



Standing Committee
for Economic and Commercial Cooperation
of the Organization of Islamic Cooperation (COMCEC)

Retail Payment Systems In the OIC Member Countries



COMCEC Coordination Office
October 2015



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For further information please contact:

The COMCEC Coordination Office

Necatibey Caddesi No:110/A

06100 Yüce-tepe

Ankara/TURKEY

Phone : 90 312 294 57 10

Fax : 90 312 294 57 77

Web: www.comcec.org

FOREWORD

Retail payment systems have been applied to one of the oldest problems of civilisations: how payment can be made for goods. In this report we address these systems primarily from the perspective of those relatively new technologies, businesses and processes that challenge cash-based systems. Our purpose is to explain these new technologies and their significance for OIC Member States and to offer recommendations on how to learn from best practices that can enhance the economies of these countries.

From the earliest barter systems to the instigation of symbolic value in the form of chits and accounts, to the full-fledged development of monetary systems, the problem of how to store, transport, standardise, distribute, secure and account for value has generated a myriad of solutions. For most of the twentieth century the world standardised such practices around physical national currencies, i.e. notes and coins authorised by national treasuries and central banks. These stores of value were underwritten first by gold and later by sovereign guarantees and as a consequence earned the confidence of the public to the extent to which such guarantees were credible. The transformations of the late twentieth century from cash to cashless payment systems, most notably credit, debit and prepaid cards in the advanced industrial economies, marked a subtle, but profound and soon widespread shift in thinking and behaviour. From that time the further abstraction of payment moved far beyond barter, debt and coin of tangible value, beyond promissory notes and symbols of national guarantees, to an ethereal concept of value, or debt, held in distant institutions and transported over public and private telecommunications infrastructures to rectify accounts held by many participant players geographically dispersed.

Once such an abstract concept of payment could be accepted—and in some societies it is more or less accepted—a vast variety of means and mechanisms might be adopted. This variety could be associated with different institutions and intermediaries, different forms of accounting, as well as diverse types of immediate value, stored value, debt and future value. New payment systems are applied by a wide range of organisations and not just states that underwrite notes and coins and sanction banks and credit card companies. It could also be undertaken by many other actors interested in becoming involved in payment systems such as large retailers, using their own credit cards, pre-paid cards for stored value, loyalty cards and schemes that reward and store symbolic value that can be used according to their own rules. It can be a system operated by a transportation network, such as Hong Kong's 'Octopus' card and Tokyo's 'Suica' card. It can be part-owned and run by companies such as Sony or Apple, or

telecommunications companies such as Vodafone, using not banking systems but systems devised and managed by services companies and those providing specialist products, such as Visa's subsidiary, Fundamo.

An equally bewildering variety of technologies are shaping not only payment systems but also new business models. For example, near field communications [NFC] systems facilitate funds transfer through communications standards, much as those using optical codes, short messaging systems [SMS] or biometrics that can transfer data. Others, such as mobile money schemes and 'blockchain' technologies (used in bitcoin, for example) entail radically different business models and shift control, power and responsibility from traditional players, licensed and regulated banks and national treasuries, to very different, and in some cases mysterious or veiled, institutions. There is no consensus on which system is best and perhaps there is reason to believe that some variety of systems could stabilise into multiple equilibrium states.

In consequence, we see the phenomena that dominate this report in two processes. One is the variety of technologies and systems applied to retail payments. The other is dramatically uneven development. Some of this unevenness is apparent in socioeconomic terms, where wealthy groups disproportionately benefit from new payment systems. Some unevenness can be seen between countries where differences in governance, power structures and national preferences determine differential advantages that benefit social groups or institutions. The purposes of this report are to describe and explain these differences, and to identify good practices that might benefit the OIC Member States.

This report was prepared by Idea & Idea Ltd. and launched at the OIC meeting in Ankara on 15 October 2015. This work has been co-ordinated by Jonathan Liebenau, PhD, as Principal Investigator, Mr. Nofie Iman, MSc, as Researcher, and Gül Berna Özcan, PhD as Project Manager. The project's expert advisor is Silvia Elaluf-Calderwood, PhD. All of the authors are affiliated with the University of London in addition to working with Idea & Idea Ltd (London).

It is published under the auspices of the the Standing Committee for Economic and Commercial Cooperation [COMCEC] of the Organization of Islamic Cooperation. We sincerely hope that this report will contribute to the mutual understanding of retail payment systems throughout the OIC and to the further development of settlement systems in OIC Member States, which in turn should help these markets to develop effective retail services by sharing good practices.

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LIST OF ABBREVIATIONS

ACH: Automated Clearing House

ADSL: Asymmetric digital subscriber line

AML/ATF: Anti-Money Laundering/Anti-Terrorist Financing

ATM: Automated Teller Machine

BIS: Bank for International Settlements

BRIC: Refers collectively to the countries of Brazil, Russia, India, and China

CAGR: Compound Annual Growth Rate

CEMEA: Central Europe, Middle-East, Africa

CGAP: Consultative Group to Assist the Poor

Cheque: A bill of exchange drawn on a bank by the current account holder

CPSS: Committee on Payment and Settlement Systems

Credit Card: Card allowing account holder to charge transactions against a line of credit up to an authorised amount

Credit Transfer: Electronic payment system where both payment instructions and funds move from payor bank to payee bank via batch-transfer system

COMCEC: The Standing Committee for Economic and Commercial Cooperation of the Organization of the Islamic Cooperation

CPMI: Committee on Payments and Market Infrastructures

Direct Debit: Pre-authorised batch-transfer electronic payment where payment instructions move from payee bank to payor bank while funds move in the opposite direction

EFT: Electronic funds transfer

EPC: European Payments Council

FinCEN: Financial Crimes Enforcement Network

GDP: Gross domestic product

IBAN: International Bank Account Number

IFC: International Finance Corporation

ISO: International Organization for Standardization

LVPS: Large-Value Payment System

MNO: Mobile Network Operator

NFC: Near-Field Communications; used for contactless payments using short-range wireless technology

Non-Cash Payments: Transactions made with instruments other than bank notes and coins, i.e., using credit cards, debit cards, credit transfers, direct debits, or Cheques

OECD: Organisation for Economic Co-operation and Development

OIC: Organisation of Islamic Cooperation

PIN: Personal identification number

POS: Point-of-Sale

RFID: Radio-frequency identification

RTGS: Real-Time Gross Settlement

SMS: Short Message Service

SWIFT: Society for Worldwide Interbank Financial Telecommunication

WAEMU: West African Economic and Monetary Union

EXECUTIVE SUMMARY

This report describes and analyses recent developments in retail payment systems for the OIC Member States. It presents an overview of the status of payment systems generally and a conceptual frame for the analysis of retail payment systems based on up-to-date research. We provide a description of retail payment systems in the OIC Member States generally and present detailed analyses for eight case study countries. These countries are: Egypt, Indonesia, Ivory Coast, Morocco, Nigeria, Pakistan, Turkey and the United Arab Emirates and were chosen to offer a range of features including differences among socio-economic forms, governance systems, infrastructure, financial services, geography and many specifics of their existing retail payments practices.

This report contains data from the central banks and national statistical offices, from the Bank for International Settlements, the World Bank, and many other official and industry sources. Case studies on retail payment systems as well as best practices from the industry have also been included in the report, where they help to support or deepen insight from the study. For example, the case of Bank Islam Malaysia's BI Card is presented as an example of Islamic banking principles interpreted for modern payment systems.

We can define retail payment systems to include all means of exchanging value between retailers and customers. In its most broad conception this would not exclude barter systems, loyalty cards that accrue value, credit schemes of all kinds as well as cash and credit cards. However, we have focused on those forms of retail payment systems that have so evidently extended or challenged legacy systems. These include especially point-of-sale [PoS] systems, mobile money systems, debit and stored value schemes, etc. Many of these are variously packaged into a variety of forms of e-wallet arrangements. Some work best, or only, over e-commerce systems. Others are intended primarily for large store networks and others for small shops.

Some payment systems seem to be the preserve of the wealthy, either by design or accident, while others are intended for the poor—sometimes subsidised, as with certain microfinance schemes that incorporate payment systems along with lending.

Highlights from the Report

1. There is a very wide range of systems currently employed, with no consensus as to standardisation despite efforts by the International Organisation for Standardisation [ISO] and the World Bank to establish best practices. The Bank for International Settlements

[BIS] and the World Bank are in 2015-16 conducting consultations concerning preferences, valued practices and innovative cases of retail payment systems. The contrasting contexts explain much about these differences, but there remains a great deal that can be learned and shared from our analysis of the most effective retail payment systems currently deployed.

2. There is rapid growth in the use of advanced retail payment systems in the countries under study. However, growth is imbalanced, often for reasons of inappropriate governance problems and inefficiencies in deployment. There is also little take-up so far of payment systems specifically applied to Islamic banking practices, with few banks offering to replicate the experience of Bank Islam Malaysia.
3. Some countries employ state of the art technologies in the operation of retail payment systems that are well integrated into the underlying infrastructure of payment systems nationally and internationally. There are many lessons that can be learned from these advanced applications.
4. Regulatory practices range widely and there is much to be learned from sharing experiences about regulation. These might be done at the level of the OIC COMCEC but they will need to include participation by a wide range of payment systems stakeholders.
5. Incumbent firms, most especially telecommunications network operators and banks, need to adapt to new forms of retail payment systems.
6. Retail payment systems can be easily linked to credit access, which can be beneficial to the economy as a whole as well as adding value to the new technologies. This is possible both with and without traditional regulated banks and can reach individuals with or without bank accounts or a personal credit rating.

Background and Methodology

This study was conducted during the winter and spring of 2015 with the intention of providing the first systematic description and analysis retail payment practices in the OIC countries. While some experts were consulted on payment practices, the key sources were from official statistics, trade associations, the trade press, company research outputs, trade interviews and other trade sources, along with national statistics offices, World Bank and IMF publications, Euromonitor and the OECD. The two most important recent research efforts have come from the Bank of International Settlements [BIS] Committee on Payments and Settlement Systems [CPSS, and its successor, the Committee on Payments and Market Infrastructures, CPMI] and the World Bank's Financial Infrastructure Service Line Payment Systems Policy and Research function through the Payment Systems Development Group. These have conducted surveys,

compiled cases and sought to establish best practices. They have been largely motivated by the high diversity in uptake, growth rates, and divergent practices and standards.

We devised a unique conceptual framework that allowed us to collect data systematically and to provide the indicators that we believe best show, or are proxies for describing, the most important features of the use of payment systems. Although we were influenced by the approach of the World Bank in their 2012 report, 'Developing a Comprehensive National Retail Payments Strategy', we determined that the OIC countries had some unique characteristics that needed to be taken into account. We therefore determined which characteristics of the economies of OIC Member States are relevant to understanding their retail payment systems and this brought us to consider the role of mobile payments somewhat more.

Retail payment systems are deeply rooted in legacy banking systems, yet they have a number of distinct characteristics that have come about as the result of their hybrid nature. In addition to the normal relationships between depositors and lenders, retailers are participating parties, rather than merely recipients of monies when they use payment systems. A wider range of participants are deeply engaged than in some other kinds of banking functions, such as inter-bank transfer systems, so their motives, powers and capabilities need to be taken into account.

Differences Among Countries

While the OIC is broadly distinct from other groups of nations insofar as its member states all have significant Muslim populations, they differ amongst themselves in ways that mirror the broader differences among nations worldwide. Since there is no consensus about which systems might be most appropriate by any standard criteria, these differences are neither surprising nor are they, in themselves, indicators of particular problems. Only by deeper, contextualised analyses can we see that in some cases the absence or slow dissemination of particular technologies, institutions or procedures indicates something about the governance, preferences, capabilities or access to modern payment systems.

In the tables below, which are further explained in chapter 5 of the report and extended in Annex 2, we summarise the main differences among the eight case study countries. Here we can see not only a diversity of means of using retail payment systems but also a range of experiences that are relevant. While in a few countries, such as Great Britain, most or even all of these methods might be used, this has come about not because the full range of forms is necessary but rather because first-movers in largely unregulated business sectors tend to experiment and compete and consequently pass through a period when alternatives systems have fought for dominance.

Table 1. Qualitative comparison

| | Egypt | Indonesia | Ivory Coast | Morocco | Nigeria | Pakistan | Turkey | UAE |
|----------------------------|---|--|--|---|--|---|---|--|
| Bank supervision | The Central Bank of Egypt (CBE) | Bank Indonesia (BI) , now moved to new regulator, Otoritas Jasa Keuangan (OJK) | The Central Bank of West African States (BCEAO) | The Bank Al-Maghrib, founded as the successor to the Banque d'Etat du Maroc | The Central Bank of Nigeria (CBN) | State Bank of Pakistan (SBP)] | The independent Banking Regulation and Supervisory Agency (BRSA) or Bankacılık Düzenleme ve Denetleme Kurumu (BDDK) | Central Bank of the UAE |
| Legal Regulatory Framework | The Law of the Central Bank, the Banking Sector and Money contains the legal basis for the oversight function of the Central Bank of Egypt (CBE). | Central Bank Act, the UU No. 23/1999 on Bank Indonesia (17 May 1999), then amended with UU No.3/2004 (15 January 2004) | BCEAO Bill No. 15/2002/CM/UE MOA related to payment systems in the WAEMU space issued on September 2002. | Under the banking law, The Bank Al-Maghrib and its Governor are operationally independent in making decisions on banking and payment supervision. | CBN Act of 1958 (amended with CBN Decree No. 24 of 1991), CBN Decree Amendments No. 3 and No. 4 of 1997, No. 37 of 1998, No. 38 of 1998, 1999 and CBN Act of 2007. | The State Bank of Pakistan is a central bank established under the State Bank of Pakistan Act, 1956. Other companies were established under the Banking Companies Ordinance, 1962. The Financial Institutions (Recovery of Finances) Ordinance, 2001 provides further legal structure . | The Central Bank of the Republic of Turkey is responsible for meeting financial system stability, operation, regulation and oversight of payment systems. The Banking Regulation and Supervision Agency (BRSA), issues licences, and supervises major financial institutions. | Union Law No. 10 of 1980 regulate the central bank, the monetary system, as well as organisation of banking and payment systems. |
| Banking service provision | There are 5 public sector banks, 27 private and joint-venture banks and eight branches of foreign banks operating in | There are 120 commercial banks in Indonesia (four state-owned commercial banks, 79 private national banks, 26 government | There are more than 20 banks, including international banks, regional banks, and private banks (2012), | In 2011, there were 76 financial institutions, including 16 commercial banks, 37 financing companies, 6 offshore banks, | There are 24 banks operating in Nigeria. There also exists a network of highly structured community, development | There are 5 public sector commercial banks with 2,022 total branches, 22 local private banks with 8,388 total | There are 47 banks (13 investment banks, 25 commercial banks, 4 participation (Islamic) banks and 5 branches of foreign banks) | There are 23 domestic commercial banks (three of which are Islamic banks), 28 foreign banks operating in the UAE, as well as |

| | | | | | | | | |
|----------------------------|---|--|--|--|--|--|---|---|
| | Egypt. | regional banks and 11 private Islamic commercial banks). | | 14 micro-finance associations. | and microfinance banks and financial institutions, which serve SMEs and microfinance needs. | branches, 7 foreign banks with 27 branches, as well as 4 specialised banks with 547 branches. | operating in Turkey, in addition to 48 representative offices of foreign banks. | 110 representative offices of foreign banks. Emirates NBD is the largest bank in terms of total assets. |
| Large Value Payment System | The RTGS system Automated Clearing House (ACH). | BI-RTGS SKNBI | BCAO-RTGS | Système des Règlements Bruts du Maroc (SRBM) | Central Bank Interbank Funds Transfer System (CIFTS). Nigerian Automated Clearing System (NACS) Automated Clearing House (ACH) | Pakistan Real-time Interbank Settlement Mechanism (PRISM) | TIC-RTGS | UAE Funds Transfer System (UAEFTS) Image cheque clearing system (ICCS) |
| Retail Payment System | Cash. Cheques Credit transfers Payment cards Direct debits Drafts. Giros. Cross-border Mobile money | Cash Credit transfers Direct debits Payment cards Cheques and bilyet giros Postal instruments Electronic money Cross border Mobile money | Cash Cheques Credit transfers Payments cards ATM Transaction Mobile Banking/Payments Bills of exchange Promissory notes | Cash Cheques Credit transfers Debit transfers Payments cards Mobile money | Cash Cheques Credit transfers Debit transfers Payment cards Mobile payment Internet payment | Cash Cheques Payment cards Mobile money | Cash Credit transfers Direct debits Cheques Payment cards Promissory note Postal instruments | Cash Cheques Credit transfers Direct debits Payment cards Electronic money Drafts Giros Cross-border |
| General outlook | Slower growth, but not negative Increasing competition among the leading players Lack of infrastructure make smartphones and tablet PCs increasingly popular The rising | Payment cards remains prevalent The role of e-money is increasing MNOs are increasing their stake in providing e-money Banking and financial services are mainly | Cash remains the popular means of transaction Mobile payment is a quite recent but fast-growing phenomenon Mobile payment systems have a great potential in contributing towards financial inclusion | Cash payments still dominate, and electronic payments have also seen increase usage Most Moroccan consumers remain cautious when making purchases via the internet The competitive environment did | Cash dominated the transactions CBN encourage the elimination of the amount of cash and coins Risk and security management are the major challenges A series of initiatives had been | Cash-dominant, sometimes even for large business transactions. Shops and restaurants rarely accept cards, or charge a premium of 2.5%. There are no 3rd party wallets, | Payment cards demonstrated volume and current value growth Pre-paid cards demonstrated the highest growth in terms of cards in numbers and value Regulations limit the performance of personal credit cards | Banks worked together to raise awareness of the safety of using cards at POS rather than solely for ATM withdrawal A huge influx of expatriates had a profound positive effect on payment cards, with more people |

| | | | | | | | | |
|--|--|---|--|---|--|--|--|--|
| | ownership of smartphones and tablet PCs Debit cards dominated the payment circulation | focused in the more developed cities and urban markets Huge gaps in terms of access to various services and technologies Payment cards are also used as a status symbol | | not change significantly in 2013 Banks also became more active in terms of offering mobile banking solutions Small businesses are still reluctant to embrace credit card acceptance | implemented to improve their positioning in the global community | localised PayPal, nor 3rd party payment service providers. | Private banks led financial cards in value terms | using public transport and roads Rising number of consumers opting to shop online and through their mobile phones Premiumisation consumers are on the rise |
|--|--|---|--|---|--|--|--|--|

