms of efficiency and cost distribution associated with setting price ceilings for ad valorem IF, like the one set for debit card transactions. Although theory advises against price caps, in the case of debit cards, there are no free financing costs, payment risks are limited and usually there are no reward programs; therefore, most costs do not raise with transaction value.

Exploring whether there are ways to better transmit the IF reductions into MSF is another open question.

For banks, the use of debit cards in POS represents a cheaper means of giving their clients access to their deposits compared to both branches and ATMs. So, it should be analyzed if further reductions of the IF are transferred to consumers as higher prices for other services or lower interest rates on deposits.

It is also worth studying whether the reduction of IF implemented in the four party system is providing an unfair advantage on the three party system of American Express, or whether that system has decreased its MSF or increased its cardholder benefits. In addition, since IF reductions hit the small issuers harder than the large issuers, there may be an adverse effect on competition in that side of the market that is worth investigating – even though as long as the IF is set in a manner that improves market efficiency, small issuers’ problems may be a second order consideration.

3 POLICY IMPLICATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The authors recognize that the economic analysis of retail payment systems needs to be pursued further. However, we can already indicate some policy lessons that can be drawn from empirical findings and from the Mexican experience. In this section, we also indicate directions for academic research that would need to be explored more systematically.

10. It is also interesting to notice that the margin of the MSF to the IF was, on average, 112 basis points in 2005 and diminished to 85 basis points in 2006. Hence, in the survey period the IF passed from representing about 62 percent of the MSF to 68 percent.

The survey’s firms were grouped to coincide as much as possible with those defined by the ABM.
3.1 RETAIL PAYMENT SYSTEMS ARE TWO-SIDED MARKETS

Public interventions into payment card systems have often been prompted by the lobbying of retailers associations who wish to reduce their fees. Doing so, they fail to recognize that IFs contribute to a reduction of cardholder fees that encourages consumers to use card payments over less efficient payment means such as cash and cheques.

However, recent empirical research (e.g. Zinman, 2006 and Ching and Hayashi, 2007) clearly establishes that consumers react negatively to cardholder fees and tend to choose the payment instrument that minimizes their total transaction cost. Price structure really matters in retail payments, as it has been long recognized by card systems operators. The balancing act that results from a careful reallocation of costs between the two sides of the market is a fundamental condition for the success of a retail payment system. Thus, competition authorities and regulators should abandon one sided approaches to the retail payment industry.278

3.2 THERE IS AN ASYMMETRY BETWEEN THE TWO SIDES OF THE MARKET

The fact that retailers internalize some fraction of consumers’ benefit (because the better quality of service offered to consumers by the option to pay by card makes their stores more attractive) implies that they are less resistant to high fees than cardholders. But this is not necessarily bad for social welfare. A skewed price structure where one side of the market (here retailers) pay more than the other may be socially efficient, especially when banks have to recoup sizable fixed costs needed to maintain safe and efficient infrastructures (see Bolt and Tieman 2005).

3.3 CARD SYSTEM OPERATORS AND BANK ASSOCIATIONS MAY SOMETIMES HAVE AN INTEREST IN INFLATING CREDIT IFs

Empirical evidence seems to suggest that higher IFs often result in higher profits for banks (especially in the case of credit cards). This comes from the fact that price reactions to changes in IFs seem to be asymmetric. In the Australian case for example, reductions in credit IFs have been passed through almost one for one into merchant fees, but the corresponding increases in cardholder fees (and reductions in their rewards) have been significantly less than one for one. Even if the robustness of this observation needs to be checked carefully by empirical analysis of other systems and countries, it may explain why credit IFs are often much higher than debit IFs. As Rochet and Tirole (2002, 2006) have shown this is not necessarily bad for social welfare, if the operating profits of banks allow them to cover the sizable fixed costs needed to increase the capacity and safety of their networks. On the other hand, IFs may be excessive if the issuers’ profits are dissipated into wasteful marketing campaigns aimed at stealing business from their competitors.

3.4 INTERCHANGE FEES ARE NEEDED, EVEN IN MATURE PAYMENT CARD SYSTEMS

The need to subsidize membership to internalize network externalities disappears when networks mature and cover a large fraction of potential users. However, payment networks are dominated by usage externalities. Even if all consumers hold debit cards, they need to be incentivized to use them. Empirical research so far (see for example Zinman (2006) and Ching and Hayashi (2007)) seems to suggest that price elasticity of card usage by consumers seems to be much higher than that of card acceptance by merchants. It would be a mistake to mandate a cost-based cap on debit IFs, since it would completely overlook the two-sided nature of payment systems.

---

3.5 THE SUBSTITUTABILITY BETWEEN CREDIT AND DEBIT CARDS NEEDS TO BE UNDERSTOOD BETTER

Preliminary analysis of the substitutability between credit and debit cards (Rochet, 2007) seems to indicate a need for capping the difference between credit and debit IFs, in order to discourage the socially inefficient behaviour of “convenience users”. However, it seems difficult to recommend a cost based regulation of credit IFs without a more complete understanding of this substitutability between credit and debit cards, and of the incentives of payment card networks to inflate the difference between credit and debit IFs. Generally speaking, the regulation of IFs is a very hazardous exercise, since socially optimal IFs depend in a complex fashion of parameters that are extremely difficult to estimate empirically and more importantly, the reactions of the industry are very difficult to predict.

For instance, whether in the absence of a theoretical standard to set the level of IF, a practical set of “rules of thumb” can be developed to deal with a few critical issues such as how much and how often should IFs be adjusted. This seems especially important, because of the limited applicability of existing theoretical models because of the lack of adequate data.
APPENDIX I: INTERNATIONAL EXPERIENCE ON SETTING IFS

We gathered data to build an International Standard for Interchange Fees (IF) to assess the IF levels in Mexico. The information was acquired through a questionnaire that was sent on early August 2006 to central banks and banking associations in 30 countries: Argentina, Austria, Brazil, Bulgaria, Canada, Chile, Denmark, Finland, France, Germany, Hong Kong, Hungary, India, Indonesia, Italy, Lithuania, Japan, Malaysian, Norway, New Zealand, Peru, Poland, South Korea, Romania, Russia, Sweden, Thailand, Taiwan, Turkey, and Uruguay. Hence, there was an attempt to include both developed and developing countries in the sample.

The questionnaire contained the following questions:

1. What is the current level of IF for domestic credit card and debit card transactions in POS in your country?
2. When was the last time these IF were modified? Which were the IF previous to this adjustment?
3. Is the methodology to set the IF publicly available? If so, is it a cost based methodology?
4. Are there any plans to evaluate the IF level and structure in your country at present?

We received answers from agencies and institutions in 23 countries. Only 3 of them provided all the requested information; 6 agencies provided the IF levels; 9 agencies informed that both the methodology and the IF levels were private information; other 5 agencies suggested us to contact another source because the central bank was not the proper authority.

In the following table we present a summary of the main answers obtained:

<table>
<thead>
<tr>
<th>Country</th>
<th>IF Levels Provided</th>
<th>Methodology Publicly Available</th>
<th>Cost Based Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Brazil</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Chile</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Denmark</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Finland</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>France</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Hungary</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>India</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Lithuania</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Japan</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Norway</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Peru</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Poland</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>South Korea</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Romania</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Russia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Sweden</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Thailand</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Turkey</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Uruguay</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

This survey on the international experience on setting IF suggests that there is no consensus regarding the most adequate international practices. In many countries, the IF are set on a bilateral basis between issuer and acquiring banks, or either on a bilateral or multilateral basis among the local payment card schemes and the international schemes VISA and MasterCard. In these cases, the methodology and levels in place are deemed as commercial secrets and are not supervised or regulated. However, there are countries in which the central bank or competition authority has revised the methodologies for setting the IF. In some of them, authorities have determined that the IF levels obstructed competition conditions and, therefore, ruled on the mechanism to set the fees.

The international experience also points out that most authorities disapprove the fact that the fees are not directly related to processing costs. Particularly, the authorities have strongly criticized that:

- In several countries, the IF has not changed for several years.
- In some countries where the IF has been reduced, such reductions have not reflected on the charges made to cardholders or merchants (either through better services or lower fees).
- Some authorities have pointed out that higher IF would allow issuer banks to recoup costs unrelated to payment processing; this leads to anticompetitive levels of IF, which generate high earnings to issuer banks (which are in turn used to compete through advertising, promotions and interest-free periods).