Source: Compiled from official statistics, trade associations, trade press, company research, trade interviews, trade sources, and Euromonitor International

Table 2. Quantitative comparison

| | Egypt | Indonesia | Ivory Coast | Morocco | Nigeria | Pakistan | Turkey | UAE |
|--|--------------|------------------|--------------------|----------------|----------------|-----------------|---------------|------------|
| Population | 86,895,099 | 253,609,643 | 22,848,945 | 32,987,206 | 177,155,754 | 196,174,380 | 81,619,392 | 5,628,805 |
| GDP per capita | \$11,100 | \$10,200 | \$2,900 | \$7,700 | \$6,100 | \$4,700 | \$19,600 | \$65,000 |
| Number of banks | 32 banks | 120 banks | 20+ banks | 76 banks | 24 banks | 38 banks | 47 banks | 51 |
| Number of PoS terminals | 54,400 | 698,100 | 331 | 47,000 | 121,886 | 34,945 | 2,591,900 | 114,000 |
| Number of ATMs | 7,000 | 76,300 | 396 | 6,000 | 14,764 | 8,438 | 45,500 | 4,900 |
| Card in circulation | | | | | | | | |
| - ATM cards | 15,725,200 | 118,386,300 | n/a | 9,237,400 | 1,300,000 | 6,400,000 | 143,374,500 | 9,255,100 |
| - Debit cards | 14,432,100 | 95,313,000 | n/a | 6,698,800 | 900,000 | 5,900,000 | 100,165,000 | 6,863,000 |
| - Credit cards | 2,397,500 | 15,176,100 | n/a | 118,000 | 300,000 | 1,500,000 | 56,835,200 | 4,383,400 |
| - Charge cards | - | 454,300 | n/a | 241,800 | 400,000 | 300,000 | - | 55,300 |
| - Pre-paid cards | 220,200 | 37,108,000 | n/a | 192,400 | n/a | n/a | 19,507,100 | 3,082,300 |
| - Store cards | - | - | n/a | 1,370,300 | n/a | n/a | - | - |
| Card in circulation to population ratio | | | | | | | | |
| - ATM cards | 18.10% | 46.68% | n/a | 28.00% | 0.73% | 3.26% | 175.66% | 164.42% |
| - Debit cards | 16.61% | 37.58% | n/a | 20.31% | 0.51% | 3.01% | 122.72% | 121.93% |
| - Credit cards | 2.76% | 5.98% | n/a | 0.36% | 0.17% | 0.76% | 69.63% | 77.87% |
| - Charge cards | - | 0.18% | n/a | 0.73% | 0.23% | 0.15% | - | 0.98% |
| - Pre-paid cards | 0.25% | 14.63% | n/a | 0.58% | n/a | n/a | 23.90% | 54.76% |
| - Store cards | - | - | n/a | 4.15% | n/a | n/a | - | - |

Source: Compiled from official statistics, trade associations, trade press, company research, trade interviews, trade sources, and Euromonitor International

1. INTRODUCTION

A sound and stable macroeconomic and financial system is a prerequisite for enhancing the visibility of financial markets and building institutional capacity for financial systems. The existence of a wide range of payment instruments is essential to support customers' needs in a market economy. A less than optimal use of payment instruments may ultimately have negative impacts on economic development and growth by for example distorting markets, raising transaction costs, or discouraging trade. Moreover, the safe and efficient use of money as a medium of exchange in retail transactions is particularly important for the stability of the currency and a foundation of the trust people have in it.

Since the first decade of the twenty-first century, many innovations in retail payments have been launched. This has influenced the way consumers choose to pay and shapes payment processes. Innovations in retail payments not only decrease operating costs and processing times, they also increase social welfare. However, these innovations have raised several issues regarding the stability, robustness, as well as effectiveness of the retail payment systems.

1.1 Retail Payment Systems in the OIC Member States

Retail and bank payment systems have become a focus of concern along with other aspects of financial services, all the more so after the recent financial crises (CGAP, 2008) and the coincident proliferation of digital payment systems. Central banks, ministries responsible for monetary stability, large and small businesses all have expressed anxieties about how it is best possible to monitor, enforce and control the proliferation of payment systems and to ensure that they are beneficial to the national economy and consistent with national law. Numerous retail payment services are being introduced, including access to electronic payments and internet banking, and yet many of these efforts fail.¹

The OIC Member States are expected to continue expanding their economy supported by technological change and growth momentum among the major economies. A significant contributors to the broader stability and effectiveness of financial systems are retail payment systems, particularly in ensuring consumer confidence and contributing to the functioning of commerce (CPMI, 2014). The safe and efficient functioning of retail payment system is undoubtedly becoming a core concern of most central banks. However, most retail payment

¹ For example, most, if not all, of the dozens of mobile payment services available in EU countries and listed in the Electronic Payment Systems Observatory (ePSO) database in 2002 now have been discontinued (Carat, 2002). In other study, Dahlberg et al. (2008) questioned why some initiatives such as Visa Electron and Paypal were highly successful while most mobile payment initiatives were remained stagnant.

systems are used for the bulk of mainly low-value payments to and from individuals, and between individuals, companies and public authorities. While they may not appear to be 'systemically important', they contribute to both the stability and efficiency of the financial system as a whole and to citizens' confidence in their states. As such, many countries regard retail payment systems as a component of 'critical infrastructure'.

To facilitate the development of better retail payment services, it is important to understand previous studies about retail payments and markets. New payment service businesses create the opportunity to disrupt established markets, however there are many factors that might contribute to such changes, making it all the more difficult to assess which systems are likely to succeed. Banks and financial institutions, mobile network operators (MNOs), and incumbent mobile payment service providers try to understand this issue, but their analyses are rarely based on empirical data and large-scale research. Much available information is compiled by participants, such as Vodafone, in ways that allow them to focus on their own participation and interests.² As such, this research explores the importance of efficient retail payment systems and sheds light on the business value of retail payment services. This study also develops an integrated framework for the evaluation of the retail payment system by policy makers in the OIC Member States.

1.2 Objective of the Report

We focus on policy- and practice-relevant knowledge about how retail payment systems are being used in the OIC Member States. The underlying question is: How are the OIC Member States adapting and using retail payment systems to promote financial stability, and how does this affect their development? The research further describes which public institutions such as governments and central banks, financial institutions and telecommunication companies affect the use and proliferation of differing payment systems. This research is intended to inform and provide actionable recommendations for the relevant policy makers.

The main features of the report are to:

1. Identify the conceptual framework for the analysis of retail payment systems and of recent developments internationally.
2. Provide an analysis of the current retail payment systems of OIC Member States.
3. Analyse the selected OIC Member States in terms of retail payment systems in line with international best practices.

² See http://www.vodafone.com/content/index/about/about-us/money_transfer.html; see also the World Bank report on M-Pesa: http://siteresources.worldbank.org/AFRICAEXT/Resources/258643-1271798012256/M-PESA_Kenya.pdf

4. Assess the main challenges and obstacles for retail payment systems in selected OIC Member States.
5. Provide appropriate policy recommendations to enhance retail payment systems in the OIC Member States.

1.3 Scope and Description

Given that retail payment systems play important roles within the financial system as well as the rest of the economy, we deal with it in the context of financial services generally. The report provides a review of the current situation of retail payment systems in OIC Member States, identifying current legal and institutional frameworks concerning retail payment systems.

In doing so, first, this report identifies the conceptual framework of retail payment systems, examines the literature as well as regional and international experiences. The report provides an analysis of the latest trends and current approaches concerning retail payment systems worldwide. Second, this report provides a snapshot of retail payment systems in the OIC Member States by exploring current practice and recent developments. Third, it scrutinises selected OIC Member States in detail: Egypt, Indonesia, Ivory Coast [Côte d'Ivoire], Morocco, Nigeria, Pakistan, Turkey, and the United Arab Emirates. The report ends with a set of policy recommendations.

1.4 Structure and Organisation of the Report

The report is divided into six chapters plus appendices. Following this chapter's introduction to the scope and objectives of the study, Chapter 2 describes the background of payment systems, particularly in the context of OIC Member States. Chapter 3 discusses retail payment systems broadly, followed by in-depth case studies in Chapter 4. The next chapter summarises evidence and analyses the findings. We conclude with recommendations for policy and practices in Chapter 6.

2. BACKGROUND

Payment systems play an important role not only within the financial system but also for the rest of the economy. A country's payment system is the backbone of its economy and without such effective systems there will be reduced economic activity and everyday commerce will face significant obstacles (Scott, 2014). In following World Bank usage, we understand a payment system to be infrastructure that is comprised of institutions, instruments, rules, procedures, standards, and other technical means established to enable the transfer of monetary value between parties discharging mutual obligations (World Bank, 2008).

A payment system is a network of interconnecting entities that facilitates the exchange of data required to initiate, authorise, clear, and settle cash or credit claims between payors and payees (Scott, 2014). An efficient payment system accomplishes these tasks at a relatively low cost to the parties involved. Payment systems are not mere infrastructure such as roads and bridges—they come in various forms, as driven by the needs of transactors, to facilitate economic transactions.

Every year, the global economy executes about \$500 trillion of 'real economy' payment transactions, about \$100 trillion of which represent retail sales transactions and bill payments (Mellyn, 2012). About 85% of individual transactions by volume are executed in 'cash' legal tender bank notes and coins. The remaining 15% of transactions by volume, representing over 90% of the value, are largely executed in the retail payments system (Mellyn, 2012), as distinct from the large value or wholesale payment systems that today are operated by central banks to provide real time gross settlement (RTGS). However, this is not always the case. For example, Mexico's Central Bank (Banco de Mexico's) has set up the Interbank Electronic Payment System (SPEI), which is a combination of real-time and multilateral settlement systems. SPEI was designed for low operating cost and does not impose a threshold on transaction value—making the line between large and small value payment system became blurred.

In discussing payment systems, a distinction is usually made between wholesale and retail, with the main differences between the two involving volume of transaction and the participants involved.³ Thus, payment systems can be broadly classified into two categories: large value payment systems (LVPS) and the retail payment system; we focus here on retail payment systems. Both forms of payments also bring with them a distinct set of issues that

³ Retail payments are usually small in value but high in volume and dominated by non-banks or non-financial institutions.

dominate discussion and policy formulation.⁴ It is also the case that most, but not all, retail payment systems are dependent upon LVPS. They do so both formally, in that they rely upon their technologies and associated standards, procedures and institutions, and informally in that users are commonly encouraged when utilizing retail payment systems by the qualities of LVPS. Those qualities include technical effectiveness, trustworthiness, access and reliability.

2.1 Defining Retail Payment Systems

Retail payment systems can be defined as mainly consumer payments with relatively low value and urgency (CPSS, 2009). Retail payments differ from large value payment systems in several ways: by the character of both payor and payee, by scale, by urgency, and by regulatory engagement.

Large-value payment systems can be defined as a set of instruments, banking procedures and, interbank funds transfer systems that ensure the circulation of money (World Bank, 2008).

Retail payment systems have other distinct features that (1) typically relate to the purchase of goods and services by consumers and businesses, (2) are executed using a greater variety of payment instruments than large-value payments, and (3) make more extensive use of private sector systems for transaction processing than do large-value payments for which RTGS systems are largely used (CPSS, 2012).

Retail payment systems can be classified into the following purposes (FFIEC, 2010):

1. Purchase of goods and services: Consumers can buy goods and services at the point-of-sale (PoS) (e.g., in person at a merchant location, through the internet, or by telephone) such as with traditional retailers, and through unattended payment transactions, as with vending machines.
2. Bill payment: Consumers may choose to pay recurring or nonrecurring bills and invoices via electronic bill payments. A particular biller's periodic recurring invoices can be electronically paid individually or set up to be paid automatically to a payment schedule.
3. P2P payments: The vast majority of consumer-to-consumer payments are conducted with checks and cash, with some transactions using electronic person-to-person (P2P) payment systems. The expansion of systems that permit customers to conduct P2P payments is anticipated through account-to-account (A2A) transfers, which use either the automated

⁴ In wholesale payments, a focus is in the form of which settlement takes place. In retail payments, a focus is usually in the consumer adoption and network externalities.

clearing house (ACH) or automated teller machine (ATM) networks for movement of funds.

4. A2A payments: With A2A payments, the consumer moves funds from his/her account at a financial institution to the account of another individual or business at the same or a different financial institution.
5. Cash withdrawals and advances: Consumers use retail payment instruments to obtain cash from merchants or automated teller machine (ATMs) (i.e. cash machines). Consumers can also use personal identification number (PIN)-based debit cards to withdraw cash at an ATM or receive cash back at some PoS locations.

While large-value payment systems tend to be conservative and more traditional, retail payment systems continue to evolve with changes in technology and business models. These developments enable financial institutions to offer new products and services, lower the barriers to business entry for smaller institutions and exploit economies of scale.

As technology changes, the consumer can exercise many transactions without physical presence such as via the internet or by telephone or mobile device. Retail payment instruments have expanded beyond traditional media (i.e., cash, checks, and credit and debit cards) to prepaid cards, contactless debit and credit cards, and other contactless devices such as key fobs and mobile phones. In addition, merchants may convert cheques to electronic form at the point of sale (POS) and use the ACH system for clearing and settlement.

2.2 Actors and Key Players in Retail Payment Systems

Numerous types of institutions create and/or adopt payment innovations. Although it can be initiated by the private or public sector, the major players that are found most commonly in OIC countries are as follows:

1. Banks. Due to their unique access to interbank payment systems, banks play a key role in the provision of retail payment services. While banks do not always develop innovations in-house, they have a pivotal role in their adoption. Generally, small banks differ from large banks in the type and timing of payment investments. For the most part, small banks serve niche customer bases and are not usually innovators in the payments arena, although there are exceptions. Many small banks provide non-payment-related customised services to niche customer bases. Small banks are not often the early adopters of new payment innovations. Instead, they generally choose to buy off-the-shelf products that offer relatively homogenous products or outsource the processing of these products to third

parties. Small banks generally view payment services as an essential part of a bundled good that is necessary to retain customers.

2. Mobile network operators (MNOs). A mobile network operator is a provider of wireless communications services that owns, controls, or has regular access to all the elements necessary to sell and deliver services to an end user including radio spectrum allocation, wireless network infrastructure, back haul infrastructure, billing, customer care, provisioning computer systems and marketing and repair organisations. In addition to obtaining revenue by offering retail services under its own brand, an MNO may also sell access to network services at wholesale rates to mobile virtual network operators. In this category, we can also include mobile operators, mobile device manufacturers, applications providers, terminal providers and third party agents (Khiaonarong 2014).
3. Non-bank innovators. Non-bank innovators can be described as relatively small firms that create and market new payment or payment-related products. PayPal, an example of a nonbank innovator, successfully developed a peer-to-peer electronic payment vehicle. Non-bank innovators have played a key role in developing online account aggregation. Account aggregation allows consumers to view their financial assets online in one place. While account aggregation is not a payment product, it is often bundled with payment products such as demand deposit accounts.
4. Non-bank data processors. Today, large data processors are playing an increasing role in processing payment-related information for financial institutions and other payment system participants. Some of the larger data processors purchase innovations that have been introduced in the marketplace or partner with financial institutions to bring products to market. These entities take advantage of their economies of scale and scope. They may provide services such as cheque clearing, ACH processing, and credit and debit card processing services. To date they operate in leading financial centres, but they are likely to begin operating in some OIC countries soon.
5. Joint ventures and consortia. Joint ventures may include members within the same industry or across industries. Innovations made by joint ventures generally have different characteristics than those developed by individual entities. Successful innovations by established joint ventures generally leverage existing financial infrastructure and brand recognition. Probably the most recognisable joint ventures are MasterCard and Visa. While these card associations initially focused on credit cards, they have now expanded to other payment products. In addition, clearing houses such as the Clearing House for Interbank Payments (CHIPS) and the Electronic Payment Network (EPN), and industry trade groups

such as the National Automated Clearing House Association (NACHA) also continue to introduce new products and services as well as distribute costs and limit risk exposure.

2.3 Classification of Retail Payment Systems

Retail payment systems can simply be divided into two broad categories: cash and non-cash payment systems. Non-cash payment systems consist of cheques, debit cards, credit cards, internet (online) payments, and mobile payments. They each have distinct legal characteristics, technical features and systemic risks.

1. Cheques: A cheque is a written, dated and signed instrument that contains an unconditional order from the drawer that directs a bank to pay a definite sum of money to a payee. For most of the twentieth century cheques dominated non-cash methods of retail payment, only slowly superseded first by credit cards and later other instruments and methods.
2. Credit cards: A card issued by a financial company giving the holder an option to borrow funds, usually at point of sale. Credit cards charge interest and are primarily used for short-term financing. Interest usually begins one month after a purchase is made and borrowing limits are pre-set according to the individual's credit rating.
3. Debit cards: A payment card is issued as either a PIN-based debit (ATM) card or as a signature-based debit card from one of the bankcard associations. A payment card is issued to a person for purchasing goods and services through an electronic transfer of funds from a demand deposit account rather than using cash, checks, or drafts at the point of sale.
4. Internet (online) payment: An online payment service allows buyers to use a credit card or electronic bank transfer to pay for goods or services purchased online. Online payment refers to money that is exchanged electronically. Typically, this involves use of computer networks, the internet and digital stored value systems. Payment processing for online vendors, auction sites and other users are provided by services such as Paypal, whose revenue is based on per-transaction fees.
5. Mobile payment: Money rendered for a product or service through a portable electronic device such as a cell phone, smartphone, tablet, PDA, or other mobile device. Mobile payment technology can also be used to send money to friends or family members. There are more than 120 mobile payment projects developed in at least 70 emerging markets (Beshouri et al., 2010), however, it has only taken off in a couple of countries.

Additionally, according to the classification of the Bank for International Settlements [BIS] (2003; also used by the CPSS 2012 report), there are seven main instruments that differ in their form, systems architecture, accountability, governance and other criteria:

1. Cash. The oldest and most widely used instrument is cash. In terms of number of transactions, 'cash is (still) king': the average person makes some 500 payments a year, and cash is used for the majority of these. There are relatively few sources of hard data on cash transactions; neither the number of transactions nor their value is known with any certainty. Most data rely on samples and surveys, which are not always accurate, since people tend to underreport their small purchases.
2. Checks. This instrument is the most widely used non-cash instrument in leading economies (the BIS-11 countries). This is largely driven by Americans, who write 80% of all checks. Most of these are the familiar non-guaranteed checks written from a checkbook by consumers and businesses, although traveller's checks, Eurocheques and bankers drafts are also included in this category. While easier to track than cash, data on checks are not entirely reliable.
3. ACH credit transfers. ACH (automated clearing house) credit transfers are used for many of the same transactions as checks but unlike checks they are seldom used at the point of sale (PoS). They differ from checks in that they are sent to the bank of the payor; this bank then executes the transaction either in-house (if the payee also has an account with the bank) or through a clearing house. Technically this category also includes large value transfer systems that are mainly used for interbank payments, such as Fedwire and Target; these real time gross settlement (RTGS) systems directly post transactions to central bank accounts as they occur, providing immediate finality of payment.
4. ACH direct debit. In a direct debit the payor (debtor) has authorised the payee (creditor) to present the bank of the payor with an amount and account number to be credited. Direct debits are cleared through the same ACHs as credit transfers, and rely on much of the same technology.
5. Credit card payments. These are payments using cards at the PoS, where the money is debited to a 'card-account'. The resulting balance is usually presented monthly to the cardholder. If creditors have the option to pay only part of the balance then it is a true credit card, otherwise it is a charge card or a delayed debit card. This category includes the charge and credit cards of Visa, MasterCard, American Express, Diners, etc., as well as many retailer cards (e.g. department stores and petrol chains).
6. Debit card payments. These are card transactions that are directly debited to a demand deposit account. Two varieties of debit cards exist: (1) PIN-debit, where the customer uses

the same PIN as for an ATM, and the transaction is routed through an ATM network (or its equivalent), and (2) signature debit; to a consumer and merchant these signature debit transactions are very similar to a Visa or MasterCard credit card transaction, except that they are directly debited from the consumer's checking account.

7. Card-based e-purses and electronic cash. Card based e-purses are loaded from the current account; this money can then be spent in stores, vending machines and over the phone or internet. They have yet to gain wide usage. A different type is e-cash, where the electronic 'bits and bytes' represent real money payable to bearer. These bits can be stored on a chipcard or on a hard disk. Again, usage has been disappointing: the best-known examples, Mondex (cards) and eCash (hard disk), are both defunct.

The above list of instruments is neither complete nor unambiguous. It describes the main classes and species.⁵ It excludes for example the draft and bill of exchange, which are mainly of historical importance. Also, new instruments keep appearing that are not easy to classify, especially with regard to loyalty schemes, online payment practices and some e-wallet novelties.

2.4 Characteristics of Retail Payment Systems

Payment systems in general exhibit a number of economic features such as large fixed costs, variable costs, adoption externalities, and usage externalities (OECD, 2006). The fixed costs of a payment platform include the extensive computer and communications infrastructure that must be put in place by the platform and its banks, as well as the extensive infrastructure put in place through merchant terminals and their intermediaries. Variable costs for the payment platform may include manual authorisations that require intervention of individuals and manual oversight of evolving fraud risks.

Network externalities have certainly existed in the area of retail payment systems. However many payment networks display indirect network effects: for example the value of a credit card to its holder depends on the number of merchants that accept it, not on the number of other credit card holders; but since more card holders lead to more accepting merchants, an increase in the number of card holders indirectly affects the network value to an individual card holder. These may include adoption and usage externalities. To the extent that at least

⁵ See also Leibbrandt (2004)

one of these externalities continues to exist, the market is two-sided, though the intensity of the externalities may vary across payment systems, countries and even within countries.⁶

Adoption externalities relate to the fact that a payment platform with more payment cards issued is relatively more attractive to merchants than one with fewer cards issued. Similarly, a payment system with many merchants registered may be more attractive to consumers than one with fewer merchants. Reaching a minimum scale for success may require years of investment including much sunk cost. Moreover, there is no guarantee of success, even by payment systems that would be successful if they reached sufficient scale.

Unarguably, retail payment systems represent a substantial part of the whole economy. For instance, as early as 2000, Humphrey et al. (2000) estimated that the United States spent \$225 billion per year just to make payments, or 3% of GDP.⁷ For other countries, the percentage of GDP is likely to be lower: these countries generally use cheaper instruments than cheques and the number of non-cash transactions is lower than in the US. Meanwhile, De Grauwe et al. (2000) do include the cost to the merchant and get a cost of 0.7% of GDP for cash alone. Some 0.2% is borne by banks, leaving 0.5% to be borne by consumers and merchants. Overall these estimates indicate that the cost of the payment system represents something in the range of 1.5-3% of GDP for developed countries. It is also expected that the cost of the payment systems in developing countries will be slightly larger. In most cases, this is lower than the cost of operating cash systems, where the burden is widely distributed as risk, and associated insurance and security expenditure, to all users and especially small businesses.

Indeed, costs vary significantly across the various instruments. Unfortunately, most of these costs are hard to measure: they represent processing costs for banks, and handling costs of merchants, businesses and consumers—none of these are readily obtainable.⁸ The impact of using different instruments can also be large. For example, Humphrey et al. (2000) estimated that the United States could save 1.25% of GDP in the move from paper cheques to electronic giro. Similarly, Humphrey et al. (2001) estimate that Norway could save 0.6% of GDP by moving all of its paper-based instruments to electronic versions. Unfortunately, to the best of

⁶ The price structure will develop in such a way that both sides have incentives to participate in the market. Rochet and Tirole (2003) call this a two-sided market. They state that the volume of transaction on and the profit of a platform depend not only on the total price charged to the parties to the transaction, but also on its decomposition.

⁷ This huge figure is based on an average cost per non-cash transaction of \$2.60 times 87 billion non-cash transactions per year. It excludes the cost of cash, but it still uses the old check estimate by whom? (66 billion cheques per year, which was later revised downward by 17 billion.

⁸ Several authors have tried to estimate costs of the main payment instruments. For example, Humphrey et al. (2003) and van Hove (2004) give a comprehensive overview of the state of the art in estimating payment costs. Both highlight the pitfalls and difficulties in obtaining estimates that are comparable across countries.

our knowledge, there is no research that calculates the cost of payment systems and its impact on the economy in the context of OIC member countries in particular.

There is no satisfactory explanation for the country differences. Empirical studies find that country idiosyncrasies rather than variables such as GDP and crime explain the differences in instrument usage. There is strong empirical evidence that network externalities exist in payment instruments such as ACH transfers, debit- and credit card payments and ATMs. The substantial literature on network effects shows that indeed lock-in into an inferior unsponsored standard can occur if the interests of players are not aligned and/or if players have incomplete information about each other's interests (see Humphrey et al., 2000 on barriers to shift from paper cheques to electronic payment in the United States, and Van Hove, 2002 on the ways in which hidden subsidies for cash systems have created barriers to change). Sponsored standards may reduce, but not eliminate, the occurrence of lock-in, depending, to some degree on the extent to which explicit costs are presented and how consumers might be rewarded for paying with efficient instruments. Spatially separated users may adopt different standards, although the existing models are not readily applicable to a setting of semi-autarkic countries.

2.5 Economic Context of OIC Member Countries

The economic characteristic of the Organisation of Islamic Cooperation (OIC) Member States involves the economies of 57 countries. Of those, 49 are predominately Muslim states, while the other 8 have large Muslim minorities. While few offer only Islamic finance options, many have institutions of Islamic finance available in the market. Those 57 countries have a combined GDP of US\$7,740 billion (PPP). The richest country on the basis of GDP per capita at PPP is United Arab Emirates. On basis of per capita GDP, Qatar is richest country with incomes exceeding US\$108,000 per capita. OIC countries are widely argued to have been relatively resilient to and remained unaffected by the recent global financial crisis (SESRIC, 2013).

As a substantial group of the world's developing countries, OIC member countries have attracted a small share of the total FDI flowing to developing countries (Hassan, 2009). The two major OIC member countries attracting the bulk of FDI flows over the last two decades—Indonesia and Malaysia, were among the Asian countries that felt the brunt of the financial crisis. The services sector is an important source of income in almost all the OIC countries, followed by agriculture and industry (Hassan, 2009). The manufacturing sector does not play a significant role in most of the OIC economies. Yet, in some OIC countries, particularly in the

middle-income group, it is gaining importance. Banking indicators in the OIC countries can be compared with their regional context through the World Bank regional table, below.

Table 3. Worldwide comparison of banking indicators

| | ATMs (per 100,000 adults) | Account at a financial institution (% age 15+) | | Credit card (% age 15+) | | Bank branches (per 100,000 adults) | Debit card (% age 15+) | | Mobile account (% age 15+) |
|---|------------------------------------|---|---------|----------------------------|---------|---|---------------------------|---------|-------------------------------------|
| | 2011 | 2011 | 2014 | 2011 | 2014 | 2011 | 2011 | 2014 | 2014 |
| World | 31.2546 | 50.5958 | 60.6984 | 14.8821 | 17.5636 | 11.497 | 30.4972 | 40.0978 | 2.0208 |
| High income: non OECD | 58.6305 | 57.5792 | 72.8403 | 17.942 | 27.7655 | 18.8487 | 39.8471 | 51.2361 | .. |
| Europe & Central Asia (developing only) | 41.8614 | 43.255 | 51.38 | 19.698 | 18.462 | 19.4089 | 36.3583 | 36.8608 | 0.25568 |
| Latin America & Caribbean (developing only) | 30.1131 | 39.256 | 51.1431 | 18.1768 | 21.6203 | 14.438 | 28.9314 | 40.414 | 1.72434 |
| Sub-Saharan Africa (developing only) | 3.92903 | 23.8744 | 28.9014 | 2.95794 | 2.68473 | 3.53772 | 15.0128 | 17.8662 | 11.5144 |
| East Asia & Pacific (developing only) | 17.0078 | 55.1396 | 68.7566 | 6.6583 | 12.5329 | 12.5329 | 34.6706 | 42.9495 | 0.40072 |
| Middle East (Developing only) | 12.2986 | 10.8802 | 13.9674 | 1.80335 | 2.06701 | 7.3975 | 5.47346 | 8.53036 | 0.68087 |
| Egypt, Arab Rep. | 9.27037 | 9.71998 | 13.6518 | 1.39287 | 1.88088 | 4.64224 | 5.11454 | 9.58002 | 1.14494 |
| Indonesia | 16.7881 | 19.582 | 35.9474 | 0.49567 | 1.59536 | 8.69029 | 10.5394 | 25.9448 | 0.44963 |
| Ivory Coast | 4.44074 | .. | 15.1363 | .. | 1.17971 | 4.29021 | .. | 5.46238 | 24.2614 |
| Morocco | 21.5126 | 39.0701 | .. | 4.46599 | .. | 21.9751 | 22.394 | .. | .. |
| Nigeria | 11.8429 | 29.6675 | 44.1732 | 0.79118 | 2.75945 | 6.3547 | 18.5561 | 35.6052 | 2.29496 |
| Pakistan | 4.70858 | 10.3063 | 8.70614 | 0.709 | 0.12597 | 8.50982 | 2.87239 | 2.94328 | 5.7998 |
| Turkey | 58.8439 | 57.6014 | 56.5126 | 45.0846 | 32.8248 | 18.2542 | 56.6381 | 43.2504 | 0.8082 |
| United Arab Emirates | 54.3475 | 59.7324 | 83.2043 | 29.9836 | 37.424 | 11.7501 | 55.4096 | 76.9049 | 11.491 |

Source: Global Findex (Global Financial Inclusion Database) 2015

3. OVERVIEW

3.1 Retail Payment Landscape

The retail payment market can be analysed in terms of payment service providers and technology (Khiaonarong & Liebenau, 2009). Payment service providers are typically financial institutions, such as banks, payment card issuers, or in a mobile payment context, mobile network operators (MNOs). Financial institutions and MNOs may not only decide to cooperate and collaborate, but also to compete against each other. Other actors such as newcomers and intermediaries (i.e. PayPal, Google Wallet, Stripe, etc.) can be serious competitors as well. However, there are no ‘one-size fits all’ rules to enhance success.⁹ Thus, it is premature to judge which retail payment model will prevail in what is worldwide a turbulent market and a continuously changing industry.

CPMI (2014) broadly classify retail payment systems into two broad categories: banks and non-banks. Banks are those institutions that mainly involved in taking deposits from the public and providing loans, including commercial banks, saving banks, credit cooperatives, and so forth. Non-bank institutions are defined as entities that are involved in the provision of retail payment systems, yet their main business is not related to taking deposits from customers and using the deposits to make loans (CPMI, 2014). Non-banks payment systems can be divided into four distinct types: front-end providers, back-end providers, operators of retail payment infrastructure, and end-to-end providers.

In 2012, CPSS conducted a survey on innovative retail payment initiatives and classifies into the following categories (see the list below). In their report, they identified some pointers as to what could be expected over the next couple of years, including technological development that are likely to blur product categories, the potential growth of near field communication devices (NFC), the growth of internet payments, as well as more global active players that leverage their coverage and market power across countries. However, they also argue that large leaps can happen especially in countries with underdeveloped payment infrastructures and that there will be significant technological differences between regions (CPSS, 2012).

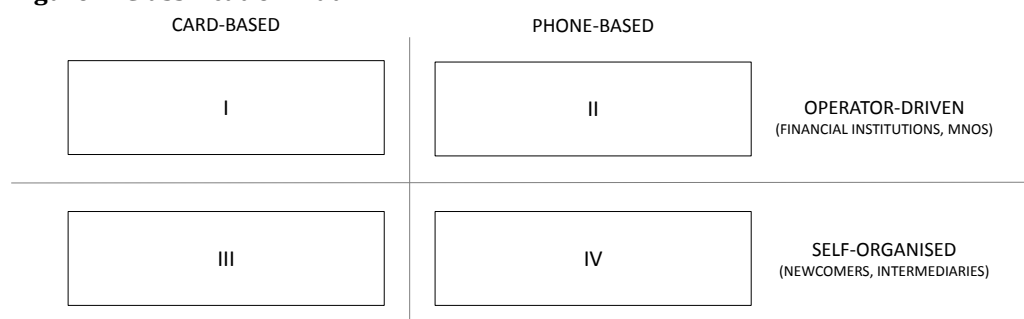
⁹ For example, Octopus cards in Hong Kong can be considered as a successful standalone payment system against MasterCard and Visa, whereas MobiPay’s in Spain relies on the cooperation between MNOs and financial institutions.

Table 4. Features and characteristics of retail payment innovations

| Features | Characteristics |
|------------------|---|
| Funding type | prepaid, debit, credit |
| Access channel | POS, internet, other telecommunication networks, branch/automated teller machine (ATM), other |
| Access device | computer, mobile phone, telephone, card, other |
| Main usage | P2P, P2B, B2B, government payments |
| Market impact | high, medium, low, pilot phase |
| Product group | internet payment, mobile payment, innovations in the use of card payments, EBPP, improvements in infrastructure and security |
| Access technique | remote, proximity (contact, contactless) |
| Scheme owner | bank(s), non-bank(s), both bank(s) and non-bank(s), central bank(s) |
| Cooperation | banks only, bank(s) and non-bank(s), non-banks only, no cooperation |
| Purpose | improved security, improved efficiency (reduced use of cash or cheques, lower processing costs, speeding-up of processing, overcoming infrastructural lags, inclusion of unbanked or under-banked, government payments, fostering competition, improved convenience, other) |
| Focus | payment initiation, overall payment process and clearing and settlement, payment receipt, new scheme |

Ondrus and Pigneur (2005) propose the use of a matrix to segment the retail payment market according to type of technology and service providers involved. These two axes of decomposition provide a better overview of the market with its different initiatives (see Figure 1). The cells on the top correspond to the product launched by financial institutions and MNOs together or separately. On the bottom, the cells represent the retail payment systems introduced by newcomers and intermediaries. On the left, retail payment schemes are based on card technology while on the right, the cells symbolise payment solutions using mobile technology.

Figure 1. Classification Matrix



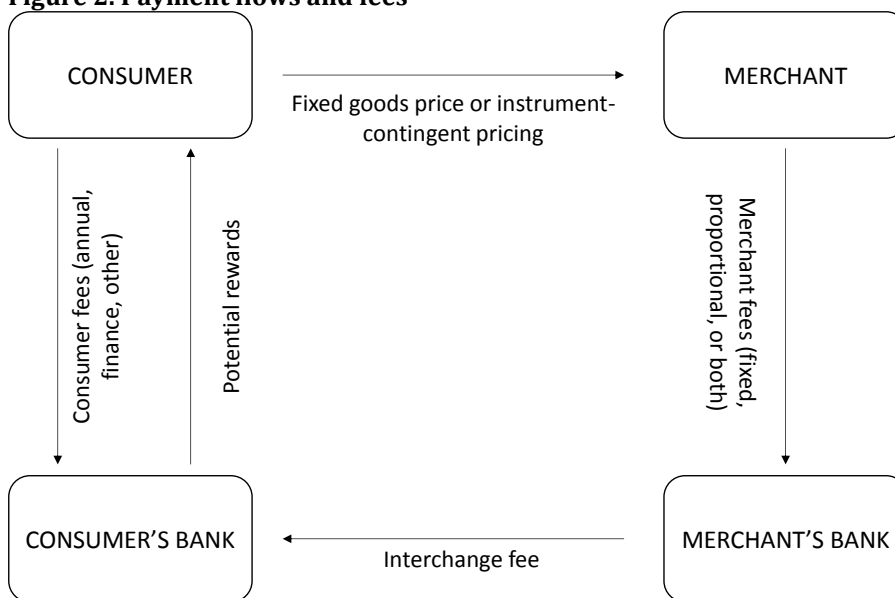
Source: Adopted from Ondrus and Pigneur (2005)

3.2 Actors and Industry Characteristics

Driven by globalisation, deregulation, as well as technological change and other forces, the retail payment industry has experienced dramatic changes in structure and competition. The banking sector in the OIC member states has also shown a strong growth potential in comparison with developed economies (COMCEC, 2015). However, on average the financial sector in OIC member countries remains operationally inefficient (SESRIC, 2013).

The provision of retail payment services is a highly intricate matter. Many participants are involved in a series of interrelated bilateral transactions and subject to large economies of scale and scope along with strong adoption, usage and network externalities (Bolt & Chakravorti, 2012). This not only makes optimal payment pricing difficult, it also makes sound public policy challenging.

Figure 2. Payment flows and fees



Source: Adopted from Bolt and Chakravorti (2012)

In principle, retail payment systems follow similar market structure (see Figure 2). Most transactions happen in three- or four-party networks: consumers and their banks (issuers) as well as merchants and their banks (acquirers). Both issuers and acquirers are a part of a payment network that sets the rules and procedures for clearing and settlement among its members. By setting rules, they also create constraints that foster allegiances, provide comfort for participants and exclude players that do not have access. This effectively creates lock-in that stabilises the systems but also restricts some forms of later innovation.