On the other hand, among countries that applied cost-based methodologies, there is a noticeable variation in the cost concepts included (Tables 11 and 12). Moreover, countries that had undergone IF regulation had faced several practical obstacles. Some countries’ authorities have granted the banks 2 or 3 years to gather all their cost data. In other European countries where
TABLE 10: SUMMARY OF THE MAIN ANSWERS

<table>
<thead>
<tr>
<th>Questions</th>
<th>Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is the CI set on a bilateral or multilateral basis?</td>
<td>Bilateral agreements in 5 countries, and multilateral in 11 countries. In 3 countries the arrangement is set by a central entity or authority, and 4 countries provided no answer.</td>
</tr>
<tr>
<td>2. Has the central bank or competition authority intervened in the IF setting arrangements?</td>
<td>The surveyed central banks have only intervened in 3 countries. In another 4 countries, the central bank is responsible of the IF supervision, though they have not decided to intervene. In 12 countries it was reported that the supervision of IF arrangements is not the responsibility of the central bank. Of these 12 countries, 7 reported that their Competition Authority is currently in charge of charges such as the IF and 5 did not indicate which is the responsible authority for IF supervision. Finally, 4 countries did not report which is the authority that supervises IF.</td>
</tr>
<tr>
<td>3. Are there any plans for further intervention?</td>
<td>Two out of the three central banks that have previously intervened, will continue to supervise and, if needed, intervene to determine new IF levels. In the remaining countries, three central banks have stated their intention or intervening, sixteen central banks do not foresee any future intervention, and two countries failed to respond. The competition authorities of two countries might intervene, depending on the results of market evaluations.</td>
</tr>
</tbody>
</table>

the local authorities had dedicated efforts to analyze the IF, the project was delayed until the European Commission Competition Directorate provides a guideline. Nevertheless, these issues have not precluded that some countries adjust the IF levels.

The Reserve Bank of Australia (RBA) investigated the payment market and the IF on 2000, and came up with an IF setting standard for credit cards in 2002. Though, the reductions on IF that would be applied to debit card came into effect until November 2006. Although, the RBA has faced some critics in view of the difficulties when measuring the social costs and benefits of the regulation and that there has not been a significant reduction to the merchant fees, several specialists consider that publishing the IF levels and methodology represented a landmark towards achieving transparency in the payment market’s fees. In 2005, the Bank of Spain gave a 3 year deadline to issuer banks to present their cost information, which will be used to determine an IF based on the weighted average of the costs presented by the issuer banks. In the meanwhile, the Bank of Spain and the issuer banks reached an agreement to a stepped reduction of the IF from 2.57 percent in 2005.
<table>
<thead>
<tr>
<th>Country</th>
<th>Is the IF set based on</th>
<th>Is it set as a maximum or as a unique fee?</th>
<th>Is it set differently for credit and debit cards?</th>
<th>Is it set differently per type of merchant sector?</th>
<th>Is the IF set as a fixed fee or as an ad-valorem fee?</th>
<th>Are the IF level or the methodology subject to further revisions?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Maximum</td>
<td>Yes</td>
<td>No</td>
<td>Ad-valorem fee for credit cards; fixed fee for debit cards</td>
<td>The IF will be recalculated for credit cards on 2006 and debit cards on 2009</td>
<td>Maximum</td>
</tr>
<tr>
<td>Spain</td>
<td>Maximum</td>
<td>Yes</td>
<td>Not since 2006</td>
<td>Ad-valorem fee</td>
<td>Issuing costs will be reviewed to set a new IF on 2009.</td>
<td>Maximum</td>
</tr>
<tr>
<td>Israel</td>
<td>Maximum</td>
<td>Yes</td>
<td>Temporarily different IF per sector. The new methodology doesn’t differ per merchant</td>
<td>Ad-valorem fee</td>
<td>The new methodology is expected to be approved on 2006</td>
<td>Maximum</td>
</tr>
<tr>
<td>Italy</td>
<td>Unique fee</td>
<td>Yes</td>
<td>Not since 2003</td>
<td>Fixed amount plus a percentage covering cost elements related to the amount of transactions</td>
<td>Issuer costs will be reviewed considering technological progress. The overall IF level will be reviewed in 5 years from now.</td>
<td>Unique fee</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>N.A.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Maximum</td>
<td>Yes</td>
<td>Yes</td>
<td>Ad-valorem fee</td>
<td>Yes, every three years.</td>
<td>Maximum</td>
</tr>
<tr>
<td>Visa</td>
<td>Yes</td>
<td>Unique fee</td>
<td>Yes</td>
<td>Yes</td>
<td>Ad-valorem fee</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

V. THE ROLE OF INTERCHANGE FEES IN MEXICO’S RETAIL PAYMENT SYSTEM

To 1.40 percent in 2008. Israel represents another interesting example. Gilo and Spiegel (2005) report that the antitrust authority requested Visa International to present a cost analysis to determine an equilibrium IF in 1998, but extended the period to 2000 since it failed to present the cost analysis. In 2001 Visa was again unable to present the required analysis. So in that year, two local banks presented their own cost methodology, setting an average IF of 1.25 percent for four different merchant sectors. But that proposal was rejected and these banks and Visa International presented a joint methodology proposal in which the IF was a function of issuer’s costs, income and market share, and a measure of the willingness to pay for credit cards. However, the Supreme Court decided that the willingness to pay for credit cards was practically impossible to measure. For this reason, this methodology was also rejected, and the previous proposal by the local banks was temporarily allowed, until a better one is proposed.

TABLE 12: COST ELEMENTS INCLUDED IN THE IF FOR SEVERAL COUNTRIES

<table>
<thead>
<tr>
<th>Country</th>
<th>Transaction authorization</th>
<th>Transaction processing</th>
<th>Account acquisition and management</th>
<th>Maintenance</th>
<th>Fixed costs</th>
<th>Indirect expenses (marketing, promotions, cardholder incentives)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switzerland</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Israel</td>
<td>Yes</td>
<td>Yes</td>
<td>No*</td>
<td>No*</td>
<td>N. A.</td>
<td>No*</td>
</tr>
<tr>
<td>Spain</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Visa Intnl.</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>UK - MasterCard</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Australia</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

According to the data of BM, in June 2007, there were about 18 million credit cards and 33 million debit cards. However, as we should expect, cardholding is not uniformly distributed among the population. The data of the National Survey of Household’s Income and Expenditure (Encuesta Nacional de Ingreso y Gasto de los Hogares, ENIGH) indicates that in 2002 most cardholders (both credit and debit) were concentrated on the ninth and tenth income deciles, where more than 30 percent of the households had a card. In contrast, less than 15 percent of the households in the first six deciles reported having a credit or debit card. This situation seems to have been improving during the past five years. For example, credit cardholding has increased in all deciles. Particularly in the second to eighth deciles, the percentage of households with cards per decile increased by more than 180 percent from 2002 to 2006 (Figure 12).

Given that any adult can open a deposit account with a debit card, theoretically they would constitute the potential debit cardholding demand. In regards to credit cards, the minimum income requirement of around 3,000 MXP per month was satisfied only by 32.6 million adults in 2006. So, if income is considered as the main requirement for credit cards and we assume that, given the current card holding patterns, one adult chooses to have 1 debit card and 2 credit cards on average, we can estimate that the upper bounds of the cardholders are 60.7 million adults for debit and 32.6 million adults for credit (of course, these bounds may be overestimated to the extent that many banks ask card applicants for the additional requirements mentioned before). These figures would yield an estimated market coverage of 54 percent for debit cards and 28 percent for credit cards.

In contrast, some indicators suggest that the acquiring market still is less developed than the issuing market. For instance, the ratio of issued cards per POS is one of the highest ratios among the selected comparison countries and the number of POS per inhabitant still is one of the lowest ratios among the selected comparison countries, almost one sixth of the estimated average.