3.3 Lock-Ins and Network Effects, Innovation and E-money

The ways new technologies are introduced can be seen as a phenomenon of a set of relationships among industry structures, relationships among players as described in Figure 2, incentives to innovate, the networks that they are a part of and the functionalities of their technologies. In the following discussion we focus on the dynamics of payment systems in structural and functional terms, following numerous sources including that of the World Bank (2008).

Compared to other IT-based industries such as mobile telecommunications, software systems and personal computers, the retail payment industry tends to exhibit lower levels of technological adoption and diffusion (Milne, 2005). Indeed, the technology for increasing the effectiveness and the efficiency of retail payments is already widely available. Thus, the central question concerns why rates of technology adoption vary so much internationally. Generally, the adoption of innovation tends to be faster in smaller countries with relatively concentrated banking systems (Milne, 2005). However, the structure of the financial services industry makes a difference, and Schumpeter's theory of creative destruction implies that innovation is incompatible with zero-profit competition because the innovating firms would obtain at least temporary market power. Taking this further, Dasgupta and Stiglitz (1980) argue that some limited forms of monopolistic power might be required for companies in order to mobilise the resources to engage in R&D activities.

The concept of network externalities is probably most suitable to explain the incentives to adopt new technologies of this sort, especially in the case of the retail payment market. First, switching costs discourage consumers and producers to change to new technological standards and practices. Participants have already invested much money in current standards and these are both sunk costs and incur new switching costs. Re-training and re-investment can be very expensive. The inability to co-ordinate might prevent economically efficient changes of standards (Farrell and Saloner, 1985). Another potential inefficiency comes from a dominant group of producers that set inefficient standards in order to raise the costs to new entrants or the costs of competition. Second, network externalities may arise from using a system (or platform) that is widely used by others, with a variety of implications for competition (Katz and Shapiro, 1985). The presence of an installed base is one reason why a lock-in to inferior standards occurs (Liebowitz and Margolis, 2002).¹⁰

¹⁰ Widely cited example such as the superiority of QWERTY keyboard over Dvorak layout or VHS video format over technologically better Betamax.

The pricing of the two-sides of a platform has also elucidated network externalities (Rochet & Tirole, 2003). In this case, merchants and customers pay different transaction and participation fees, and thus affect the usage and pricing of the platform. Credit cards are a classic example of a two-sided payment platform. In this case, merchant fees are levied by credit card providers on retailers and an interchange fees paid by merchant acquirers to credit card issuers. These kinds of arrangements might critically influence the take-up of the platform, particularly when there is competition between different platforms (Rochet & Tirole, 2003). Milne (2005) posits that the use of interchange fees to subsidise card issuing has been a critical factor in encouraging card holding and thus overcoming this ‘chicken and egg’ problem—customers may not be interested in card holding until there is a large volume of merchants accepting cards; however, merchants are reluctant to invest resources to accept cards until there is a large volume of customers holding the cards (Evans and Schmalensee, 1999).

3.4 Retail Payment Industry and Network Effects

More than 60 years ago, Leibenstein (1950) analysed the ‘bandwagon effect’ as ‘the extent to which the demand for a commodity is increased due to the fact that others are also consuming the same commodity’ (p. 189). It describes people’s desire and behaviour in purchasing a commodity to get into ‘the swim of things’ and conform to the people they wish to be associated with. About 20 years later, economists examined Leibenstein’s bandwagon effect in terms of networks in the telecommunication sector.¹¹

Network externalities are a natural feature of networks which arise from the existence and provision of complementary goods (Rohlf, 1974). The hypothesis asserts that one consumer’s value for a product increases when another consumer has a compatible or identical good (Farrell & Saloner, 1985; Katz & Shapiro, 1985). Besides these general effects applying to all consumer decisions, some markets are determined by strong positive network effects, the so-called demand-sided economies of scale, deriving from the need for product compatibility. Liebowitz and Margolis (2002) preferred the term network-effects to substitute for the more common term network externalities, to account for the possibility that these effects are often internalised.

¹¹ Other than in the telecommunication sector, however, research on ‘network effects’ was in stagnation until 1980s where several economic historians such as David (1985), and economic theorists like Farrell and Saloner (1985) and Katz and Shapiro (1985) began to explore these issues in the context of the economics of standardisation. Those researches have encouraged another publication on a wider and deeper understanding of network effect. Significant contribution has not only given by engineers, but also economic theorists, economic historians, applied economists, as well as applied mathematicians.

Some scholars distinguish between direct externalities, exemplified by communications networks, and indirect externalities, exemplified by the hardware/software business model (Katz & Shapiro, 1985). The distinction between direct and indirect externalities refers to the source of benefits to participants in the network, not necessarily to the magnitude of the network effect.¹² While direct externalities typically occur in a physical, two-way communications network (Rohlf, 1974), indirect externalities occur in the network of users or systems of compatible devices, even if the devices owned by different users are not physically connected (Katz & Shapiro, 1994).

3.5 Drivers and Impediments of Retail Payments

The scrutiny of institutions and social networks can be used to explain the diffusion more convincingly and show the balance of forces among open competition, regulation and environmental shaping forces. Since economic systems of many kinds can be found among OIC countries, these different forces can be seen in many member states. When strategic decisions are driven by efficiency concerns there is information about alternatives in the diffusion process, which affects competition. When the decision is driven by legitimacy concerns, the network serves as the basis for differentiation of status and companies with similar status tend to imitate each other, which results in institutional isomorphism, or the confluence of practices into single forms or standards. This explains why innovation in financial services, particularly in the retail payments industry, tends to be different in packaging but identical in structure and composition, leading to homogenisation.

Social networks serve as an information disseminator among the organisations involved in the network (Rogers, 2003). This dissemination of information can result in companies adopting the same practices because they believe the action will be efficient and make them more competitive. Competitive isomorphism is 'systematic rationality that emphasise market competition, niche change and fitness measures' (DiMaggio and Powell, 1983). Competition is viewed as a mechanism producing isomorphism in which organisations become alike under the selection pressures of the environment. Such network ties facilitate the match between technology and companies by helping them learn more about the innovations which fit their

¹² Network externality is not the same as economics of scale. 'Economy of scale' means that making many copies of something is cheaper, per item, than making a few. 'Network externalities' means that there are benefits if many people use the same thing. They both may encourage monopolies, but they are essentially different.

distinctive needs (Rogers, 2003). More recent research on the role of social networks in regard to payment systems confirms this pattern.¹³

In addition to competitive isomorphism, institutional isomorphism might occur in the context of retail payment ecosystems. Institutional isomorphism involves organisational competition for legitimacy that can occur through three mechanisms: normative, mimetic, and coercive isomorphism (DiMaggio and Powell, 1983).

Normative isomorphism is driven by pressures brought about by professions. One mode is the legitimisation inherent in the licensing and crediting of educational achievement or in the inter-organisational networks that span organisations. Inter-hiring between existing companies also encourages isomorphism. People from the same backgrounds will approach problems in much the same way and socialisation of this job reinforces these conformities.

Mimetic isomorphism is a response to uncertainty, turbulent environment, or when the innovation is not well understood. Although mimesis might not result in the best outcomes and companies may find themselves following choices that have nothing to do with efficiency or effectiveness, they mimic the others in the network in order to respond to the pressure of confirmation and to ensure the organisation's legitimacy (DiMaggio & Powell, 1983).

Coercive isomorphism results from formal or informal pressures on organisations enforced by other organisations upon which they are dependent (DiMaggio & Powell, 1983). In many cases, it refers to homogeneity pressure from political influence, and may be felt as force, persuasion, or invitations to join in collusion (DiMaggio & Powell, 1983).

All of these forces are found, to differing degrees and in different countries, and help to explain the stop-and-go processes that typify the move to different kinds of retail payment systems. In some cases firms individually respond to the forces that bring about common forms of behaviour, in some cases it is governments that influence or impose standards or commonalities.

3.6 Supply-Side vs. Demand-Side

Rogers (2003) shows that innovations typically spread through society in an S-curve as the early adopters select the technology first, followed by the majority, until a technology or innovation is common. This pattern is found throughout the world but depends on differential controls that might be applied to markets for technologies. Such controls are found in some,

¹³ See <http://journals.abc.us.org/index.php/abr/article/viewFile/Miah/186> and <http://www.ijrra.com/Vol2issue1/IJRRRA-02-01-08.pdf>

but not all of the OIC economies. Diffusion can be explained based on the conditions that increase or decrease the likelihood that innovation will be adopted by members of a given society. Usually, prices decline due to economies of scale. Consequently, the value that potential consumers place on the good or service rises as more people adopt it. This combination of scale-economy dynamics and ascending reservation prices can yield rapid growth.

The acceptance of competing technologies or of the network effect constructs the path observed in the formation of some equilibria (Farrell and Saloner, 1985). That path becomes a dependency, although the achieved equilibrium is not necessarily the most desirable from a social point of view. More seriously, random events may 'lock us in' to a path and an outcome that is inferior to an alternative one that is available.

3.7 Standards and Coordination

Sometimes it helps if everyone uses the same product or service. In large economies there may be a proliferation of standards, but in controlled smaller economies such as those that prevail in the OIC, commonality may emerge, be encouraged, or enforced. This may drive systems towards monopoly or standardisation. For example, when we buy a DVD player and some DVDs, we encourage one specific industry standard, and thus more DVDs are put on the market. When we throw out an 8-track tape player, we discourage that industry, and if enough people do that, no more 8-track tapes are sold.

As a consequence, lock-in may occur on the 'wrong' technology because if, for whatever reason, the wrong technology is chosen, it may be difficult to achieve the coordinated movement of large numbers of users required for the 'right' technology to become the standard. One problem is that defining standards can both encourage the spread of technology and limit the development of new technology; so when to impose standards is a difficult practical choice.

Unfortunately, what is rational for an individual may not be rational for the collectively, or vice versa. Once accepted, a standard design can have a profound impact on both the direction of further technical advance and the rate of that advance. When the marketplace decides that a certain product is what it wants, then innovators have to start figuring out how to make that peculiar innovation as effective as possible—and some will be better able than others. This competition will shift from innovative approaches to product design and features to competition based on cost and scale as well as on product performance.

Thus, companies and regulators must realise that technological change is not a purely an objective and calculative process. They can only try to envisage a path between what technologies can do at the moment and what they can do in the future. If the path is evaluated using commitment routines, key constituencies will probably commit to the new technology and initiate a bandwagon process that will ensure the successful creation of the trajectory. If the actors are likely to adopt a wait-and-see attitude then the technological trajectory will most likely fail, exactly as predicted by path dependent theories (David, 1985; Rogers, 2003).

3.8 Regulations

Regulating efficient and reliable retail payment services is essential for the smooth functioning of the economy and many financial regulatory regimes in OIC countries are in flux. Academic studies have focused on the two issues of government intervention and regulation in retail payment systems. In addition there is the monetary role of government and the prevention of systematic risk in large value payments (LVPS); both fall outside the scope of this report.

The first issue is whether the government should play a role in stimulating their adoption, through subsidies, standards setting, regulation, etc. Some writers, such as Issing (1999), argue in favour of direct government action, because network effects may lead to excess inertia in the adoption of socially efficient payment systems. Others argue against such a role, for example because governments tend to pick the wrong technology and standard; and by selecting the wrong standard they may even prevent the adoption of the right standard by the private sector (Gowrisankaran, 1999, on the adoption of ACH systems in the United States, and Mantel and McHugh, 2001, on electronic payment networks). Perhaps most outspoken on this topic is Weinberg (1997), who argues that market participants can always reach a sustainable network arrangement, provided that side payments or price discrimination is permitted and there are no barriers that prevent market participants from joining other networks. This model does not adequately address the question of how or whether market participants overcome lock-in to reach such a sustainable arrangement.

The second issue is somewhat the reverse: should the government regulate (i.e. restrain) payment networks once they are established? Calls for such regulation can be heard with respect to debit and credit cards both in OIC countries and in the leading industrial economies. Proponents of such regulation, including Balto (1995 and 2000) and Salop (1990) argue that the increasing returns of payment networks lead to monopolistic power that is being abused by banks. The interchange mechanism is especially being scrutinised by regulators. One seminal paper is by Baxter (1983), who defends the interchange mechanism as being an

indispensable enabler of new payment technologies that bring social welfare. As Chakravorti and Shah (2001) conclude in their review of models on interchange, the precise effect of interchange on social welfare is not easy to determine and it is very sensitive to model specifications. Perhaps as a result, to date regulators have not come to any clear point of view: US regulators have wavered (see Chang and Evans, 2000, for a regulatory history of credit cards), the European Commission has sanctioned the interchange for cross border debit card transactions (European Commission, 2000), and the Australian regulator has laid the ground for lowering interchange on credit cards and abolishing it on debit cards (Reserve Bank of Australia, 2000).

The World Bank, the BIS, national and other bodies have addressed the question of who regulates and to what extent. Most recently, HM Treasury of the United Kingdom (2015) identify potential problems in the following areas:

1. Competition: the structure of the industry may give powerful incumbent institutions the opportunity to erect barriers to entry, so that challengers and smaller players find it more difficult to access payment systems on fair and transparent terms.
2. Innovation: the network nature of payment systems (i.e. all major players need to be connected for the system as a whole to be effective) means that innovations in the shared space do not give a competitive advantage to banks individually. The banks also have the ability to slow the pace of development of new innovations if, for example, they are not as well-placed to take advantage of them. There is therefore a concern that new innovations might not be developed where they are in the wider social interest, but not in the narrower interests of individual banks.
3. Service-user responsiveness: the network nature of payment systems means that, if a payment system fails to respond to service-user needs, this does not necessarily give a competitive disadvantage to any individual institution. This may lead to retail payment systems not being responsive to service-user needs and wishes.

Since the British experience is both broad and exemplary of advanced practices, these views are likely to frame much of the forthcoming public discussion.

3.9 Risk and Liquidity

Payment systems are generally multilevel systems that manage significant transaction volumes and sizable monetary values. While the centralisation of some activities allow payment systems participants to manage their risks in a more effective and efficient way, it

will also concentrate risks and create interdependencies among its participants. BIS (2012) identify inherent risks faced by retail payment infrastructures in the following ways: systemic, legal, credit, general business, custody, investment, operational, as well as liquidity risks.

Systemic risk comes from the inability of one or more participants in the payment systems environment to perform as expected and thus cause other participants to be unable to meet their obligations as well. These interdependencies, consequently, can transmit disruptions beyond a specific payment system and its participants and affect the broader economy.

Legal risk can be defined as the risk of the unexpected application of a law or regulation and usually result in a loss. Legal risk can also arise if the application of relevant laws and regulations is uncertain. Legal risk also includes the risk of losses resulting from a delay in the recovery of financial assets or a freezing of positions resulting from a legal procedure.

Credit risk, which is the risk that a counterparty, whether a participant or other entity, will be unable to meet fully when its financial obligations are due. Retail payment systems and their participants may face replacement-cost risk (the risk of loss of unrealised gains on unsettled transactions with a counterparty) and principal risk (the risk that a counterparty will lose the full value involved in a transaction, often associated with settlement risk).

General business risks are the risks related to the administration and operation of a payment system as a business enterprise, excluding those related to the default of a participant or another entity, such as a settlement bank, global custodian, or another payment system. A failure to manage general business risk could result in a disruption of a payment systems' business operations.

Custody risk is the risk of loss on assets held in custody in the event of a custodian's insolvency, negligence, fraud, poor administration, or inadequate recordkeeping. Investment risk is the risk of loss faced by a payment system when it invests its own or its participants' resources, such as collateral.

Operational risk is the risk that deficiencies in information systems or internal processes, human errors, management failures, or disruptions from external events will result in the reduction, deterioration, or breakdown of services provided by a payment system. These operational failures may lead to consequent delays, losses, liquidity problems, and in some cases systemic risks.

Liquidity risk is the risk that a counterparty, whether a participant or other entity, will have insufficient funds to meet its financial obligations as and when expected, although it may be

able to do so in the future. Liquidity problems have the potential to create systemic problems, particularly if they occur when markets are closed or illiquid or when asset prices are changing rapidly, or if they create concerns about solvency.

Risk and Liquidity Trade-off

Payment system's liquidity is measured by how fast and easy it is to make a payment at a given time (Martin, 2005). Since delay and interruption is not an option, a well-designed payment system must allow every participant to obtain funds through intraday credit. The easier it is to acquire these funds, the more liquid the payment system. In a liquid system, any institution could make a payment regardless of their current balance with regard to other institution or the system's settlement institution (usually a central bank).

However, as it becomes easier to obtain intraday credit, the default risk will inevitably increase. Since an institution in the system might not be able to settle their obligations to their counterparts, this kind of risk can generate settlement risk. Settlement risk is generally used to designate the risk that settlement in a transfer system will not take place as expected, either because of credit risk or liquidity risk (BIS, 2003; 2012).

There is a fundamental trade-off between liquidity and settlement risk. A payment system can become more liquid by making it easier for institutions to borrow intraday credit, but such borrowing increases the possibility for default and a failure to settle with the institution extending credit. Conversely, a system can become less risky by eliminating transactions that are most likely to result in default, but limiting transactions will reduce the liquidity of the system.

The 1990s experienced a major transformation in the design of these settlement systems: from deferred net settlement (DNS) systems, which settled only at the end of the day, to real-time gross settlement (RTGS) systems, which settle on a continuous basis. This transformation was largely due to the possibilities offered by information and communication technology and to the measures taken by central banks to reduce systemic risks in these systems.¹⁴

The World Bank has for many years compiled data and worked to push central banks to engage with the process of coordinating national strategies on retail payments (Pereira, 2011). In a recent World Bank study the strategy proposal for retail payments took the following form (Pereira, 2011):

¹⁴ Some countries are currently moving towards Large-Value Payment Systems (LVPS) that allow more flexibility in addressing various risk and cost trade-offs than DNS and RTGS, mostly in the U.S., Canada, and Western Europe.

Table 5. Strategy proposal for retail payments

| Principle | Actions by government and private players |
|---|--|
| Consumer protection, transparency, and access | Minimum standards for consumer protection and transparency Ombudsman office Enshrine customers right to financial access |
| Legal framework | Legal act to address standard payment system issues Regulations, guidelines to address specific aspects Proportionate regulations for payment service providers Enable non-bank players to offer payment services |
| Infrastructure | Require inter-operability Foster creation of national payment networks Fair and transparent access criteria for using infrastructure |
| Competition | Encourage competition amongst payment instruments and mechanisms Legal safe-guards against anti-competitive behaviour Ensure fair-access criteria Ensure cross network acceptance of payment instruments |
| Risk management | Minimum standards for data security, privacy, fraud and operational risk management Effective mechanisms to address settlement risks |

Source: Adapted from the World Bank, Payment Systems Development Group

These policies are clearly weighted towards responsibilities vested in states rather than private players. They are encased in the following guidelines, specified in the World Bank report on national retail payments strategies:

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

- Guideline V: Retail payments should be supported by appropriate governance and risk management practices.
- Guideline VI: Public authorities should exercise effective oversight over the retail payments market and consider proactive interventions where appropriate (World Bank, 2012).

Table 6. OIC Member Countries and their RTGS Systems

| Country | RTGS System |
|----------------------|---|
| Albania | AECH (Albanian Electronic Clearing House System), RTGS |
| Azerbaijan | AZIPS (Azerbaijan Interbank Payment System) |
| Egypt | RTGS |
| Indonesia | Sistem Bank Indonesia Real Time Gross Settlement (BI-RTGS) |
| Iran | SATNA (آنى ناخالص تسويه سامانه), Real-Time Gross Settlement System) |
| Ivory Coast | STAR-UEMOA (Système de Transfert Automatisé et de Règlement de l'UEMOA) |
| Kuwait | KASSIP (Kuwait's Automated Settlement System for Inter-Participant Payments) |
| Malaysia | RENTAS (Real Time Electronic Transfer of Funds and Securities) |
| Morocco | SRBM (Système de règlement brut du Maroc) |
| Nigeria | CIFTS (CBN Inter-Bank Funds Transfer System) |
| Pakistan | Pakistan Real Time Inter-Bank Settlement Mechanism - PRISM (State Bank of Pakistan) |
| Saudi Arabia | SARIE (Saudi Arabian Riyal Interbank Express) |
| Turkey | EFT (Electronic Fund Transfer) |
| United Arab Emirates | UAEFTS (UAE Funds Transfer System) |

RTGS systems provide online, real-time information facilities whereby banks can obtain data on the status of transfers, accounting balances and other basic parameters (BIS, 1997). An important element that helps to define the operational environment of queuing is the information available to banks or the system centre with regard to queues. In a RTGS system, an institution can execute a payment only if it has adequate balances in its settlement account at the central bank. Thus, any liquidity problem is detected as soon as it arises. Indeed, a RTGS system does not eliminate the possibility that an institution may fail and unable to make payments as they fall due, but it does limit the problem to the failed institution.

3.10 Three Exemplary Retail Payment Systems

Octopus - NFC in Hong Kong

Payment systems for public transport were the pioneer applications of mass digital payment and were initiated with applications such as Mondex in England for Croydon busses and trams in the 1980s and a few other money storage cards elsewhere. By the late 1990s, however, numerous applications, many using near field communications [NFC] technologies were being introduced. In Turkey electronic payments were used for Bosphorus Bridge tolls and the “Kent Kart” systems introduced first in Izmir in 1999 and spreading to 18 smaller cities within a dozen years. The payment system is also used in nine foreign cities, including Amman, Doha, Prizren (Kosovo), Skopje (Macedonia) and Lahore. The largest such systems are the Oyster card in London and the Octopus card in Hong Kong, each of which have over 10 million daily users. While both started as transport cards using radio frequency [RFID] or NFC technologies, the Octopus card quickly became a multi-purpose electronic payment card. Recently, the Oyster system has been integrated into commercial banking cards with compatible NFC technologies and so combine multi-purpose payment practices with transport tickets.

The Octopus system, in contrast, was conceived from the outset to perform a variety of retail payment systems functions and so is a prototype of other advanced, integrated, general use payment systems. The advantage it gained from its origins in the transport system is a reminder of what is necessary for rapid mass acceptance of such a scheme. In this case the entirety of the Hong Kong population was more or less obliged to engage with the Octopus scheme.

What is distinct about the scheme is the manner in which the various stakeholders came together to ensure that financial services providers, retailers, regulators and other bodies, along with the transport authority, all cooperated.

M-Pesa - Mobile Payment in Kenya

M-Pesa is an electronic payment and store of value systems that was developed by mobile operator Vodafone and commercially launched by Safaricom, its Kenyan affiliate, in March 2007. Since its inception, M-Pesa has seen extraordinary growth and already been adopted by 15 million users (2014) that are conducting more than 2 million daily transactions.¹⁵

¹⁵ Recently regulators have licensed three other MNOs (Finserve Africa, Mobile Pay and Zioncell Kenya) to challenge the quasi-monopoly of Safaricom.

M-Pesa is particularly successful as a retail payment system because it is accessible through basic mobile phones and has extensive reach into large segments of the population that previously not covered by financial institutions (unbanked).

What is distinct about M-Pesa success story in Kenya is the combination between (1) pre-existing conditions that made Kenya a conducive environment for a successful mobile money deployment, (2) a clever service design that facilitated rapid adoption and early capturing of network effects, and (3) a business execution strategy that helped M-Pesa rapidly gain a critical mass of users, and avoiding the adverse chicken-and-egg (two-sided market) problems (Mas and Radcliffe, 2010).

BI Card - Islamic Credit Cards of Bank Islam Malaysia

Credit cards are popular payment methods because they were the first large-scale means for people to conduct economic transactions without having to carry cash. What makes Islamic credit cards different from conventional credit cards is that the card must meet shariah requirements on lending, must have certainty to be widely accepted, and should not encourage prohibited (*haram*) behaviour (Massey, 2007).

The BI Card is the first Islamic credit card and was issued in Malaysia by Bank Islam Malaysia Bhd. in 2003. It was also the first credit card to adopt Europay-Mastercard-Visa (EMV) chip technology in Southeast Asia (Ferdian et al., 2008). The card holders are only permitted to make *halal* transactions, excluding six categories that does not meet *shariah* requirements including payments in bars, night clubs, for alcoholic drinks, and gambling.

Even though Islamic credit cards are now in operations and serve Muslim customers to perform such transactions consistent with Islamic principles, there are some disputes among jurists regarding the *aqad* used and the involvement of the *riba* element. Nevertheless, this effort represents a trend in combining modern payment technologies with Islamic banking principles and could be regarded as a potential model for other OIC country banks.

4. CASE STUDIES

The OIC member countries can be examined in 3 sub-groups in order to illustrate differential development (Hassan, 2009). This will be seen as significant as to the context of the adoption and use of payment systems. The first group is classified as the Least Developed Members of the OIC, based on the United Nations designation (hereafter, the LDC group of OIC). This group is made up of Afghanistan, Bangladesh, Benin, Burkina Faso, Chad, Comoros, Djibouti, Gambia, Guinea, Guinea-Bissau, Maldives, Mali, Mauritania, Mozambique, Niger, Senegal, Sierra Leone, Somalia, Sudan, Togo, Uganda and Yemen. The second group includes the middle-income OIC member countries (hereafter, the (MDC) group of OIC). These are Albania, Cameroon, Egypt, Guyana, Indonesia, Ivory Coast, Jordan, Kazakhstan, Kyrgyz Republic, Lebanon, Malaysia, Morocco, Pakistan, Palestine, Suriname, Syria, Tajikistan, Tunisia, Turkey, and Uzbekistan. The third group comprises the oil-exporting (FEC) members of the OIC, namely Algeria, Azerbaijan, Bahrain, Brunei, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Oman, Qatar, Saudi Arabia, Turkmenistan, and the United Arab Emirates (U.A.E.).

When the effect of a high rate of population growth on economic growth is taken into account, the OIC's average per capita income moved from around \$1200 in 2000 to over \$1500 by the middle of the decade (Hassan, 2009). When these per capita GDP numbers for the OIC member countries are compared with those realised by developing countries, the OIC are significantly disadvantaged.

Table 7. Background to Comparisons: Population and GDP of the OIC Member Countries

| Countries | Total Population | | GDP (current US\$) | |
|--------------------|------------------|-------------|--------------------|-----------------|
| | 2011 | 2014 | 2011 | 2014 |
| Afghanistan | 29,105,480 | 31,280,518 | 17,930,239,400 | 20,841,951,232 |
| Albania | 2,904,780 | 2,894,475 | 12,890,866,743 | 13,370,191,506 |
| Algeria | 37,762,962 | 39,928,947 | 199,070,864,638 | 214,063,173,188 |
| Azerbaijan | 9,173,082 | 9,537,823 | 65,951,627,200 | 75,198,010,965 |
| Bahrain | 1,292,764 | 1,344,111 | 29,044,069,149 | 33,868,989,362 |
| Bangladesh | 152,862,431 | 158,512,570 | 128,637,938,711 | 173,818,932,216 |
| Benin | 9,779,795 | 10,599,510 | 7,289,779,658 | 8,746,992,733 |
| Brunei Darussalam | 406,512 | 423,205 | 16,691,360,425 | 17,256,754,269 |
| Burkina Faso | 15,995,313 | 17,419,615 | 10,724,061,339 | 12,542,969,275 |
| Cameroon | 21,156,272 | 22,818,632 | 26,587,311,528 | 32,548,591,286 |
| Chad | 12,080,037 | 13,211,146 | 12,156,380,062 | 13,922,224,561 |
| Comoros | 700,216 | 752,438 | 586,281,824 | 647,720,102 |
| Cote d'Ivoire | 19,389,954 | 20,804,774 | 25,381,617,036 | 34,253,611,098 |
| Djibouti | 846,646 | 886,313 | 1,239,144,502 | 1,581,519,706 |
| Egypt, Arab Rep. | 79,392,466 | 83,386,739 | 236,001,858,960 | 286,538,047,766 |
| Gabon | 1,594,034 | 1,711,294 | 17,830,879,880 | 17,228,443,336 |
| Gambia, The | 1,734,966 | 1,908,954 | 904,256,028 | 807,069,488 |
| Guinea | 11,161,530 | 12,043,898 | 5,067,360,041 | 6,624,068,037 |
| Guinea-Bissau | 1,624,228 | 1,745,798 | 1,103,652,041 | 1,022,371,992 |
| Guyana | 790,882 | 803,677 | 2,576,602,497 | 3,228,372,888 |
| Indonesia | 243,801,639 | 252,812,245 | 892,969,104,530 | 888,538,201,025 |
| Iran, Islamic Rep. | 75,424,285 | 78,470,222 | 576,566,256,355 | 415,338,504,536 |
| Iraq | 31,760,020 | 34,278,364 | 185,749,664,444 | 220,505,682,865 |
| Jordan | 6,181,000 | 6,607,000 | 28,840,263,380 | 35,826,925,775 |
| Kazakhstan | 16,556,600 | 17,289,111 | 188,048,960,311 | 212,247,913,268 |
| Kuwait | 3,124,705 | 3,479,371 | 154,034,941,942 | .. |
| Kyrgyz Republic | 5,514,600 | 5,834,200 | 6,197,766,119 | 7,404,412,710 |
| Lebanon | 4,382,790 | 4,510,301 | 40,078,938,640 | 45,730,945,274 |
| Libya | 6,103,233 | 6,253,452 | 34,699,395,524 | 41,119,144,923 |
| Malaysia | 28,758,968 | 30,187,896 | 289,326,512,787 | 326,933,043,801 |
| Maldives | 331,964 | 351,572 | 2,460,699,388 | 3,032,239,478 |
| Mali | 14,416,737 | 15,768,227 | 10,647,545,670 | 12,074,473,002 |
| Mauritania | 3,702,763 | 3,984,457 | 5,123,097,509 | 5,061,180,371 |
| Morocco | 32,059,424 | 33,492,909 | 99,210,991,483 | 107,004,984,357 |
| Mozambique | 24,581,367 | 26,472,977 | 13,197,133,578 | 16,385,584,919 |
| Niger | 16,511,462 | 18,534,802 | 6,409,169,890 | 8,168,695,870 |
| Nigeria | 164,192,925 | 178,516,904 | 411,743,801,712 | 568,508,262,378 |
| Oman | 3,024,774 | 3,926,492 | 67,937,581,274 | 81,796,618,986 |
| Pakistan | 176,166,353 | 185,132,926 | 213,755,282,059 | 246,876,324,189 |

| | | | | |
|--------------------------------|------------|------------|-----------------|-----------------|
| Qatar | 1,910,902 | 2,267,916 | 169,804,735,989 | 211,816,758,242 |
| Saudi Arabia | 27,761,728 | 29,369,428 | 669,506,666,667 | 746,248,533,333 |
| Senegal | 13,330,737 | 14,548,171 | 14,440,676,929 | 15,578,916,865 |
| Sierra Leone | 5,865,491 | 6,205,382 | 2,932,106,327 | 4,892,363,979 |
| Somalia | 9,907,903 | 10,805,651 | .. | .. |
| Sudan | 36,430,923 | 38,764,090 | 67,326,793,943 | 73,815,376,185 |
| Suriname | 529,761 | 543,925 | 4,423,194,614 | .. |
| Syrian Arab Republic | 21,961,676 | 23,300,738 | .. | .. |
| Tajikistan | 7,814,850 | 8,408,947 | 6,522,755,783 | 9,241,627,841 |
| Togo | 6,472,304 | 6,993,244 | 3,756,023,048 | 4,518,443,907 |
| Tunisia | 10,673,800 | 10,996,600 | 45,951,389,300 | .. |
| Turkey | 73,058,638 | 75,837,020 | 774,754,155,284 | 799,534,963,354 |
| Turkmenistan | 5,106,668 | 5,307,171 | 29,233,333,333 | 47,931,929,825 |
| Uganda | 35,148,064 | 38,844,624 | 18,661,302,215 | 26,312,399,301 |
| United Arab Emirates | 8,925,096 | 9,445,624 | 347,454,049,215 | 401,646,583,173 |
| Uzbekistan | 29,339,400 | 30,742,500 | 45,324,319,955 | 62,643,953,022 |
| West Bank and Gaza [Palestine] | 3,927,051 | 4,294,682 | 10,465,400,000 | 12,737,613,125 |
| Yemen, Rep. | 23,304,206 | 24,968,508 | 31,078,858,746 | .. |

Source: World Development Indicators (Last Updated: 07/28/2015)

As can be seen in Table 7, in terms of GDP, most of the OIC member state countries are developing countries. The highest GDP is Indonesia (US\$ 888 billion in 2014) followed by Turkey (US\$ 799 billion) and Saudi Arabia (US\$ 746 billion). The lowest GDP is Comoros (US\$ 647 million) followed by The Gambia (US\$ 807 billion). The most populated countries is Indonesia (252 million) followed by Pakistan (185 million) and Nigeria (178 million). Per capita GDP is not closely related to overall GDP because of the wide range of population sizes and high degree of differences in proportionate wealth. The significance of this for retail payment systems is that market sizes differ significantly, as does disposable income, and scale factors have been important for rapid innovation in retail payment systems. This can be seen in Table 8, below.

Table 8. A Snapshot of Retail Payments in the OIC Member Countries

| Countries | Internet Users (per 100 people) | | Mobile Subscriptions (per 100 people) | | ATMs (per 100,000 adults) | Credit Cards (% age 15+) | Debit Cards (% age 15+) | Account at Financial Institutions (% age 15+) |
|--------------------|---------------------------------------|-------|--|--------|------------------------------------|-----------------------------------|----------------------------------|--|
| | 2011 | 2014 | 2011 | 2014 | 2011 | 2014 | 2014 | 2014 |
| Afghanistan | 5.00 | 6.39 | 60.33 | 74.88 | 0.64 | 1.39 | 1.66 | 9.96 |
| Albania | 49.00 | 60.10 | 98.29 | 105.47 | 32.76 | 5.66 | 21.84 | 37.99 |
| Algeria | 14.00 | 18.09 | 94.31 | 93.31 | 5.90 | 6.07 | 21.63 | 50.48 |
| Azerbaijan | 50.00 | 61.00 | 109.97 | 110.91 | 29.95 | 8.78 | 15.66 | 29.15 |
| Bahrain | 77.00 | 91.00 | 131.01 | 173.27 | .. | 27.56 | 74.89 | 81.94 |
| Bangladesh | 4.50 | 9.60 | 55.19 | 75.92 | 3.61 | 0.34 | 5.17 | 29.14 |
| Benin | 4.15 | 5.30 | 79.40 | 101.71 | 2.75 | 1.40 | 5.04 | 15.98 |
| Brunei Darussalam | 56.00 | 68.77 | 109.02 | 110.06 | 78.96 | .. | .. | .. |
| Burkina Faso | 3.00 | 9.40 | 48.03 | 71.74 | 2.22 | 2.84 | 4.28 | 13.42 |
| Cameroon | 5.00 | 11.00 | 49.57 | 75.69 | 2.30 | 0.51 | 6.14 | 11.35 |
| Chad | 1.90 | 2.50 | 30.34 | 39.75 | 0.48 | 1.23 | 2.78 | 7.70 |
| Comoros | 5.50 | 6.98 | 30.91 | 50.90 | 7.17 | .. | .. | .. |
| Cote d'Ivoire | 2.90 | 14.60 | 89.45 | 106.25 | 4.69 | 1.18 | 5.46 | 15.14 |
| Djibouti | 7.00 | 10.71 | 22.80 | 32.39 | 3.21 | .. | .. | .. |
| Egypt, Arab Rep. | 25.60 | 31.70 | 105.08 | 114.31 | 9.65 | 1.88 | 9.58 | 13.65 |
| Gabon | 8.00 | 9.81 | 148.69 | 210.37 | 11.03 | 5.68 | 18.45 | 30.15 |
| Gambia, The | 10.87 | 15.56 | 80.76 | 119.63 | .. | .. | .. | .. |
| Guinea | 1.30 | 1.72 | 43.55 | 72.10 | 0.89 | 1.99 | 3.69 | 6.17 |
| Guinea-Bissau | 2.67 | 3.32 | 45.11 | 63.48 | 1.37 | .. | .. | .. |
| Guyana | 31.00 | 37.35 | 66.86 | 70.54 | 15.12 | .. | .. | .. |
| Indonesia | 12.28 | 17.14 | 102.46 | 126.18 | 24.54 | 1.60 | 25.94 | 35.95 |
| Iran, Islamic Rep. | 19.00 | 39.35 | 74.30 | 87.79 | 35.79 | 11.02 | 75.09 | 92.18 |
| Iraq | 5.00 | 11.30 | 80.16 | 94.91 | 2.09 | 2.36 | 3.51 | 10.97 |
| Jordan | 34.90 | 44.00 | 111.16 | 147.80 | 29.61 | 2.30 | 19.12 | 24.62 |
| Kazakhstan | 50.60 | 54.89 | 156.79 | 168.62 | 65.45 | 11.48 | 32.04 | 53.91 |
| Kuwait | 65.77 | 78.70 | 157.91 | 218.43 | 52.87 | 26.23 | 70.32 | 72.91 |
| Kyrgyz Republic | 17.50 | 28.30 | 116.17 | 134.46 | 11.93 | 3.23 | 6.40 | 18.47 |
| Lebanon | 52.00 | 74.70 | 77.19 | 88.35 | 39.12 | 10.70 | 33.45 | 46.93 |
| Libya | 14.00 | 17.76 | 163.85 | 161.12 | 3.60 | .. | .. | .. |
| Malaysia | 61.00 | 67.50 | 127.48 | 148.83 | 53.31 | 20.15 | 41.17 | 80.67 |
| Maldives | 34.00 | 49.28 | 159.79 | 189.38 | 20.07 | .. | .. | .. |
| Mali | 2.20 | 7.00 | 75.07 | 149.02 | 3.44 | 0.70 | 4.05 | 13.25 |
| Mauritania | 4.50 | 10.70 | 89.52 | 94.20 | .. | 4.82 | 11.32 | 20.45 |
| Morocco | 46.11 | 56.80 | 114.02 | 131.71 | 21.74 | .. | .. | .. |
| Mozambique | 4.30 | 5.94 | 31.96 | 69.67 | 6.35 | .. | .. | .. |
| Niger | 1.30 | 1.95 | 28.72 | 44.44 | 0.94 | 1.46 | 0.49 | 3.49 |
| Nigeria | 28.43 | 42.68 | 57.96 | 77.84 | 11.84 | 2.76 | 35.61 | 44.17 |