According to information collected from banks' websites and through a telephone survey conducted during June 2007, banks offer acquiring services in a quite standard manner: POS accept both Visa and MasterCard credit and debit cards, POS are linked to a banking account, the acquirers provide access online banking, technical support and maintenance for merchants. Merchants can offer monthly installments and access to some rewards programs to their customers. Requirements to get a POS also are very similar: merchants must sign a contract, must present a copy of their Tax Registration, a copy of an official ID, a comprobante de domicilio, and the risk assessment analysis. Some acquirers impose a minimum monthly sales value, a minimum deposit to open an account, and a minimum on average balance on such accounts. On

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280 Recent surveys of credit card holding among users of internet banking in Mexico have found that each of these users holds on average 2 cards (see “Estudio AMIPCI de Banca por Internet en México,” AMIPCI, 2006). In turn, the figure of 1 debit card per adult would be supported by international comparisons that suggest that access to deposit accounts in developed countries is above 90 percent of the population (for more details, see Claessens, 2006). The importance of the income prerequisite for obtaining credit cards is discussed in Negrín and De la Cerda (2002).

281 According to a consultation to the ABM on September 2006, the monthly interest free payment schemes are offered to merchants in these business categories: Wholesale Stores, Retailers (Jewelers, Furniture stores, Department stores, etc.), Airlines, Government and Hospitals. The average voucher value for a monthly payments purchase is usually quite high (yet we can find purchases as low as 500 MXP). The acquirers have a larger possibility to negotiate a monthly payment scheme with some merchants, but also non-acquiring banks can offer these schemes. The issuer bank charges a fee on these kind of transactions that differs for each business category. For a 6 months interest free scheme, the fee ranges from 4 percent to 8 percent plus VAT, for a 12 months scheme it ranges from 9 percent to 13 percent.
the other hand, while the FIMPE has been in place, small businesses can get POS by paying very low MSF, as long as their card sales are less than 40,000 MXP per year. So, we think that at present the requirement of holding a Tax Registration is the main constraint for merchants to get a POS.

Consequently, to estimate the potential demand for POS among businesses, we identified that, according to the 2004 Economic Census performed by the National Institute of Statistics, Geography and Informatics (Instituto Nacional de Estadística, Geografía e Informática, INEGI), there were 2.5 million retail and services establishments in Mexico during 2003. But this figure overestimates the market size to the extent that in Mexico many businesses may be choosing to not accept card payments for tax avoidance reasons. So to take this important consideration into account, we looked at the informality estimations by Perry et al (2007) and considered that only 54 percent of the businesses with 2 or less employees and only 72 percent of those with 3 to 5 employees are registered taxpayers. This yields an estimated potential demand of about 1.5 million businesses in commerce and services (Table 11). Consequently, the current coverage of 342,000 POS seems very limited; in effect, below 23 percent of the potential demand. However, let us point out that only because the FIMPE program is in place, it seems adequate to ignore this prerequisite. Once that this program ends, it may not be adequate to abstract from this constraint because at present most banks only offer POS to businesses with annual card sales above 84,000 MXP (Table 14 and Figure 12).

---

Figure 12: Percentage of Households that Have Credit and Debit Cards by Income Decile, 2002 and 2006

Note: Information of debit card holding was not collected in the 2004, 2005 and 2006 versions of this survey.
On the other hand, among the new banks that are starting operations during 2007, there are three chain stores with regional or national coverage. In November 2006, when Walmart, Coppel, and Chedraui obtained the authorization to open banks, they had 855, 478 and 97 stores, respectively, where they can offer banking services. If past experience can provide any indication of future trends, it is worth mentioning the case of Banco Azteca, which was the first case of a bank opened by a chain store, Elektra. Since 2002, when Banco Azteca started operations, it has opened 1,109 branches up to date, many of which are located in Elektra stores (931 stores at present). Besides, while this bank started to issue cards immediately, it started to install POS more than 3 years afterwards.

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285 At December 2005, there were 7,990 bank branches in Mexico.
FIGURE 13: POS SUPPLY CURVES OF THE MAIN BANKS (YEARLY MSF AND RENTAL FEES)

Note: These individual supply curves include the data of monthly POS rent and per transaction MSF, expressed on a yearly basis. The MSF is the average maximum MSF for debit and credit card weighted per transactions value. The curves start at the minimum card sales value prerequisite of each acquiring bank. Bank H has a prerequisite based on ticket value instead of minimum yearly sales value. Source: Data collected from banks’ websites and through a telephone survey conducted during October 2007.
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Reporte Sobre el Sistema Financiero, Banco de México, 2007.


ABSTRACT: This paper looks into the current status and evolution of payment instruments and infrastructure usage within selected Latin American countries and comparison with selected countries from the Committee on Payment and Settlement Systems of the Bank for International Settlements. Statistical figures highlight an overall increase in the use of payment instruments. Cash continues to be an important instrument and its use has increased in most Latin American countries due to crises or financial transactions tax. Electronic instruments are replacing cheques as a major payment instrument but at a slow pace, cheques are still very relevant in many countries in terms of volume. In addition, a view into the infrastructure and institutional arrangements emphasizes the need for public policy analysis with regards to cooperation and competition in the system.

KEYWORDS: Latin America, transactions, payment instruments, accounts, value, volume, cash, ATM, EFT-POS, payment cards, cheques, credit transfers, direct debt, branches.
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INTRODUCTION

The main objective of this paper is to observe the main trends in the usage of payment instruments and infrastructure of selected countries within the Latin America (LA) region. This paper complements the regional study on balancing cooperation and competition in retail payment systems that has studied four specific cases for Argentina, Brazil, Colombia and Mexico. For comparison purposes the trends in LA countries are compared with some countries selected from the Committee on Payment and Settlement Systems (CPSS).

The paper is organized into three main sections. The first section analyzes the increasing importance and evolution of electronic payment systems in the economy. The second section describes the usage of different payments instruments in LA, including the usage of cash and non-cash payment instruments. The paper concludes with a view into the institutional and infrastructure framework supporting these various payment instruments.

The data gathered in this section mainly references central bank websites, the Western Hemisphere Payments and Securities Clearance and Settlement Initiative, and the Global Payment System Survey 2007 conducted by the Payment Systems Development Group.

1 IMPORTANCE OF PAYMENT SYSTEMS IN THE ECONOMY

The number of payment transactions has continuously increased over the years facilitating economic development and growth. In the last six years, both Brazil and Chile have remained at consistently high levels for the number of payment transactions per inhabitant. (Figure 1) In 2001, Brazil started at 28 payment transactions per inhabitant and ended at 37 in 2006 for an increase of 32.1 percent and Chile started at 34 payment transactions per inhabitant in 2001 and ended at 38 for an increase of 11.5 percent. The most notable increase came from Mexico at 9 payment transactions per inhabitant in 2001 but increased to 14 in 2006 for an increase of 51.7 percent. Likewise as observed in selected CPSS countries, the importance of payment systems have also been steadily increasing. (Figure 2)

Automation has introduced a broader range of instruments available and significant cost reductions in processing costs. The processing of paper payments typically requires extensive physical handling. Automation has created opportunities for depository institutions and other payments processors not only to introduce new payment instruments, but also to reduce their costs in processing paper and electronic payments. Replacement of paper-based instruments is a trend observed in many countries where retail payment systems have experienced some kind of modernization process. This happens mainly because electronic payment instruments are typically more efficient than paper-based ones. Some studies have showed that costs of electronic payment instruments are usually 1/3 to 1/2 of those related to paper-based instruments. According to the same studies, complete migration to electronic payment instruments in a given country would result in annual cost reduction equivalent to 1 percent to 3 percent of its GDP.
2 USAGE OF DIFFERENT PAYMENT INSTRUMENTS IN LATIN AMERICA

In spite of the increasing use of other instruments, cash is still widely used as form of payment. Cash payments (banknotes and coins) are usually associated with low value transactions due to their exclusive features: a) legal tender b) transactions do not demand further identification c) no credit risk and d) immediate and final settlement of payment without intermediation. The usage of cash in the LA economies is experiencing an increasing trend; it is more acute for economies that have suffered a financial crisis (e.g., Argentina). With the exception of Argentina, the other countries have remained the same or increased the usage of cash by approximately 1 percent. (Figure 3) Argentina has
more than doubled its usage of cash from 2001 at 3.8 percent of GDP comparably to 8.6 percent in 2006. This could be partially explained with by the severe financial crisis in the late 2001-2002 causing a reduction in liquidity and the latent effects that remain throughout the period. In CPSS countries, the usage of cash has remained steady between 3 percent-6 percent with the exception of Japan that has traditionally presented a high level of cash in circulation at approximately 16 percent of GDP. (Figure 4)

In LA countries, cheques, credit transfers and credit cards dominate the volume of all payment transactions. Peru has a strong tendency of 63.87 percent of all payment transactions to be conducted via credit cards. (Figure 5) Both Chile and Argentina’s payments are
strongly entrenched by cheques with over 67 percent transactions conducted via cheques. In Argentina, the popularity of debit cards and installment payments using credit cards has contributed to the reduced cheque usage. The number of cheques per capita fell by 1/3 from about three in 2000 to two in 2004, even though the number rebounded somewhat in 2004, with the loosening of restrictions on withdrawal. In Chile, cheques are a firmly established feature of its society and are considered a very safe payment instrument due to the legal threat of a jail term for anyone writing cheques with insufficient funds. Cheques are also a status symbol because of the rigorous pre-issue requirements, and they can be used as a form of credit. Brazil has a strong tendency towards credit transfers at 63 percent; however, cheques also play a critical role accounting for 46 percent of all transactions due to the strong legal protection cheques provide, similar to Chile. It should be noted even though cheques continue to be the most important payment instrument in terms of volume of transactions in Brazil; its use has been declining since 2002.

In CPSS countries, a wider variation in the types of payment instruments exists amongst the countries. In Japan, 67 percent transactions happen with a credit card, whereas in Germany, 42 percent are conducted via credit transfers and another 41 percent through direct debit. (Figure 6) In the United Kingdom, the most widely used payment instrument is the debit cards at 43 percent followed by direct debits at 37 percent. Australia, Canada and the United States draw parallel usage of payment system transactions of debit cards and e-money payment transactions; respectively in these countries approximately 30 percent (a bit more in Canada) of debit card transactions are used while approximately 25 percent of e-money transactions are

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292 EIU.
used. Given all of these countries are within the CPSS selection, this reiterates the idea there is not one particular socially optimal norm in the development of payment systems, but rather is dependent upon influences by cultural preferences and an individual country’s environmental factors.

The highest value of payment transaction is mainly in the form of cheques for LA countries, with the exception of Mexico and Brazil where credit transfers account for the largest portion. Despite the wide usage of various payment instruments, the highest values of transactions are conducted via cheques. For example, in Peru nearly 64 percent of all payment transactions are through credit cards, however when examining the volume of payment instruments, cheques hold 88.73 percent of the entire volume of payment system transactions. (Figure 7) This would suggest despite the high usage of credit cards their actual value of transaction is low compared to cheques. Likewise in the case of Brazil, despite the high number of debit and credit cards, the average value of debit card transactions remain low, since credit transfers account for the largest value of transactions. In Mexico, only 22.53 percent of the volume of payment transactions occur via credit transfers but account for 92.61 percent of all value of payment transactions, thus each transaction accounts for a significant amount.

Contrary to LA countries, for CPSS countries the large value of payment transactions occur over credit transfers instead of cheques. In Japan, Germany and Canada over 50 percent of total value of transactions were conducted via credit transfers. Australia came close with 48 percent and 34 percent through direct debit. (Figure 8) Thus in LA countries, cheques are predominantly involved in transferring substantial sums of payments, whereas in CPSS countries credit
FIGURE 7: 2006 USE OF PAYMENT INSTRUMENTS ACCORDING TO VALUE FOR LAC COUNTRIES

Source: CPSS and WGPS-LAC

FIGURE 8: 2005-2006 USE OF PAYMENT INSTRUMENTS ACCORDING TO VALUE FOR CPSS COUNTRIES

Source: CPSS and WGPS-LAC, Global Payment Survey
transfers tend to dominate the market. The exception is the United States and the United Kingdom, where there is a strong tendency towards cheques respectively at 54 percent and 45 percent.

3 PAYMENT INSTRUMENT LANDSCAPE OF LATIN AMERICA—INSTITUTIONAL AND INFRASTRUCTURE FRAMEWORK

The efficiency of payment systems highly depends on the institutional and infrastructure framework. Institutional arrangements between market players such as central bank, regulatory agencies, and the ministries of finance play a vital role in the development of payment systems. Coordination between such entities promotes efficient development by avoiding duplicative investments; thus fostering greater stability and reliability of the system and facilitating efficient payment transactions. Payment system infrastructure can be defined as a set of clearing and settlement systems involving payment service providers and financial institutions that all handle different stages of the payment process—transmission, confirmation, clearing and settlement.

The payments systems institutional and infrastructure in LA has been shaped by the region’s financial environment. Financial authorities throughout the region have recognized the need for further improvements of electronic payments systems, but they face a number of challenges in advancing this goal. There are substantial variations from country to country and there are also a number of common characteristics. For all six countries analyzed, GDP per capita ranges from $6,624 to $15,795 and are classified as “middle income countries,” however all have varying degrees of institutional and infrastructure in place for payment systems (Figure 9). Most LA countries have a wide variety of payment options however obstacles such as the low level banking penetration among the population (bancarization)\textsuperscript{293}—low banking penetration tends to perpetuate consumer habits of paying with cash, which in turn fuels the informal economy and is a major obstacle to more effective use of electronic payments, the “stickiness” of consumer habits of using cash, various taxation schemes, and histories of financial crisis have all shaped the development of payment systems (Figure 10). The combination of such factors has invariably

\textsuperscript{293} Bancarization or financial penetration (defined as private credit/GDP) varies from country to country.
affected the levels of institutions, branches, number of accounts conducting cashless payment transactions. In both LA and CPSS countries, the greater the number of institutions that exists, the higher the number of branches available for its inhabitants; the United States is the exception to this trend. Argentina has the highest availability of institutions and branches among LA countries. It is supported by the fact that the country has the highest GDP per capita and a relative high rate of banking penetration at 45 percent of its population. For Mexico, the rate of institutions and branches per one million residents is the lowest at 0.49 and 80.87 respectively (Figure 11). This is despite their higher level of GDP per capita than Brazil, Colombia and Peru. Brazil and Mexico are the two most population countries within in LA, but they offer a limited num-

**FIGURE 11: INSTITUTIONS AND BRANCHES PER MILLION INHABITANTS FOR LA COUNTRIES 2005-2006**

![Graph showing institutions and branches per million inhabitants for LA countries 2005-2006.](source)

**FIGURE 12: INSTITUTIONS AND BRANCHES PER MILLION INHABITANTS FOR CPSS COUNTRIES 2005-2006**

![Graph showing institutions and branches per million inhabitants for CPSS countries 2005-2006.](source)
ber of institutions conducting cashless payments to its population; in the case of Brazil they offer numerous branches of few institutions. The selected CPSS countries overall have more institutions available conducting cashless payment transactions and significant amount of branches accessible to its users (Figure 12). The United States is the exception to this observation which has more institutions available than branches. Similar to the LA countries, in the United Kingdom there are relatively few institutions but a significant amount of branches available to its inhabitants. Accounting for a country’s population, there are marginally differences in LA regarding the accounts available to make cashless payment instruments and vast differences in the selected CPSS countries. As for the number of accounts on which cashless payments can be made, these include accounts that are held by deposit-taking institutions for non-deposit taking institutions and can be debited directly. Colombia has the highest accounts per inhabitant in LA at 0.6 and Chile has the lowest ratio at 0.10, with a mere 0.50 difference between the two (Figure 13).