| | | | | | | | | |
|----------------------|-------|-------|--------|--------|-------|-------|-------|-------|
| Oman | 48.00 | 70.22 | 159.00 | 157.75 | .. | .. | .. | .. |
| Pakistan | 9.00 | 13.80 | 61.81 | 73.33 | 4.73 | 0.13 | 2.94 | 8.71 |
| Qatar | 69.00 | 91.49 | 120.48 | 145.76 | 51.82 | .. | .. | .. |
| Saudi Arabia | 47.50 | 63.70 | 194.51 | 179.56 | 60.70 | 11.53 | 63.62 | 69.41 |
| Senegal | 9.80 | 17.70 | 70.16 | 98.84 | 4.57 | 1.08 | 5.87 | 11.92 |
| Sierra Leone | 0.90 | 2.10 | 36.43 | 76.66 | 0.41 | 0.65 | 5.19 | 14.15 |
| Somalia | 1.25 | 1.63 | 18.17 | 50.90 | .. | 0.59 | 2.36 | 7.86 |
| Sudan | 17.30 | 24.64 | 68.78 | 72.20 | 3.51 | 0.40 | 10.34 | 15.27 |
| Suriname | 32.00 | 40.08 | 100.71 | 170.57 | 36.84 | .. | .. | .. |
| Syrian Arab Republic | 22.50 | 28.09 | 59.24 | 70.95 | 7.40 | .. | .. | .. |
| Tajikistan | 13.03 | 17.49 | 80.92 | 95.13 | 6.64 | 0.75 | 4.16 | 11.46 |
| Togo | 3.50 | 5.70 | 41.64 | 68.97 | 3.20 | 0.52 | 2.27 | 17.61 |
| Tunisia | 39.10 | 46.16 | 115.20 | 128.49 | 21.72 | 6.83 | 12.25 | 27.26 |
| Turkey | 43.07 | 51.04 | 89.41 | 94.79 | 58.84 | 32.82 | 43.25 | 56.51 |
| Turkmenistan | 5.00 | 12.20 | 103.79 | 135.78 | .. | 0.00 | 1.24 | 1.79 |
| Uganda | 13.01 | 17.71 | 47.50 | 52.43 | 3.68 | 1.65 | 17.82 | 27.78 |
| United Arab Emirates | 78.00 | 90.40 | 131.40 | 178.06 | 54.35 | 37.42 | 76.90 | 83.20 |
| Uzbekistan | 30.20 | 43.55 | 90.37 | 73.79 | 4.36 | 1.40 | 24.63 | 40.71 |
| West Bank and Gaza | 41.08 | 53.67 | 70.12 | 72.08 | 16.42 | .. | .. | .. |
| Yemen, Rep. | 14.91 | 22.55 | 50.07 | 68.49 | 3.67 | 0.37 | 1.86 | 6.45 |

Source: World Development Indicators (Last Updated: 07/28/2015)

While we can gain some understanding of the scale of retail payment systems overall in the OIC, it is difficult to make accurate comparisons since some data are not available for certain items/countries/years. Nevertheless, we can note certain commonalities and a few key differences. We shall see in the case studies in chapter 4 that the interrelationships and dynamics of key institutions create specific conditions that allows us to explain the character and trends of payment systems with greater confidence.

First and foremost, almost all countries have their own networks of ATMs installed. This gives an indication that electronic retail payments in that form are available in all those countries. However, we lack information regarding the kinds of operator/switch systems used. We cannot yet compare, for example whether they are inter-operable or whether the transactions are processed in real time. The highest proportion of ATM users are in Brunei Darussalam (78.96), Kazakhstan (65.45), Saudi Arabia (60.70), and Turkey (58.84). The lowest are in Sierra Leone (0.41), Chad (0.48), and Afghanistan (0.64).

With regard to card payments, it appears that debit cards in general tend to be more popular than credit cards. The highest rate of debit cards use is in the United Arab Emirates (76.90),

followed by Islamic Republic of Iran (75.09) and Bahrain (74.89). Meanwhile, the lowest rate of debit cards users are Niger (0.49), Turkmenistan (1.24%), and Afghanistan (1.66%). The highest rate of credit cards use is again in the United Arab Emirates (37.42), followed by Turkey (32.82) and Bahrain (27.56); while the lowest are Turkmenistan (0.00), Pakistan (0.13), and Bangladesh (0.34).

The internet has reached every country, yet the penetration rate remains low in some. For example, in Somalia, there are only 1.63 per 100 internet users (2014), a small increase from 1.25 per 100 users in 2011. Even in some countries with higher per capita GDP, for example, Malaysia, there are only 67.5% internet users per 100 people. As a consequence, internet payment needs more time to become common in those countries.

However, internet subscriptions and mobile subscriptions are not closely correlated. In Niger, for example, with a 1.95% internet penetration rate, there is a 44.43% mobile penetration rate, an increase from 28.72% in 2011. In Mali, with only 7 internet subscribers per 100, there are 149 mobile subscribers per 100 people. While in Bahrain, with a very high internet penetration rate (90.99 internet subscribers per 100 people) there is also very high rate of mobile subscribers (173.27 per 100 people).

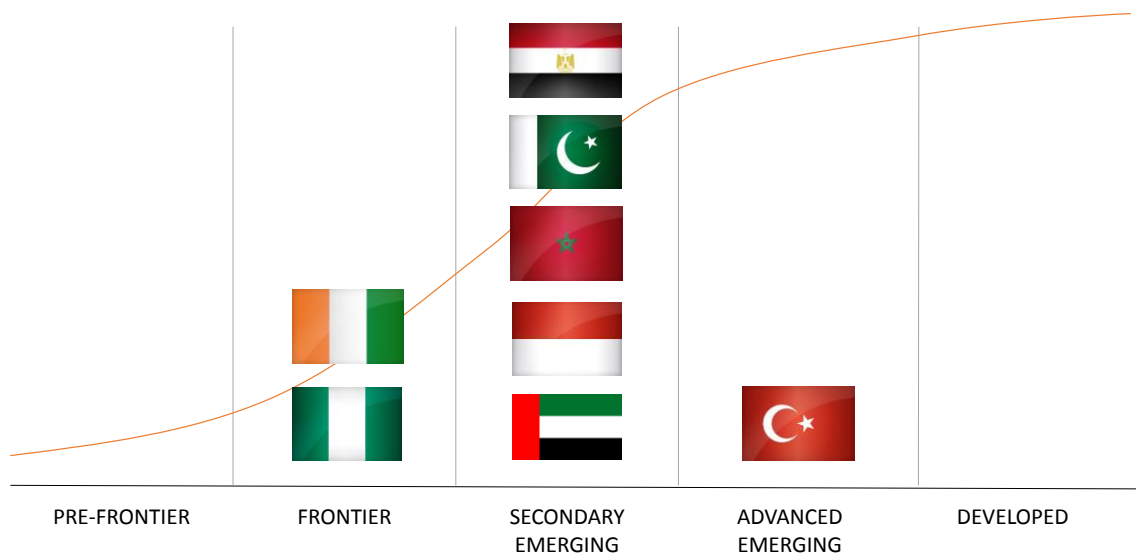
Mobile technologies tend to have a better penetration rate than internet subscribers. In some African countries it is especially high. Senegal for example, has a 98.84% of mobile penetration as of 2014 — higher than Turkey (94.79%). This is promising for providing mobile banking services, particularly in order to attract those unbanked. This “frugal” innovation can be efficient in improving financial inclusion and contribute to poverty alleviation. Indeed, there are some countries with a quite high mobile penetration rate, for example Kuwait with 218.43% in 2014. However, it becomes clear that the rapidity of diffusion of mobile phones out-performs the speed of diffusion of other technological innovations.

With regards to banked population, the highest are Republic Islamic Iran (92.18), followed by the United Arab Emirates (83.20) and Bahrain (81.94). Currently, the most unbanked populations are in Turkmenistan (1.79), Niger (3.49), and Guinea (6.17).

In our case study we investigate countries from three of these categories. Their growth rates and per capita income figures show much about the potential for engagement with financial institutions and also the level of disposable income. These factors strongly affect the engagement with retail payment systems, and the propensity to have bank accounts or use other financial instruments.

Thus, to obtain a deeper understanding of retail payment systems we take eight cases: Egypt, Indonesia, Ivory Coast, Morocco, Nigeria, Pakistan, Turkey, and United Arab Emirates (UAE). According to the FTSE Country Classification¹⁶ as at September 2014, most of the countries being studied are secondary emerging countries (see Figure 3). Two other countries, Ivory Coast and Nigeria, are categorised as frontier countries. Only one country, Turkey, is in the advanced emerging stages.

Figure 3. Case study countries classification according to FTSE



¹⁶ FTSE Group is a provider of economic and financial data and assigns the market status of countries as Developed, Advanced Emerging, Secondary Emerging or Frontier on the basis of their economic size, wealth, quality of markets, depth of markets, breadth of markets See: http://www.ftse.com/products/downloads/FTSE_Country_Classification_Paper.pdf

4.1 Egypt

Highlights:

- *Positive development of payment systems in Egypt during 2014, despite experiencing a tumultuous time during the review period.*
- *The number of banks operating in the country is increasing and intensifying competition; this results in more attractive offers for consumers and has encouraged many Egyptians to use more than one payment system at the same time.*
- *Egyptian consumers can now pay their bills or inquire about their credit from their smartphones and tablets. The rising use of mobile payment systems has thus promoted growth during the year.*

Introduction

Egypt has a well-balanced economy by regional standards, which is diversified across manufacturing and extraction activity, including the mining, oil and gas sectors (15.5 %) agriculture (14.75 %) construction (4.6 %), tourism (3.1 %), as well as various segments of their rapidly emerging services sector. Manufacturing activity is the largest single contributor to GDP, accounting for 16.2 per cent of the total GDP. The manufacturing sector is also an important element of the broader national expansion plan, with six segments identified as areas of potential growth: engineering machinery and equipment, consumer electronics, life sciences, biotechnology, automotive components and handicrafts.

Foreign investment in Egypt is a vital source of sustainable economic growth that contributes extensively to the country's GDP. Furthermore, the government of Egypt has endorsed an institutional framework for public-private-partnerships (PPPs) to further develop and improve the nation's infrastructure. PPP projects in the pipeline include building and maintaining hospitals, potable and wastewater stations, and freeways. Other significant sectors of interest to foreign companies include chemicals, pharmaceuticals, agriculture, water, tourism, renewable energy, transport and logistics and consumer goods.

General Banking and Payment Landscape

The banking and financial sector of Egypt has been highly affected by the changes that transformed the way banks and financial institutions deliver their services using technologies such as ATMs, mobile phones, the internet, credit cards, and electronic money. In line with global trends, retail payment systems in Egypt have been undergoing many changes as well. In the past, banks faced significant uncertainty regarding investments in advanced technologies,

but recently banks have been investing heavily in technology to maintain competitive advantage (Kamel and Hassan, 2003).

The banking sector in Egypt is one of the largest and oldest in the region. The National Bank of Egypt (NBE) was the first bank to begin operations in the country, in 1898. At that time, central bank functions were partially performed by the NBE, which was the only institution licensed to issue Egyptian bank notes. The size of the banking sector grew rapidly during the first half of the 20th century. In 1956, a total of 32 banks (26 commercial banks, 4 mortgage banks, 1 agricultural bank, 1 industrial bank) were operating in Egypt—all of them were foreign owned except the NBE and Bank Misr (Huband, 1999).

During the period 1957-1974, nationalisation had a profound impact on the Egyptian financial system. The confiscation of all foreign banks turned the financial sector into a stagnant, non-competitive sector. Only fully-owned Egyptian banks were permitted to operate. In February 1960, the NBE was nationalised, and in 1961 the Central Bank of Egypt (CBE) was established to perform its responsibilities as the unique entity charged with setting banking system regulations. As an autonomous regulatory body, CBE inherit the powers and authorities by Law No. 88 for 2003 and the Presidential Decree No. 65 for 2004.

From the mid-1970s onwards, the banking sector expanded remarkably with the open door policy aiming at outward-looking growth and an active role of the private sector to promote economic wellbeing. In 1975, a new banking law was enacted to define the nature and mode of operations for all banks operating in Egypt. In 2000, Egypt had a total of 62 banks as well as 28 representative offices of foreign banks and 3 unregistered banks which do not report to the CBE (CBE, 2001).

Retail banking plays an important role in Egypt's economic growth as it involves more diversified products and services across a mass market. They provide reliable low-cost sources of funds for asset management and retail securities placement as well as fund management. They also invest much money in expanding the number of branches, enlarge staff size, and expand the ATM network, along with establishing various delivery channels.

In 2000, the number of individual bank customers reached 9 million and since then a wide variety of retail products have been offered by a large number of banks, including payroll accounts, car financing, mutual funds, credit cards, and personal loans. Banks are also competing in expanding their branch networks, diversifying their delivery channels to include ATMs, call centres, mobile banking, as well as internet banking. Despite the fact that only about

13 per cent of Egyptian population has bank accounts.¹⁷ Egypt's banking system is healthy, in part because it is dominated by wealthy individuals.

Egypt has focused on building its ICT infrastructure since the mid-1990s, which was reflected by the introduction of the liberalisation program of Telecom Egypt in 1998 and the establishment of the Ministry of Communications and Information Technology (MCIT) in 1999. This liberalisation along with ICT growth contributed also to the modernisation of payment systems and in the early 1990s, the first local credit card issued. Although the number of cardholders remained small, constituting less than 7% of bank customers at that time (Kamel and Hassan, 2003). In 2001, Citibank and Vodafone launched a co-branded credit card to add a new product to the growing variety of financial products in the Egyptian market.

The use of ATMs has been in place since 1994, yet the rate of growth and adoption was fairly low with only 721 in 2001. Several banks have installed interactive voice response (IVR) systems and established call centres in 1999. Even though internet access has been available since 1993 (and from 1994 for commercial use), it was in 1996 that the government made an official address authorising the private sector to step into the provision of internet services. Internet banking, however, was not fully introduced until late 2001 when Citibank offered their first such services as a prototype. Although GSM service was started in 1996, mobile banking services are not very popular among Egyptian bank customers.

According to the IFC (2011), 4 million people, or 5% of the population, are served through commercial banks. About 4.5 million are served through the government owned PBDAC, while 21 million people have savings accounts through the Post Office. In 2014, according to the Global Findex data, there are 4.64 commercial bank branches per 100,000 adults in Egypt.

The Egyptian Bank Company (EBC) has a product to automate the salaries of 6 million people through a card-based system.¹⁸ E-Finance is the technology arm of the Ministry of Finance and applies to all government offices, such as tax collection, health care, and education, bringing the Ministry of Finance 30 million customers. It is their intention further to automate services through mobile networks. The Ministry of Finance issues 30,000 cheques every day to suppliers alone. EBC is partnering with the retail payment services company, Fawry, to access urban agents and with the applications development company, Masary, to access rural agents. Four different ministries are involved in delivering subsidy payments.

¹⁷ Data from database: Global Findex (Global Financial Inclusion Database) 2015

¹⁸ EBC is owned by a combination of government (54%) and private banks. EBC has been tasked with providing an open network for mobile payments to link banks and MNOs.

Large Value Payment Systems

The Egyptian Bank Company (EBC) was established in 1995 under the sponsorship and approval of the Central Bank of Egypt, which retains a 27% share in the company. Another 27% is owned by the National Investment Bank and the remaining shares are split among 16 banks operating in the country. The objective of this technology company is to provide Egyptian banks with the infrastructure required for electronic payments and clearing systems in coordination with the CBE. EBC operates '123', a platform that provides electronic switching and clearing of local debit transactions and also functions as an international gateway through MasterCard. Egypt's 123 card is an interesting example of a regional based credit/pre-paid system that differs from the MasterCard's Cirrus network and is a "smart" node of the network it serves.

Retail Payment Systems

The backbone of retail payment systems are the banks, however payments are also facilitated in Egypt by microfinance institutions. Egypt currently has 39 banks: 5 public, 27 private and joint venture banks, and 7 branches of foreign banks (IFC, 2011). Combined, the banking sector has a total of 3,443 branches: 2088 branches of public banks, 1270 joint venture and private, and 85 branches foreign. Thus 60% of the bank branches are provided by the public sector.

There are 1.4 to 1.6 million active clients of microfinance institution [MFI] in Egypt. Six NGOs represent 60% of the market and there are 450-600 smaller such organisations. Four banks deliver microfinance services: Banque Du Caire, Banque Misr, Bank of Alexandria, and National Development Bank. While they do provide liquidity, MFIs cannot accept deposits, nor can they provide insurance. The credit bureau, ISCORE, provides its services to MFIs at a discounted rate.