FIGURE 13: ACCOUNTS PER INHABITANT LA COUNTRIES 2005-2006

Source: Global Payment Survey 2007

FIGURE 14: ACCOUNTS PER INHABITANT FOR CPSS COUNTRIES 2005-2006

Source: Global Payment Survey 2007
Chile has the lowest ratio of accounts per inhabitant, despite having a high banking penetration rate of 70 percent of the population in 2004. Among the selected CPSS countries, a wide variation exists; both Japan and the UK have comparatively high levels at 4.17 and 2.23, however Germany has a ratio of 0.50 accounts per inhabitant making it comparable to Brazil. (Figure 14)

In the past five years, all LA countries have experienced a positive increase in the number supporting outlets to conduct cashless payment transactions, including ATM machines and EFTPOS terminals. EFTPOS terminals are at a retail location which is designed to capture, and in some cases also transmit, debit card transactions by electronic means. Currently, Brazil has the highest number of EFTPOS terminals and ATMs available; however there is a low level of interoperability in ATM and EFTPOS networks (Figures 15 and 16). Between the years of 2002 to 2006, Peru has dramatically increased the availability of ATMs by 101 percent followed by Mexico at 50.8 percent (Figures 17). Among CPSS countries, Canada is the leader by having one of the most ATM and EFTPOS terminals, while Germany having the lowest available of ATM machines and EFTPOS terminals. (Figures 18 and 19) As for all

**FIGURE 15: ATM MACHINES PER 1 MILLION INHABITANTS FOR LA COUNTRIES 2005-2006**

![ATM Machines Graph](source)

Source: Global Payment Survey 2007

**FIGURE 16: EFTPOS TERMINALS PER 1 MILLION INHABITANTS FOR LA COUNTRIES 2005-2006**

![EFTPOS Terminals Graph](source)

Source: Global Payment Survey 2007
VI. MAIN TRENDS IN PAYMENT INSTRUMENTS AND INFRASTRUCTURE USAGE IN SELECTED LATIN AMERICA COUNTRIES

FIGURE 17: PERCENTAGE GROWTH RATE OF ATMS FROM 2002 TO 2006

Source: Global Payment Survey 2007

FIGURE 18: ATM MACHINES PER 1 MILLION INHABITANTS FOR CPSS COUNTRIES 2005-2006

Source: Global Payment Survey 2007

FIGURE 19: EFTPOS TERMINALS PER 1 MILLION INHABITANTS FOR CPSS COUNTRIES 2005-2006

Source: Global Payment Survey 2007
selected LA and CPSS countries, there are substantially more EFTPOS terminals than ATMs.

Payments cards in circulation are increasing; notably debit cards outnumber credit cards in LA, while variation exists amongst CPSS countries. Brazil has the highest number of debit and credit cards in circulation per thousand inhabitants at 991.02 and 418.67 while Colombia has the least at 280.97 and 98.78 respectively (Figure 20). This is despite Brazil’s GDP per capita being lower than Argentina, Chile and Mexico. More particularly in Brazil, it should be highlighted that the number of payment cards, along with the number of POS terminals, has experienced a significant growth, suggesting a growing demand to utilize electronic payments. In nearly all LA countries, debit cards in circulation surpass the number of credit cards. Among the CPSS countries, in the United States credit cards dominates payment cards while Germany has a higher amount of debit cards and in the United Kingdom both types of cards are equally issued. (Figure 21)

**FIGURE 20: PAYMENT CARDS—DEBIT AND CREDIT PER THOUSAND INHABITANTS LA COUNTRIES 2005-2006**

![Graph showing credit and debit card circulation per thousand inhabitants in LA countries 2005-2006](source)

Source: Global Payment Survey 2007

**FIGURE 21: PAYMENT CARDS: DEBIT AND CREDIT PER THOUSAND INHABITANTS FOR CPSS COUNTRIES 2005-2006**

![Graph showing credit and debit card circulation per thousand inhabitants in CPSS countries 2005-2006](source)

Source: Global Payment Survey 2007
APPENDIX OF TABLES

TABLE 1: BANK NOTES AND COINS/GDP

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
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<td>Argentina</td>
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<td>5.7%</td>
<td>7.6%</td>
<td>8.0%</td>
<td>8.6%</td>
<td>8.6%</td>
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<tr>
<td>Brazil</td>
<td>3.4%</td>
<td>3.0%</td>
<td>3.2%</td>
<td>3.3%</td>
<td>3.7%</td>
<td>3.7%</td>
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<td>2.5%</td>
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<td>Colombia</td>
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<td>Mexico</td>
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<td>3.8%</td>
<td>3.7%</td>
<td>3.8%</td>
<td>3.6%</td>
<td>3.7%</td>
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<td>3.5%</td>
<td>3.6%</td>
<td>3.5%</td>
<td>3.4%</td>
<td>3.4%</td>
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<tr>
<td>Euro Area</td>
<td>4.6%</td>
<td>5.3%</td>
<td>5.9%</td>
<td>6.5%</td>
<td>6.9%</td>
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<tr>
<td>Germany</td>
<td>3.9%</td>
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<td></td>
<td></td>
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<td>Japan</td>
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<td>United Kingdom</td>
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<td>3.5%</td>
<td>3.6%</td>
<td>3.6%</td>
<td>3.5%</td>
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<tr>
<td>United States</td>
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<td>6.0%</td>
<td>6.0%</td>
<td>5.8%</td>
<td>5.7%</td>
</tr>
</tbody>
</table>

*Banknotes and coin (including banknotes and coin held at banks)*
converted to USD by using the end-of-year exchange rate of the domestic

Source: 2007 Global Payment Survey Values, BIS, Central Banks, Western Hemisphere Payments and Securities Clearance and Settlement Initiative

TABLE 2: NUMBER OF PAYMENT TRANSACTIONS/POPULATION

<table>
<thead>
<tr>
<th>LA*</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005(1)</th>
<th>2006</th>
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<tbody>
<tr>
<td>Argentina</td>
<td>2.77</td>
<td>2.48</td>
<td>1.89</td>
<td>2.20</td>
<td>2.34</td>
<td>2.95</td>
</tr>
<tr>
<td>Brazil</td>
<td>28.00</td>
<td>29.00</td>
<td>31.00</td>
<td>33.00</td>
<td>34.00</td>
<td>37.00</td>
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<td>Chile</td>
<td>33.94</td>
<td>35.30</td>
<td>37.07</td>
<td>37.74</td>
<td>38.69</td>
<td>37.86</td>
</tr>
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<td>Colombia</td>
<td>5.51</td>
<td>5.05</td>
<td>2.11</td>
<td>1.92</td>
<td>3.49</td>
<td>5.59</td>
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<td>Mexico</td>
<td>9.10</td>
<td>9.17</td>
<td>9.40</td>
<td>9.94</td>
<td>5.35</td>
<td>13.80</td>
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<td>Peru</td>
<td>1.87</td>
<td>3.70</td>
<td>3.87</td>
<td>10.21</td>
<td>11.62</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>134.32</td>
<td>140.58</td>
<td>139.06</td>
<td>141.84</td>
<td>155.06</td>
<td>165.95</td>
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<td>Canada</td>
<td>202.00</td>
<td>210.00</td>
<td>220.00</td>
<td>230.00</td>
<td>243.00</td>
<td></td>
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<tr>
<td>Germany</td>
<td>152.00</td>
<td>147.00</td>
<td>163.00</td>
<td>177.00</td>
<td>193.00</td>
<td></td>
</tr>
<tr>
<td>Euro</td>
<td>122.65</td>
<td>130.20</td>
<td>140.22</td>
<td>150.08</td>
<td>157.37</td>
<td>165.62</td>
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<td>29.00</td>
<td>30.00</td>
<td>31.00</td>
<td>36.00</td>
<td>51.00</td>
<td></td>
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<td>United Kingdom</td>
<td>188.00</td>
<td>195.00</td>
<td>207.00</td>
<td>220.00</td>
<td>231.00</td>
<td>174.47</td>
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<td>United States</td>
<td>261.00</td>
<td>268.00</td>
<td>274.00</td>
<td>288.00</td>
<td>299.00</td>
<td>312.05</td>
</tr>
</tbody>
</table>

* Total number of transactions with payment instruments divided by population.
Source: CPSS and WGPS-LAC, 2006 Global Payment Survey Values, BIS, Central Banks, Western Hemisphere Payments and Securities Clearance and Settlement Initiative
(1) Argentina, Brazil, Chile and Colombia are an average between 2004 and 2006 figures
### TABLE 3: INSTITUTIONAL AND INFRASTRUCTURE FRAMEWORK FOR LA COUNTRIES 2005-2006

<table>
<thead>
<tr>
<th>Institution</th>
<th>Argentina</th>
<th>Brazil</th>
<th>Chile</th>
<th>Colombia</th>
<th>Mexico</th>
<th>Peru</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutions per 1 million inhabitants</td>
<td>2.46</td>
<td>0.76</td>
<td>1.66</td>
<td>1.66</td>
<td>0.49</td>
<td>n.a.</td>
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<tr>
<td>Branches per million inhabitants</td>
<td>102.44</td>
<td>95.09</td>
<td>94.36</td>
<td>91.70</td>
<td>80.87</td>
<td>n.a.</td>
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<tr>
<td>Accounts per inhabitant</td>
<td>0.40</td>
<td>0.50</td>
<td>0.10</td>
<td>0.60</td>
<td>0.30</td>
<td>n.a.</td>
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<tr>
<td>ATM machines per 1 million inhabitants</td>
<td>208.74</td>
<td>902.58</td>
<td>314.55</td>
<td>148.82</td>
<td>246.18</td>
<td>92.14</td>
</tr>
<tr>
<td>POS terminals per 1 million inhabitants</td>
<td>n.a.</td>
<td>1015398</td>
<td>n.a.</td>
<td>169585</td>
<td>152100</td>
<td>n.a.</td>
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<tr>
<td>Debit Card per Thousand Inhabitants</td>
<td>341.06</td>
<td>991.02</td>
<td>450.81</td>
<td>280.97</td>
<td>344.43</td>
<td>279.17</td>
</tr>
<tr>
<td>Credit Card per Thousand Inhabitants</td>
<td>342.35</td>
<td>418.67</td>
<td>247.36</td>
<td>98.78</td>
<td>195.90</td>
<td>164.42</td>
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<tr>
<td>Payment cards in circulation per 1 thousand inhabitants</td>
<td>222.00</td>
<td>295.00</td>
<td>166.00</td>
<td>62.00</td>
<td>111.00</td>
<td>n.a.</td>
</tr>
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</table>

Source: WGPS-LAC data as of December 2005, 2006 Global Payment Survey Data

### TABLE 4: INSTITUTIONAL AND INFRASTRUCTURE FRAMEWORK FOR CPSS COUNTRIES 2005-2006

<table>
<thead>
<tr>
<th>Institution</th>
<th>Canada</th>
<th>Germany</th>
<th>Japan</th>
<th>United Kingdom</th>
<th>United States</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutions per 1 million inhabitants</td>
<td>38.90</td>
<td>25.39</td>
<td>15.20</td>
<td>6.50</td>
<td>60.30</td>
<td>n.a.</td>
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<tr>
<td>Branches per million inhabitants</td>
<td>440.70</td>
<td>569.59</td>
<td>458.80</td>
<td>472.30</td>
<td>372.30</td>
<td>n.a.</td>
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<tr>
<td>Accounts per inhabitant</td>
<td>n.a.</td>
<td>0.50</td>
<td>4.17</td>
<td>2.23</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>ATM machines per 1 million inhabitants</td>
<td>1,631.00</td>
<td>653.88</td>
<td>1,068.00</td>
<td>1,006.78</td>
<td>1,235.00</td>
<td>1,208.77</td>
</tr>
<tr>
<td>POS terminals per 1 million inhabitants</td>
<td>17,697.00</td>
<td>7,018.69</td>
<td>9,725.00</td>
<td>10,453.94</td>
<td>16,963.00</td>
<td>27,975.32</td>
</tr>
<tr>
<td>Debit Card per Thousand Inhabitants</td>
<td>n.a.</td>
<td>1,069.25</td>
<td>3,092.26</td>
<td>1,132.32</td>
<td>907.33</td>
<td>1,458.51</td>
</tr>
<tr>
<td>Credit Card per Thousand Inhabitants</td>
<td>1,884.83</td>
<td>217.94</td>
<td>N/A</td>
<td>1,151.76</td>
<td>4,301.17</td>
<td>859.34</td>
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<td>Payment cards in circulation per 1 thousand inhabitants</td>
<td>n.a.</td>
<td>1370.00</td>
<td>512.00</td>
<td>235.00</td>
<td>520.00</td>
<td>n.a.</td>
</tr>
</tbody>
</table>

Source: WGPS-LAC data as of December 2005, 2006 Global Payment Survey Data

### TABLE 5: 2006 USE OF PAYMENT INSTRUMENTS ACCORDING TO VOLUME FOR LA COUNTRIES

<table>
<thead>
<tr>
<th>Payment Instrument</th>
<th>Percentage of Total Transactions</th>
<th>Percentage of Total Transactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Transfers</td>
<td>5.71</td>
<td>63.00</td>
</tr>
<tr>
<td>Direct Debits</td>
<td>16.85</td>
<td>6.94</td>
</tr>
<tr>
<td>Cheques</td>
<td>77.44</td>
<td>45.99</td>
</tr>
<tr>
<td>Payment Cards with a Debit function</td>
<td>n.a.</td>
<td>11.81</td>
</tr>
<tr>
<td>Payment Cards with a Credit function</td>
<td>n.a.</td>
<td>15.78</td>
</tr>
</tbody>
</table>

Note: Percentage in number of transaction data

Source: Central Banks, CPSS and WGPS-LAC as of December 2004, 2006 Global Payment Survey
VI. MAIN TRENDS IN PAYMENT INSTRUMENTS AND INFRASTRUCTURE USAGE IN SELECTED LATIN AMERICA COUNTRIES

### TABLE 6: 2006 USE OF PAYMENT INSTRUMENTS ACCORDING TO VALUE FOR LA COUNTRIES

<table>
<thead>
<tr>
<th></th>
<th>Argentina</th>
<th>Brazil</th>
<th>Chile</th>
<th>Colombia</th>
<th>Mexico</th>
<th>Peru</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Transfers</td>
<td>6.99</td>
<td>78.32</td>
<td>n.a.</td>
<td>29.18</td>
<td>92.61</td>
<td>4.11</td>
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<td>Direct Debits</td>
<td>1.41</td>
<td>2.29</td>
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<td>n.a.</td>
<td>0.03</td>
<td>n.a.</td>
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<td>Cheques</td>
<td>91.60</td>
<td>17.68</td>
<td>99.00</td>
<td>68.23</td>
<td>7.12</td>
<td>88.73</td>
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<td>Payment Cards with a Debit function</td>
<td>n.a.</td>
<td>0.52</td>
<td>0.37</td>
<td>0.81</td>
<td>0.10</td>
<td>1.80</td>
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<td>Payment cards with a Credit function</td>
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<td>1.19</td>
<td>0.63</td>
<td>1.78</td>
<td>0.14</td>
<td>5.36</td>
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*Note: Percentage in number of transaction data*
*Source: Central Banks. CPSS and WGPS-LAC as of December 2004. 2006 Global Payment Survey*

### TABLE 7: 2005-2006 USE OF PAYMENT INSTRUMENTS ACCORDING TO VOLUME FOR CPSS COUNTRIES

<table>
<thead>
<tr>
<th></th>
<th>Canada</th>
<th>Germany</th>
<th>Japan</th>
<th>United Kingdom</th>
<th>United States</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Transfers</td>
<td>10.90</td>
<td>42.20</td>
<td>29.20</td>
<td>1.03</td>
<td>1.00</td>
<td>26.36</td>
</tr>
<tr>
<td>Direct Debits</td>
<td>8.00</td>
<td>41.90</td>
<td>n.a.</td>
<td>37.29</td>
<td>16.00</td>
<td>10.50</td>
</tr>
<tr>
<td>Cheques</td>
<td>17.20</td>
<td>0.70</td>
<td>3.50</td>
<td>11.76</td>
<td>33.00</td>
<td>9.17</td>
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<td>E-money payment transactions</td>
<td>n.a.</td>
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<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
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<td>Payment Cards with a Debit function</td>
<td>39.10</td>
<td>12.50</td>
<td>0.30</td>
<td>42.84</td>
<td>27.00</td>
<td>27.16</td>
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<td>Payment Cards with a Delayed Debit function</td>
<td>n.a.</td>
<td>2.50</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Payment Cards with a Credit function</td>
<td>24.80</td>
<td>n.a.</td>
<td>67.00</td>
<td>7.08</td>
<td>23.00</td>
<td>26.81</td>
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</tbody>
</table>

*Note: Percentage in number of transaction data*
*Source: Central Banks. CPSS and WGPS-LAC as of December 2004. 2006 Global Payment Survey*