There are also a number of other non-bank institutions providing liquidity. The Social Fund for Development (SFD) is a permanent institution focused on alleviating poverty and reducing unemployment through interventions in community development and micro and small enterprise development. APEX, a wholesaler of capital funds to financial institutions and NGOs, also provides direct lending through its outlets. The SFD works through a network of 27 regional offices, one in each governorate and one in Luxor City. Together they have disbursed almost 200,000 loans valued at over \$50 million through NGO intermediaries.



The national postal authority, Egypt Post, serves 21 million Egyptian with 18 million savings accounts valued at US\$ 4 billion (IFC, 2011). They offer a pension service for 3.5 million customers for insurance, all currently handled manually. They are embarking on a very ambitious automation plan to allow for daily reconciliation, a step in modernising the system and making it amenable to better retail payment practices. So far, 1,200 of the offices are automated and the remainder are supposed to be automated in the coming years. The postal authority maintains a large network of 3,800 branches, 60% of which offer financial services. They also have 1,700 distribution centres that handle postal logistics. Egypt Post staff hand carry payments directly to 300,000 recipients. It is their intention to provide a third-party agent network and offer customers mobile financial services, presumably in partnership with one of the mobile network operators, possibly Etisalat, in which, through its investment arm, Egypt Post holds a 25% ownership stake.

The Principle Bank for Development and Agricultural Credit (PBDAC) serves nearly 4 million people and has deep outreach into rural areas via 1,500 branches with 30,000 employees. It serves nearly 3.8 million farmers and rural customers. As of September 2009, the bank had \$4.6 billion (EGP27.66 billion) in assets.

Payment Infrastructure

Egypt has approximately 4,600 ATMs and 35,000 PoS terminals—the exact numbers are not available but it does not have a national PoS infrastructure. All PoS networks switch through VISA and MasterCard. The Commercial International Bank (CIB), Arab Bank, Banque Misr, and National Bank of Egypt have separate PoS licenses.

Payment Service Providers

1. Fawry. Fawry is a business launched by Vodafone at the end of 2008 that has installed and maintained 6,000 PoS terminals, mainly in major cities. Considered the largest and most successful of the payment systems providers in Egypt, it processes over 1 million transactions per month. The NBE, Bank of Cairo, Banque Misr, Bank of Alexandria, and Credite Agricole all use the company's payment services and some more banks will join the network. Fawry offers airtime, internet, charity, brokerage, and Cash-U purchases. So far, they appear to have no interest in mobile money and probably do not have sufficient assets to move in that direction yet.
2. Masary. Masary is an applications and payment systems development brand (APSD) launched by Vodafone in April 2009. From April 2009 to April 2011, it sold \$20 million in airtime credit. Vodafone Masary's primary market as the unbanked and under-banked,

thus they built their agent network in rural areas first, mainly through grocery stores and pharmacies. They also provide liquidity management for agents. With the base in mobile credit and debit, they are well placed to pilot mobile money solutions, but know that the CBE currently will not allow that move. In the meantime they offer some retail payment services such as for paying Telecom Egypt land-line bills. Currently they are limited to cash-in, with funds then used to purchase a service.

3. BEE. BEE is a Singapore-based company that created a joint venture with a local company to enter the Egyptian market and launched locally in October 2010. Their geographical focus is on Cairo, Delta, and Alexandria and they operate similarly to Fawry. BEE provides bill payment for mobile and internet services, and also mobile top-ups. In addition to Vodafone, they work with Etisalat and Mobinil, and intend to provide e-wallets.¹⁹

Mobile Payment Initiatives

1. Vodafone with the Housing and Development Bank. Vodafone is the primary business driver in a mobile wallet initiative with the Housing and Development Bank and will provide technology, develop the agent network, lead marketing, and offer customer services. The Housing and Development Bank (HDB) will provide the license, confirm KYC/AML, and audit financial flows. Due to regulatory constraints, they have a P2P product only, but see bill payment as the product that will have most impact and provide more revenue. Due to regulatory constraints, they will launch with only 59 HDB branches and 100 Vodafone branded storefronts as agents.²⁰
2. BNP Paribas with Mobinil. BNP Paribas views itself as a key decision maker in the mobile wallet business. The bank will provide the license, vigilance, approval of agents, and financial audits. Their strategy is to cross-sell payment services to Mobinil customers. BNP will require all sub-distributors to be clients of the bank. BNP has partnered with Orange in Senegal, Mali, Côte d'Ivoire, Niger, Cameroon, Kenya, Madagascar, and Botswana.
3. EBC and Etisalat. EBC delivers a card-based solution to banks through their ATMs and POS networks and work with Etisalat to deliver a mobile wallet to their bank customers. EBC is pushing banks to deploy e-payment services, anticipates that NBE and Banque Du Caire will likely to be the first two banks to pilot mobile financial services. Branches of both banks and branded Etisalat storefronts will serve as agents, i.e. 745 sites. None of the participants have prior mobile money expertise.

¹⁹ See <http://www.bee.com.eg/en/media-center/press-releases>

²⁰ See <http://fortune.com/2014/03/28/in-egypt-high-hopes-for-mobile-wallets/> and <http://english.ahram.org.eg/WriterArticles/NewsContentP/3/86097/Business/Egypt-Mobinil-launches-mobile-payment-service.aspx>



Summary

Egypt embodies many paradoxes especially given that despite widespread poverty it has long had a middle class that constitutes a critical mass of banking customers, internet users and patrons of mobile and other advanced payment systems. Thus, major international services providers such as Vodafone and Etisalat have invested significantly in advanced payment systems, along with long established local banks and services providers. The government has sophisticated experience with financial and telecommunications regulation and they recognise their responsibilities toward the un-banked and others who would benefit from rapid dissemination of innovative payment systems. Economic and political developments, along with an underdeveloped retail sector, are likely to remain inhibitors to further deepening of retail payment systems.

4.2 Indonesia

Highlights:

- *The largest Muslim country and economic growth remains prevalent. With multiple efforts of the Central Bank in regulating the financial sector, there is more financial stability, thus increasing confidence in growth for retail payment systems.*
- *Telecommunication service providers are increasing their stake in providing electronic money to primarily unbanked consumer groups.*
- *Penetration of mobile phones has exceeded the number of the population, reaching around 120% in 2013, or 1.2 mobile phones per person.*

Introduction

Indonesia is Southeast Asia's largest economy with 240 million people and GDP growth rate above 65.5.0% in 2012 (World Bank, 2014) and projected to remain above 65% for the foreseeable future. During the difficult financial conditions of 2009 worldwide, Indonesia's economy was among the top worldwide performers due to factors including strong domestic demand and rich natural resources. The country now enjoys solid macroeconomic fundamentals, a stable currency and recent upgrades in bond ratings have helped make Indonesia an optimistic economy. A large percentage of the population, however, has little or no access to financial services due to geographical, infrastructural and cost barriers.

With only 50-6090 million Indonesians, or 2035.9% of the population estimated to have bank accounts (Global Findex, 2015) and between 96 million and 114 million185 million individual mobile subscriberssubscriptions (Indonesia eMarketer, 2015), mobile telephone networks look to have the potential to provide extensive financial services (IFC, 2010). Furthermore, the gap between bank account holders and mobile subscribers is only going to increase over the next few years as the mobile subscriber population continues to grow, currently estimated at around 70 million bank account holders and approximately 150 million unique mobile subscribers by 2013.

General Banking and Payment Landscape

Indonesia's commercial banks control more than 95 percent of total deposits and assets (USAID, 2011). The three largest banks (Bank Mandiri, Bank Central Asia/BCA, and Bank Rakyat Indonesia/BRI) represent 35% of total assets. The 10 largest banks control more than 60% of assets. This concentration of resources has enabled the larger banks to expand services, but has inhibited their interest in serving less profitable, down-market segments.

Nonetheless, branch and ATM expansion continues in Indonesia with the number of ATMs doubling in the past six years.

In addition to commercial banks, the financial sector has an active microfinance component. Targeting the poor and rural customers, the People's Credit Banks (Bank Perkreditan Rakyat/BPR) fulfil the traditional microfinance niche and provide limited credit and savings products. While regulated as banks, BPRs may draw funds from the public only in the form of deposits (time deposits, savings and/or other equivalent form of deposits), extend credit, and place funds in designated financial instruments. BPRs are not permitted to participate directly in the payments system, engage in equity participation, or conduct foreign currency or insurance transactions. Most importantly, individual BPR operations are restricted to single provinces, further limiting their ability to scale operations.

Central Bank Act, the UU No. 23/1999 on Bank Indonesia (17 May 1999), then amended with UU No.3/2004 (15 January 2004) contains the legal basis for oversight and supervisory function of the Central Bank. However, in 2011, the Financial Services Authority of Indonesia (Otoritas Jasa Keuangan or OJK) was established under Act No. 21 of 2011 on Financial Services Authority that regulates and supervises the financial services sector. The OJK is an independent agency that replaced the role of Bank Indonesia in regulating and supervising banks. It also works to protect consumers of the financial services industry, along with Bapepam-LK in regulating and supervising the capital market and financial institutions.

Large Value Payment Systems

Bank Indonesia [BI] is at the apex of the payment system in Indonesia and is empowered by the Bank Indonesia Act 23 of 1999 to supervise banks and other financial institutions, conduct monetary policy and oversee the payments system. Bank Indonesia also provides settlement in central bank money for the RTGS system it operates, the government securities system and the national clearing system. The main players in the payment system in Indonesia are banks that include state banks, private banks, regional development banks and sharia banks.

The BI-RTGS system is the main system for handling payments and is also used for the settlement of obligations arising from the other payment streams. The BI-RTGS links 149 participants to the central bank using a designated network. Of the 149 participants, 144 are banks of which 2 are indirect participants; the remaining 5 are non-bank participants who include Artajasa (through its ATM switching company), Posindo (the post office), Lintas Arta (a switching company), Finnet (an e-money switching company) and more recently, the

Indonesia Eximbank. The indirect participant status is offered to participants who handle small volumes; they are required to hold a demand deposit account at the Bank Indonesia.

Retail Payment Systems

Cash remains the dominant means of payment in Indonesia despite the various innovative products and instruments introduced by banks in the provision of payment services and non-cash payments are mostly provided by the banking system. Other means of payment used in Indonesia include cheques, drafts, and direct debit and credit transfers (Bank Indonesia, 2002). Most medium to large commercial banks provide ATM access to saving accounts. Electronic direct credit and direct debit transfers are solely available for intra bank transactions. Payments using cards (debit and credit, ATM, and POS) are gaining popularity, issued by banks and these are switched through different networks that are not interlinked. The biggest of these networks in terms of number of banks it services, Artajasa, has access to the Bank Indonesia RTGS in order to facilitate settlement of card and other retail transactions by member banks.

Non-cash payment methods

1. Credit transfer. Banks provide a variety of credit remittance services within their branch networks, including standing orders and electronic remittances. Interbank transfers over Rupiah [IDR] 1 billion and other urgent interbank fund transfers are now settled through Bank Indonesia – Real-Time Gross Settlement System (BI-RTGS). Fund transfers for bank customers may be made via intra bank electronic transfer, a paper based clearing system for local transactions over correspondent bank networks for cross-regional transfer, and the RTGS system both for local and cross-regional transfers.
2. Cheques. It is a common banking practice in Indonesia for banks to offer cheque account facilities. BI has a strict rule regarding dishonoured cheques. If three small amount cheques are dishonoured within a six months period, or one cheque for a large amount, the customer is 'blacklisted' and prohibited from holding a cheque account at any bank for one year (Bank Indonesia, 2002).
3. Direct debits. Direct debits are still limited to intra bank usage. With no interbank giro system, utility companies are forced to make banking arrangements with commercial banks for the purpose of bill payment collection.
4. Payment cards. A wide range of payment cards has emerged in Indonesia including international credit and debit cards, ATM and point-of-sale (PoS) debit cards, numerous private label cards (e.g. supermarket cards) and some integrated circuit cards (smart card

or chip card) for retail payments. Major credit card brands such as VISA, Master, AMEX, and Diners are common and widely accepted in Indonesia. Card operations are generally provided by licensed banks, with VISA, Master and JCB being prominent along with private-label cards. American Express (AMEX) and Diners operate as non-bank services under license from the Ministry of Finance. Certain banks also issue proprietary credit cards. Meanwhile, ATM services were introduced in the early 1990s. Five domestic shared ATM networks (ALTO, ATM BERSAMA, CAKRA, FLASH and BCA) and two international shared ATM Networks (CIRRUS and PLUS) operate. ATM cards are used not only for withdrawals and account balance enquiries, but also to transfer funds to other accounts within the same bank, paying utilities such as telephone bills, credit card bills, etc. Use of debit cards at point of sale (EFTPOS) is getting more popular, mainly in big cities. Some banks are issuing debit cards under the Maestro and Visa Electron programmes. Other banks are issuing proprietary cards with a current proliferation of terminals at the merchant site (Bank Indonesia, 2002). With regards to ATM/debit cards, there are 102 banks (85 commercial banks, 8 sharia banks, and 7 rural banks) as issuers and 16 institutions (15 banks and 1 non-bank institution) as acquirer. Twenty banks (19 commercial banks and 1 sharia bank) provide credit cards as issuers, while 12 institutions (11 commercial banks and 1 non-bank institution) act as acquirers. Meanwhile, 13 e-money products were launched in the market, of which 6 are provided by banks, 4 by mobile network operators [MNOs], and 3 by other institutions (Bank Indonesia, 2013). As of March 2013, there were at least 65,000 ATM machines, 440,000 EDC debit cards, 610,000 EDC credit cards, and 103,000 e-Money readers spread out across Indonesia. Several banks have small smart card systems operating ATM or PoS.

5. Postal instruments. One particular service of significance with respect to the non-bank sector is the Giro service offered by Post Office (PT Pos Indonesia). PT Pos Indonesia issues a 'Giro Book' for credit remittances and provides a domestic and international money order service. Money orders are generally used to remit funds to individual persons who do not hold any bank account. PT. Pos Indonesia also provides Postal cheque account facilities to firms and individuals. Cheque accounts are used mostly by public institutions for collecting various types of tax, government employee payrolls and retirement provisions, utilities payments, and other individual payment transactions. PT. Pos Indonesia also issues Postal Traveler's Cheque.

Card Payments

The use of payment cards, particularly debit cards, in Indonesia has increased rapidly in recent years. Visa, MasterCard and JCB International are the principal credit card issuers in Indonesia. There were approximately 89 million payment cards in circulation at the end of 2012, a 40% increase on the same period in 2011.

Debit cards account for over 80% of all cards in circulation. In 2012, debit card payments accounted for over 83% of the total volume of cashless payments but just 0.1% of the total value (HSBC, 2012). There are 55 banks issuing debit cards in Indonesia, 20 issuing credit cards and 102 issuing ATM cards.

There are three credit card clearing operators (JCB International, Mastercard Indonesia and Visa Worldwide Indonesia) and five ATM and debit card clearing operators (Artajasa Pembayaran Elektronik, Daya Network Lestari, Rintis Sejahtera, MasterCard Indonesia and Visa Worldwide Indonesia).

Three domestic ATM networks operate in Indonesia (ATM Bersama, Prima and Alto) and two international ATM networks (Cirrus and Plus). Transactions at domestic ATMs are carried out in real time, with final settlement taking place through BI-RTGS. Transactions at Cirrus and Plus ATMs are cleared by MasterCard and Visa. PoS transactions are carried out via two PoS networks, the Debit BCA network and Kartuku.

Electronic money schemes are available in Indonesia in the form of reloadable pre-paid cards. There were 21.9 million e-money cards in circulation at the end of 2012, a 53% increase on the same period in 2011 (HSBC, 2012). Six banks and seven non-bank financial institutions provide e-money schemes. Unregistered e-money cards have a maximum value threshold of IDR 1 million. Registered e-money cards have a maximum value threshold of IDR 5 million. There is a monthly limit of IDR 20 million for e-money transactions. In 2012, e-money transactions accounted for 3.0% of the total volume of cashless payments.

Electronic Banking

Electronic banking is available in Indonesia and offered by the majority of the country's banks. There is no bank-independent electronic banking standard in Indonesia; each bank offers its own proprietary system for corporate banking purposes. Services available include balance and transaction reporting and payment initiation. Internet banking is not widely available; internet penetration represents just 22.4% of the population (HSBC, 2012). Online transactions are conducted via the Secure Electronic Transaction (SET) system.

Mobile Banking

In February 2013, Bank Indonesia gave approval to a mobile payments system developed by BlackBerry, PermataBank and mobile banking service provider Monitise. The BlackBerry Messenger (BBM) payments service allows, for the first time, users to make real-time payments and to transfer money between bank accounts.

Five of the 12 mobile operators in the market control more than 90% of the subscribers and 92% of income revenue. Mobile penetration stands at around 67%, with individual subscribers topping 100 million (150 million active SIMs) (USAID, 2011). In 2010, Telkomsel and Indosat each requested and obtained additional 3G bandwidth. XL and Axis, which received their 3G licenses in 2006 and 2005, respectively, also requested additional 3G spectrum. These requests reflect the growing penetration and use of smartphones and related data services. The increased bandwidth is intended to strengthen network service capabilities, enabling delivery of data services in greater volume.

Where mobile banking has already been made available in Indonesia, it has primarily been as an additional channel for those already holding bank accounts. It has also been disproportionately concentrated upon the larger developed urban areas of Jakarta, Bandung, Surabaya, and Denpasar, Bali. The questions being addressed here are whether there is demand from those without bank accounts or those with limited access to financial institutions, what that demand may be (i.e., whether it differs from the services being offered by banks and financial services providers), and whether it could be provided via mobile phone networks.

Although m-banking is still in its early stages of development in Indonesia, a number of players have already become actively involved in various forms of mobile banking and mobile payments services. These early movers primarily come from the leaders of the banking sector and the telecom industry, but they also include third-party platform and software providers. As a result, three distinct models of m-banking service delivery can be drawn: the carrier-led model, the bank-led model and third-party models. The third-party led model offers a particularly interesting option for Indonesia currently in that it is operator-agnostic and benefits from the possibilities offered by the current banking regulations.

Demand for mobile banking services in these banks, as in other countries, transformational or otherwise, can be ranked in the following order: 1. top-up, 2. bill payments, 3. transfers, 4. remittance, 5. transactions (IFC, 2010). These services could be viewed as an iterative progression, with over-the-air top-up already prevalent throughout the market. Moreover,

each of these services could be enabled with or without an attached savings account, so the demand for these services does not necessarily translate into additional savings accounts. However, all else being equal, the overwhelming desire is for inclusion in the formal financial sector, not least because of a crucial factor – trust – which appears to reside most strongly with the banks, and, in particular, the large commercial and state banks.