### TABLE 8: 2005-2006 USE OF PAYMENT INSTRUMENTS ACCORDING TO VALUE FOR CPSS COUNTRIES

<table>
<thead>
<tr>
<th></th>
<th>Canada</th>
<th>Germany</th>
<th>Japan</th>
<th>United Kingdom</th>
<th>United States</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit Transfers</td>
<td>55.40</td>
<td>88.50</td>
<td>78.60</td>
<td>2.31</td>
<td>22.70</td>
<td>48.33</td>
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<tr>
<td>Direct Debits</td>
<td>4.30</td>
<td>9.60</td>
<td>n.a.</td>
<td>32.68</td>
<td>18.70</td>
<td>34.65</td>
</tr>
<tr>
<td>Cheques</td>
<td>36.80</td>
<td>1.50</td>
<td>20.40</td>
<td>45.39</td>
<td>54.70</td>
<td>14.61</td>
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<tr>
<td>Payment Cards with a Debit function</td>
<td>1.40</td>
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<td>0.00</td>
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<td>1.30</td>
<td>0.79</td>
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<td>Payment Cards with a Delayed Debit function</td>
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<td>0.10</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Payment Cards with a Credit function</td>
<td>2.10</td>
<td>n.a.</td>
<td>1.00</td>
<td>5.66</td>
<td>2.50</td>
<td>1.62</td>
</tr>
</tbody>
</table>

*Note: Percentage in value of transactions, data as of December 2005.*
*Source: Central Banks. CPSS and WGPS-LAC as of December 2004. 2006 Global Payment Survey*
### ANNEX: ACH MARKET STRUCTURE AND CHARACTERISTICS IN SELECTED COUNTRIES

<table>
<thead>
<tr>
<th>Country of incorporation</th>
<th>Name of RPS</th>
<th>Ownership</th>
<th>Operator</th>
<th>Instruments processed</th>
<th>Participation is open to:</th>
<th>Number of direct participants&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Pricing&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>BECS (Bulk Electronic Clearing System)</td>
<td>APCA (i.e. the Australian Payment Clearing Association, which comprises the NCB, banks, building societies and credit unions)</td>
<td>Direct credits and direct debits</td>
<td>NCB, authorized deposit-taking institutions and a body corporate which is determined by the Management Committee to be subject to adequate prudential supervision and of sufficient financial standing (i.e. adequate resources)</td>
<td>55 (as of Dec. 2006)</td>
<td>The costs of running APCA are met by members in shares broadly proportional to their relative importance in the payments system</td>
<td>Since 1992 the Australian Payments Clearing Association (APCA) is responsible for managing the development and operation of the Australian payments clearing system. APCA issues the set of regulations and procedures governing the systems, including the rules of participation. Each clearing system is managed by a management committee reporting directly to APCA’s Board. The BECS system is not a centralized ACH, but relies upon bilateral arrangements between participants.</td>
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<tr>
<td>Belgium</td>
<td>BPAY</td>
<td>BPAY Pty Ltd (4 major banks)</td>
<td>Bill payments</td>
<td>Licensed financial institutions</td>
<td>180 (as of Dec. 2006)</td>
<td>Membership fees as well as fees to cover operational costs. Interchange fees apply.</td>
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<tr>
<td>Belgium</td>
<td>CEC (Centre for Exchange and Clearing)</td>
<td>NCB and representatives of the leading banks, the Post Office and the Belgian Bankers Association</td>
<td>NCB</td>
<td>Credit transfers, truncated cheques, bills of exchange, loading operations for e-purses and ATM/POS transactions</td>
<td>Licensed credit institutions, NCB, the Post Office and some payment organizations</td>
<td>22 (as of Dec. 2005)</td>
<td>Direct members pay a fixed annual fee. The operational costs of the CEC system are shared between its members in proportion to the volumes processed. Interchange fees apply.</td>
<td></td>
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<tr>
<td>Country of Incorporation</td>
<td>Name of RPS</td>
<td>Ownership</td>
<td>Operator</td>
<td>Instruments Processed</td>
<td>Participation is Open to:</td>
<td>Number of Direct Participants</td>
<td>Pricing</td>
<td>Comments</td>
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<tr>
<td>Brazil</td>
<td>SILOC (Sistema de Liquidação Diferida de Orden de Crédito Interbancários)</td>
<td>CIP (Câmara Interbancária de Pagamentos, owned by financial institutions)</td>
<td>Banco do Brasil's data processing center</td>
<td>Credit documents (DOCs) to make interbank credit payments. Since 2005 charging documents (bloqueto de cobrança*3) below the gross settlement reference value (R$ 5 thousand)</td>
<td>Licensed sight deposit taking financial institutions holding an account with the NCB</td>
<td>114 (as of June 2006)</td>
<td>A per-item processing fee is charged to participants. This fee is intended to cover administrative, operational and depreciation costs. An additional fee on return items is applied. Interchange fees exist, as well as special fees for issuing a copy of charging instruments.</td>
<td>The handling of cheques and other payment documents in Brazil mainly takes place through COMPE, a clearing house that is operated and managed by Banco do Brasil and regulated by the NCB. Since the 2005 reforms, the settlement of cheques in amounts equal or greater than the gross settlement reference value (i.e. R$ 250 thousand in 2005) are settled bilaterally and directly through the RTGS. The same applies for other charging instruments.</td>
</tr>
<tr>
<td>Brazil</td>
<td>SITRAF (Sistema de Transferência de Fundos)</td>
<td>CETIP's (Câmara de Custódia e Liquidação) processing center</td>
<td>Interbank credit transfers above R$ 5 thousand</td>
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<td>92 (as of Dec. 2007)</td>
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<tr>
<td>Brazil</td>
<td>TecBan (Tecnologia Bancária SA)</td>
<td>Pool of Brazilian banks</td>
<td>TecBan</td>
<td>Debit cards and cash withdrawals from the shared ATM network called &quot;Banco-24Horas&quot;, Interbank direct debits for participating banks.</td>
<td>Licensed banking institutions</td>
<td>45 (as of Dec. 2007)</td>
<td>n.a.</td>
<td>Starting in 2008, TecBan's clearing process has been taken over by CIP</td>
</tr>
<tr>
<td>Finland</td>
<td>PMJ (Perheiden Maailmanrau-hanjärjestö)</td>
<td>See Comments</td>
<td>Banks</td>
<td>Credit transfers, recurrent payments (e.g. salary and pension payments), direct debits and card transactions.</td>
<td>Licensed deposit banks which, furthermore, are members of the Finnish Banker’s Association.</td>
<td>10 (as of Dec. 2005)</td>
<td>New members pay an entrance fee. This fee should cover the initial investment costs for the design and installation of the system as well as any additional costs to accommodate new entrants. No other fees from PMJ arise since every bank bears its own costs. Since participation in POPS real-time system is further required, additional fees do stem from it.</td>
<td>PMJ is a decentralized retail payments system which is governed by a number of agreements both between the individual system participants and between these participants and the NCB. These agreements provide a framework of rules for the functioning of the system. Participating banks operate jointly the transfer system as there is no common multilateral clearing centre. All retail payments are cleared bilaterally between banks and settled at the central bank. Payments are transmitted between participants by batch file transfer using a proprietary communication network.</td>
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<tr>
<td>Country of incorporation</td>
<td>Name of RPS</td>
<td>Ownership</td>
<td>Operator</td>
<td>Instruments processed</td>
<td>Participation is open to:</td>
<td>Number of direct participants</td>
<td>Pricing</td>
<td>Comments</td>
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<tr>
<td>France</td>
<td>SIT (Interbank Teleclearing System)</td>
<td>Banks or groups of banks accepted as a member by the Extraordinary General Meeting of GSIT</td>
<td>GSIT (NCB and credit/financial institutions)</td>
<td>Credit transfers, direct debits, card payments and truncated cheques</td>
<td>Any credit or financial institution (article L. 311-1 of the Monetary and Financial Code) that manages means of payment and that, for any reason, issues or receives payment transactions that are accepted by the CFONB (French Standing Committee on Bank Organisation) for transit through the interbank circuits can participate in SIT.</td>
<td>13 (as of Dec. 2005)</td>
<td>There are two types of fees: i) fixed fees which depend on the type of membership and the number of gateways and stations; ii) variable fees which depend on the number of transactions exchanged.</td>
<td>In 2004, six credit institutions belonging to the GSIT created a company known as STET (Systèmes Techniques d’Echange et de Traitement). Since 2007 this corporation is acting as a service provider for the French retail payment system and it has taken over the processing and clearing of all national retail payments in France, thus offering a flexible infrastructure to comply with SEPA (Single Euro Payment Area) requirements.</td>
</tr>
<tr>
<td>Germany</td>
<td>RPS</td>
<td>NCB</td>
<td>NCB</td>
<td>Credit transfers, cheques and direct debits</td>
<td>Entities holding accounts with the Bundesbank (banks and public authorities)</td>
<td>267 (as of Dec. 2005)</td>
<td>Different fixed fees per transaction apply depending on the underlying instrument. Additional per transaction fees, decreasing as volume increases, also apply for transmitting payment orders to STEP 2. Additional service fees may be levied on receiving side under certain circumstances.</td>
<td>The RPS complements the giro networks and the bilateral interbank clearing arrangements within the German banking industry, and accounts for a small percentage of total retail payments traffic in Germany.</td>
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<tr>
<td>Italy</td>
<td>Bi-COMP (Banca d’Italia Compensazione)</td>
<td>NCB</td>
<td>NCB</td>
<td>ATM and POS transactions, cheques, direct debits, retail credit transfers, banker’s drafts, bills and postal instruments</td>
<td>NCB, banks, non-banking credit institutions with EU headquarters, entities providing clearing and/or settlement services, treasuries and ministries of finance of EU central or regional governments, and public sector entities of EU Member States</td>
<td>137 (as of Dec. 2005)</td>
<td>n.a.</td>
<td>Since 2005, the exchange of instruments and the activities prior to calculating net balances are taking place in a competitive environment, i.e. the retail sub-system of Banca d’Italia receives payment information from three different service providers which operate on a bilateral basis.</td>
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<tr>
<td>Country of incorporation</td>
<td>Name of RPS</td>
<td>Ownership</td>
<td>Operator</td>
<td>Instruments processed</td>
<td>Participation is open to:</td>
<td>Number of direct participants¹</td>
<td>Pricing²</td>
<td>Comments</td>
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<tr>
<td>Japan</td>
<td>ZENGIN</td>
<td>Tokyo Banker’s Association (TBA)</td>
<td>Tokyo Banker’s Association (TBA)</td>
<td>Domestic fund transfers such as remittances, direct credits (salaries and pensions), and payments resulting from the inter-regional collection of bills and cheques</td>
<td>Licensed financial institutions</td>
<td>154 (as of Dec. 2001)</td>
<td>Admission fee to the TBA. Furthermore, the operational costs of the Zengin Centre, communication costs and 20% of the operational costs of each relay computer (RC) are allocated among the participants in proportion to their respective volumes and values. The remaining RC costs are borne by each participant.</td>
<td></td>
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<tr>
<td>Mexico</td>
<td>SICAM</td>
<td>NCB</td>
<td>NCB</td>
<td>Credit transfers, cheques and direct debits</td>
<td>Licensed financial institutions</td>
<td>n.a.</td>
<td>A monthly flat-fee is charged to all participants. This fee entitles ACH members to present up to a maximum number of items per month. Each additional item is priced separately, according to a regressive scale. Interchange fees also</td>
<td></td>
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<tr>
<td>The Netherlands</td>
<td>EQUIENS</td>
<td>Equens N.V. (Banks)</td>
<td>ZVS (Banks)</td>
<td>Recurring mass payments (e.g. salaries), express payments, direct debits, debit and credit card payments, as well as e-money transactions</td>
<td>Licensed deposit-taking banks</td>
<td>68 (as of Dec. 2005)</td>
<td>n.a.</td>
<td>Equens first started operations in 2006 as the result of a merger between the Dutch Interpay Nederland B.V. and the German Transaktionsinstitut für Zahlungsverkehrsdienst-leistung en AG (DZ Bank and KBC Bank). Presently, Equens comprises two primary legal country organizations: Equens Nederland B.V. and Equens Deutschland AG.</td>
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<tr>
<td>Portugal</td>
<td>SICOI</td>
<td>NCB</td>
<td>SIBS (i.e. Sociedad Interbancaria de Servicios owned by banking entities)</td>
<td>Credit transfers, direct debits, cheques, commercial bills and ATM and POS transactions</td>
<td>Licensed banks and similar entities</td>
<td>40 (as of Dec. 2005)</td>
<td>The SIBS applies per transaction fees which furthermore depend on the type of instrument. The NCB also charges participants per balance and per</td>
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<tr>
<td>Country of incorporation</td>
<td>Name of RPS</td>
<td>Ownership</td>
<td>Operator</td>
<td>Instruments processed</td>
<td>Participation is open to:</td>
<td>Number of direct participants&lt;sup&gt;1&lt;/sup&gt;</td>
<td>Pricing&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Comments</td>
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<td>Spain</td>
<td>SNCE (Sistema Nacional de Compensación Electrónica)</td>
<td>Banks</td>
<td>Iberpay (banking entities)</td>
<td>Credit transfers, direct debits, cheques, bills of exchange and other operations</td>
<td>NCB, commercial banks, savings banks and credit cooperatives</td>
<td>24 (as of Dec. 2005)</td>
<td>Participants share the operational costs of the system through annual fees charged on them. Additional fees apply on the end of the NCB to cover the cost of providing a book-keeping service. Furthermore, interchange fees exist.</td>
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<tr>
<td>United Kingdom</td>
<td>BACS</td>
<td>BACS Payment Schemes Limited (Banks and building societies)</td>
<td>VOCALINK (banking entities)</td>
<td>Direct credit, direct debit and standing order payment instruments</td>
<td>NCB, banks and building societies</td>
<td>13 (as of Dec. 2005)</td>
<td>Vocal Ltd applies an annual tariff to settlement members of BACS Payment Scheme Limited to</td>
<td></td>
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<tr>
<td>Country of incorporation</td>
<td>Name of RPS</td>
<td>Ownership</td>
<td>Operator</td>
<td>Instruments processed</td>
<td>Participation is open to:</td>
<td>Number of direct participants¹</td>
<td>Pricing²</td>
<td>Comments</td>
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<tr>
<td>Spain</td>
<td>SNCE</td>
<td>Banks</td>
<td>Iberpay</td>
<td>Credit transfers, direct debits, cheques, bills of exchange and other operations</td>
<td>Depository institutions, agencies of a foreign bank, private bankers, corporations licensed to operate an agency in New York, the FRB of New York, the Government Development Bank of Puerto Rico, the Federal Home Loan Bank of New York</td>
<td>About 200 (mainly bigger banks in the New York area)</td>
<td>The private sector ACH processors apply a variety of fees, including transaction fees, access fees and fees for non-automated services.</td>
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<tr>
<td>United Kingdom</td>
<td>BACS Payment Schemes Limited</td>
<td>BACS Payment Schemes Limited</td>
<td>VOCALINK</td>
<td>Direct credit, direct debit and standing order payment instruments</td>
<td>NCB, commercial banks, savings banks and credit cooperatives</td>
<td>13 (as of Dec. 2005)</td>
<td>Voca Ltd applies an annual tariff to settlement members of BACS Payment Scheme Limited to cover the cost of providing a book-keeping service. Furthermore, interchange fees exist.</td>
<td></td>
</tr>
<tr>
<td>United States of America</td>
<td>ACH Network</td>
<td>NCB</td>
<td>NCB</td>
<td>Credit and debit transfers</td>
<td>Deposit-taking institutions</td>
<td>11,000 originating commercial routing numbers and 22,000 receiving commercial routing numbers</td>
<td>As of 2008, a fixed monthly fee and a per item fee are applied (as a function of volume and paid monthly). Additional fees charged for settlement and monitoring. Surcharges for cross-border items also apply. Inter-operator transactions subject to special fees. Interchange fees do not apply.</td>
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</table>


Note: Only ACHs that perform comparable functions to those in Colombia are mentioned in this Table. NCB = national central bank. n.a. = not available.

¹ Participation as members of the system and not as users, i.e. as direct clearers, thus holding an account with a settlement bank. Indirect/two-tier participants and final users of a given retail payment system are not listed here.

² This column provides information, where available, on the interbank pricing structure only. Interchange fees are further reported if publicly known.

³ Bar-coded standardized document that allows bills to be paid in any bank.
BALANCING COOPERATION AND COMPETITION IN RETAIL PAYMENT SYSTEMS

LESSONS FROM LATIN AMERICA CASE STUDIES

November 2008

Study Coordinated by Mario Guadamillas