Bill payments are overwhelmingly via interest, most particularly for the un- and under-banked, and should be seen as a potential point of market entry. Mobile money transfers tend to make more sense to those who have already had some experience with mobile services or who have a specific need to address. Remittances has a natural constituency among migrant workers, and while this group is large, it also tends to be geographically specific in Indonesia.

Despite the expressed desires for formal financial participation, informal financial institutions service a greater proportion of the market than do commercial banks; one-third of Indonesians do not save at all, with less than half saving at banks. A part of the reason is access. In many cases financial services are simply not convenient enough to bring the excluded or underbanked into the formal financial system. To be realistically able to enjoy a savings account many within the micro-finance segments need more immediate access to their funds.

The more serious impediments to access arise from high monthly fees and high minimum account balances. Most banks intentionally structure their interest payments on deposits and monthly fees in a way that discourages small deposits. Banks do this because small accounts are a costly, administrative nuisance, and because unilaterally closing a non-zero dormant account entails (contingent) financial liabilities. In other words, new business models will need to be adopted if financial access is to be successfully extended and this means that the banks and other providers will need to adapt their pricing and their product portfolios as well as their mode of delivery if these initiatives are to be successful.

Summary

Because of the size of its economy and population, Indonesia's payments systems experience has been extensive and diversified. Despite its low per capita income, the economic growth rate and optimistic economic prospects mean that Indonesia has opportunities to adopt for advanced retail payment systems. The conditions of very high mobile telephone ownership and very low bank account access, transitional though it may be, provides mobile payment systems operators especially advantageous conditions for market experimentation. With active government support, we can expect this to become a dominant form of retail payment system in the third decade of the twenty first century.



4.3 Ivory Coast (Cote d'Ivoire)

Highlights:

- *Ivory Coast plays a key role in transit trade for neighbouring, landlocked countries. The country is the largest economy in the West African Economic and Monetary Union, constituting 40% of the monetary union's total GDP.*
- *The Ivorian market has a developing payments infrastructure. Mobile money regulations are available and enabling MNOs to participate. At least two mobile payment initiatives have been launched: Jumia and MTN.*
- *There are numerous cross-border remittance systems as part of the strategy to increase financial inclusion through the use of mobile technologies and to reduce the cost of transferring money between countries.*

Introduction

In general, financial sectors on the African continent remain largely underdeveloped, while banking industries continue to dominate the landscape in terms of total assets and services. However, Africa enjoys certain key advantages that will enable the continent to equal or even surpass at least some of its emerging market counterparts in terms of financial sector development in the coming decade and beyond. Most African financial markets are more open to new entrants including foreign players than other emerging market economies. The growing presence of subsidiaries of major global banks on the continent has undoubtedly improved the quality of financial services in recent years; the focus here has largely, but not exclusively, been on high margin corporate businesses as opposed to the retail banking sector.

Cote d'Ivoire (hereafter, Ivory Coast) has a population of approximately 21 million and an approximate GDP growth rate of 2.3% in 2008 and 3.2% in 2009. GDP per capita is estimated to be US\$1,700. The Ivory Coast economy has historically been highly dependent on the production and export of tropical products. It is the world's largest producer of cocoa beans and a significant exporter of coffee and palm oil. Since 2007 oil and gas production have grown in relative importance. Dependence on agricultural exports has exposed the economy to swings in commodity prices.

According to the IFC (2012), there are 23 commercial banks operating in Ivory Coast, along with 72 microfinance banks and 3 payment service providers. By June 2012, there were 880,000 debit cards issued with a volume of transactions of 270,000 per year, accounting for about \$39 million.

General Banking and Payment Landscape

As the banking hub of francophone West Africa, Ivory Coast accounted for 27.6% of total banking sector assets within the West African Economic and Monetary Union (WAEMU) region in 2012. The banking sector consists mainly of French and Nigerian subsidiaries in addition to state-owned banks. Although relatively well capitalised, the Ivorian banking sector also suffers from credit risk in the form of comparatively high NPL ratios, partly a consequence of the post-election conflict during 2010, when banks temporarily ceased operations. Authorities in the WAEMU region are considering the establishment of a financial stability fund to support the financial system during times of crises, such as experienced in Ivory Coast recently.

The relatively excessive liquidity of the banks is mostly due to the large amount of sight deposits, which is partly why banks offer few long-term loans and explains the cost of banking operations, which are still a major weakness of the economy. Access to loans remains very difficult for many economic operators, especially long-term credit (which account for only 6% of all loans). SMEs also have little access to short-term working capital, unlike large firms. Guarantees, the cost of banking and lack of information all need to be reformed. The collateral effects of the crisis and the public internal debt have damaged the quality of bank portfolios, with bad debts now between 15% and 17% of all gross loans (African Economic Outlook, 2014).

Bank penetration is 13.4%, but the rapid growth of telephone banking is likely to increase bank use by the population, 4 million of whom (a third of the workforce) were signed up for the various mobile financial services in 2013 (African Economic Outlook, 2014). The number of distribution channels for mobile financial services is estimated at 4,000. The opening of bank branches in remote areas is encouraged by the government through incentives for installing cash machines.

In 2007, the Council of Ministers of WAEMU adopted a new law establishing regulations for decentralised financial systems, which will share the supervision between the Central Bank of West African States (BCEAO), the WAEMU Banking Commission, which is mainly responsible for the organization and implementation of controls for financial institutions, and the respective Ministry of Finance for each member country. This decentralised bill was passed in Cote d'Ivoire in 2011.

The BCEAO (La Banque Centrale des Etats de l'Afrique de l'Ouest or The Central Bank of West African States) governs banking and other financial institutions in Ivory Coast. The financial sector is dominated by banking. There were 20 commercial banks and three other financial



institutions in 2007. The financial system remains functional, but commercial banks in rebel-controlled areas are closed.

The banking system had virtually disappeared in the north of the country where 50 bank branches were closed in 2002; currently there are 18 main banks nationally and since mid-2007 some of the affected banks have resumed activity. Non-performing loans fell from 26% of total credit in 2004 to 20% in 2006. The largest banks include foreign ownership and are more reliable in the unstable climate. The WAEMU banking commission maintains close surveillance on six banks out of the 18 and four banks are not in compliance with the solvency ratio requirement.

The government sold its shares in smaller banks and only has minority holdings in several larger institutions. Its share in the Banque Nationale d'Investissement's (BNI) total loan portfolio fell from 83% to 60% in 2006. BNI is still not in compliance with the ratios for liquidity and credit to shareholders and its share capital has not yet been opened to private investors.

With regard to payment system, Regulation No.15/2002/CM/UEMOA on Payment Systems in the Member States of WAEMU, which was enacted in 2002 provides a regional framework on payment systems in WAEMU countries. This law addresses participants in the payment system, operations and mechanisms of payment systems, choices of instruments as well as information regarding account opening and operating.

Large Value Payment Systems

The states working with the West African Monetary Union (WAEMU) sub-region common Central Bank are Benin, Burkina Faso, Ivory Coast, Guinea-Bissau, Mali, Niger, Senegal and Togo. The Central Bank of West African States (BCEAO) operates the large value payment system for all these countries and is a public international institution headquartered in Dakar, Senegal. Its mission is to ensure price stability in the sub-region through sound monetary policy, management of foreign exchange reserves, as well as strict bank supervision. In addition, the BCEAO acts as the common issuer of Treasury Bills and Treasury Bonds for all the member countries.

The BCEAO launched an RTGS system in 2004 for the members of the West African Economic and Monetary Union (WAEMU).

Retail Payment Systems

There are three main payment systems providers and some mobile money operations in Ivory Coast. Unlike more prosperous countries, however, there is relatively little use of online commerce with few internet service providers, few users, and little use of digital financial services. Nevertheless, some service providers offer online payment services and point of sale networks, and Ivory Coast's role as a regional economic centre has brought it access to a small variety of competing services choices.

Payment Service Providers

1. GIM-UEMOA. The GIM-UEMOA is the official card and electronic switch for the UEMOA region with 2 million debit cards in circulation and 80 banks participating. It was established in 2009 to reduce switching and distribution costs for banks in order to increase the number of banked and has gone through multiple iterations of implementation of its mobile platform, online payment platform and point of sale network. There is 52% ownership by the BCEAO and 47% ownership by member banks. The GIM is used by 13 out of 23 banks (BICICI and SGBCI are not members). It offers card switching, online payment, point of sales for merchant purchases, an ATM network as well as a mobile payment and mobile banking platform called GIM-Mobile.
2. Celpaid. Celpaid is the only private company licensed both as a bank and mobile payment service provider in Ivory Coast. It operates with independent agent locations including 66 branches of Banque Atlantique and caters to clients mostly receiving salaries on their mobile wallets. It is open to all networks, customers initiate transactions via SMS and confirm by PIN when Celpaid customer service calls back to confirm the transaction. Opening fees for the service apply. Other MFSPs do not charge opening fees.
3. E-Tranzact. This is the Nigerian multi-platform payment service provider that opened an office in Abidjan in 2008 with the intention of rapid growth but has been slowed by subsequent country development. It is currently integrated with 2 smaller banks with a card product offering, evolving towards an aggregator for payment collection services. Its platform is capable of powering MNO's mobile money offerings.



Mobile Money

At first glance, the opportunity for mobile money in Ivory Coast seems large. In general, West Africa region continues to lag significantly behind East Africa in levels of mobile money account ownership (6%), compared to over 20% in East Africa. Ivory Coast is an exception, a regional mobile money hotspot, where almost one in four adults has a mobile money account, and one in three an account at a formal financial institution.

With a population of 21 million and the highest GDP per capita in the region, it has one of the most dynamic economies in West Africa. In addition, with only 15.13% of adults in Ivory Coast having access to a formal financial institution, mobile money seems an evident conduit to increase financial inclusion (Global Findex, 2015).

Early on, the BCEAO realised that mobile money had the potential significantly to increase financial inclusion. In 2006, the BCEAO issued regulations on electronic money that qualified non-banks for an e-money issuer license. Under this regulation, an e-money issuer can be a bank (in partnership with an MNO) or a non-bank institution that has been granted a specific licence by the central bank. Since this regulation was issued, five companies launched their mobile money service: Orange, MTN and Moov (the three leading MNOs in the country, licensed through their partner banks), and CelPaid and Qash Services (two non-bank e-money issuers). Mobile money registrations have grown rapidly and today over 40% of the adult population of the country has a mobile money account (GSMA, 2014).

The most obvious external factor driving the adoption of mobile money was the country's return to civil peace and economic recovery in 2012. A decade of political crisis culminated in 2010 when two candidates both claimed to have won the presidential election, triggering a national conflict that weakened the economy and left the population vulnerable.

In the course of one week in February 2011, four banks suspended operations, creating a major money shortage. Public distrust of the financial system deepened and was aimed at all types of financial service providers, including mobile money providers. The limited presence of banks, especially in rural areas, also made liquidity management more difficult and limited the ability of mobile money agents to provide cash-out services. However, a return to civil peace has helped to restart the economy. Mobile money providers in Ivory Coast agree that the post-election crisis had a negative impact on their services and attribute the uptake of mobile money in 2012 in large part to the country's economic recovery. The uptake of mobile money is not just the result of newfound stability, however. Since 2012, mobile money providers have been using new and effective tactics to increase mobile money usage.

Mobile Payment Providers

Two large banks BICICI (BNP Paribas) and Societe Generale (SGBCI) are currently involved in mobile payment systems as bank partners for MNOs Orange and MTN respectively. They hold the mobile money issuer license and are responsible for the financial and KYC reporting. However, they merely manage the float and receive agent commissions, and offer little or no value added services to the customers of their mobile payment systems partners.

Caisse d'Epargne, a state-owned bank which has the largest branch network, has a social mandate to increase the number of unbanked and is developing a mobile payment systems solution called Bankcell, powered by GIM-Mobile to fulfil that mandate. In addition, microfinance institutions such as Microcred are slowly exploring opportunities around becoming mobile payment systems agents and leveraging this platform to enable credit repayments.

There is generally a lack of information about the target market for mobile payment systems and what products or solutions would address specific needs of this market. This means that banks and microfinance institutions are unsure of how to position themselves in this space and most importantly, how they can make money beyond commissions and earnings on float.

Summary

The Ivory Coast holds the unique position of having very limited banking services and a small banked population but the means and interest to introduce new retail payment systems. The full range of possibilities are apparently open and the government has taken the initiative both to provide a mandate to the state-owned Caisse d'Epargne and to initiate regulations for mobile money. This has provided the platform upon which local, regional and foreign (mostly French-lined) companies have begun operations. As the economy improves the diffusion of these services is likely to increase.

4.4 Morocco

Highlights:

- *The Central Bank Al-Maghreb set an objective of 66% of the population banked by the end of 2014. Yet, at the end of the review period, the unbanked population in Morocco remained significant. This was primarily the case amongst the rural population, which accounted for over 40% of the total in 2013.*
- *Although 3D Secure was used by a few online retailers from April 2014, most Moroccan consumers remain cautious when making purchases via the internet. Therefore, The Centre Monétique Interbancaire and Maroc Télécommerce called on banks to generalise the 3D Secure system amongst all retail websites to protect consumers.*
- *Within the overall consumer landscape, payments using financial cards continued to boom in 2014. Cash payments still dominate, and electronic payments have also seen increased usage in Morocco, but the usage of retail payments is becoming common, as ownership of such payments is increasing.*

Introduction

Morocco has capitalised on its proximity to Europe and relatively low labour costs to build a diverse, open, market-oriented economy. In the 1980s Morocco pursued austerity measures and pro-market reforms, overseen by the IMF. However, despite Morocco's economic progress, the country suffers from high unemployment and poverty. In 2011, high food and fuel prices strained the government's budget and widened the country's current account deficit.

According to the World Bank, 39.07% of the population older than 15 have an account at a formal financial institution. This ratio is higher than the average for the group of lower middle income countries, where Morocco belongs. The Central Bank of Morocco (BAM) estimated in April 2012, 52% of the population of Morocco had access to one or more financial services. According to BAM, access to finance has increased almost 18% since 2010 mostly due to the inclusion of the accounts of the newly created Postal Bank (Al Barid Bank) formerly La Poste Financial Services Unit.

General Banking and Payment Landscape

The CGAP-World Bank estimated that Morocco's number of deposit accounts per 1,000 adults in 2009 was one of the lowest of the region, and without including, Al Barid Bank's accounts, only higher than that of Syria and Yemen. No data are available for credit accounts. However, in macroeconomic terms, financial deepening in Morocco measured in terms of deposits (81%) and loans (80%) as a percentage of GDP was average in regional terms.

The main laws regarding banking and payment systems in Morocco is Decree No. 1-05-178 Promulgating the Law Related to the Establishment of Credit Institutions and Affiliated Organisations No. 34-03, 2006 (Salami, 2012). This law replaced the 1993 Banking Act which was enacted by the Central Bank of Morocco in July 1993 as the unified regulatory framework for all credit institutions.

Bank Al-Maghrib (BAM), Morocco's Central Bank is the prudential regulator and supervisor of financial institutions whose responsibilities include monitoring and ensuring the security of payment systems and related standards. BAM also advises the government on financial issues. Following an IMF assessment in 2003, Morocco embarked on a series of financial sector reforms that were strengthen the institutional and legal environment for the financial system (Salami, 2012).

Morocco has 19 banks with a combined total of 4,565 branches. Centre Monétique Interbancaire (CMI) is the sole acquirer in the market and functions as the central retail payments switch for ATM and POS. Total bank deposit account values have increased 18% from €4.9 billion in 2007 to €6.8 billion in 2009; 74% of bank deposit accounts sat with 3 financial institutions (BP, BMCE, AWB). Conventional access to financial services remains restricted (6,300 people/bank branch nationally), with a significant gap between urban and rural zones (5,800 people/branch versus 112,000 people/branch). Bank card penetration, however, has more than doubled between 2004 and 2008 from 7.5% to 16% of the total population (IFC, 2012).

The Moroccan microfinance sector is just emerging from a widespread non-performing loan crisis that followed a period of sustained expansion of credit portfolios. Moroccan MFIs are non-profit organisations that provide credit only, with wholesale funding from local banks and international funders. While some of the leading MFIs have initiated development of mobile phone-based payment channels, these initiatives have been slowed or suspended pending recovery from the portfolio crisis.

Large Value Payment Systems

The institutional framework of payment systems is characterized by the diversity of actors and the central role of Bank Al-Maghrib, as the authority legally responsible for ensuring the smooth operation and security of the systems and means of payment. The large payment systems actors are primarily Système des Règlements Bruts du Maroc (SRBM), Système Interbancaire Marocain de Télécompensation (SIMT), Système de règlement/livraison de Maroclear, and Centre Monétique Interbancaire (CMI).



Système des Règlements Bruts du Maroc (SRBM) is a payment infrastructure that allows efficient and secure transfers between participating financial institutions and helps to strengthen the effectiveness of monetary policy. The SRBM is managed and administered by Bank Al-Maghrib through the Payment Systems Department under the Directorate of Monetary Operations and Changes. The Governor of Bank Al-Maghrib announced the start of work on the implementation of their RTGS on 30 November 2005.

Système Interbancaire Marocain de Télécompensation (SIMT) developed by Bank Al-Maghrib and the banking community as part of the modernisation of payment systems in Morocco for handling mass transactions for all means of payment, excluding credit cards. This system is designed to substitute the physical exchange system of cashless payment instruments with the channel of clearing that ensures the exchange, clearing and settlement in automated form gradually over the whole national territory.

Maroclear was established in 1997 as a Central Depository of Securities. It offers its customers, consisting exclusively of issuers, banks and brokerage firms, a wide range of services in response to both market needs and compliance requirements with international standards. Maroclear is a limited liability company owned by the state, banks, Bank Al-Maghrib, the insurance companies, the Caisse de Depot et de Gestion and the Casablanca Stock Exchange.

Centre Monétique Interbancaire (CMI) centralises, for the benefit of the banking system, the processing of all interbank electronic banking operations, both at national level and abroad. Its role is to centralise the processing of all interbank electronic banking operations both internally and with other countries. Its creation allowed and the inter-bank business at payment terminals as well as at ATMs for widespread interoperability withdrawal at national level.

Retail Payment Systems

The current retail payment instrument demand is cheque-based. In 2008, 27.2 million cheques were processed, for a total value of 903, 122 million MAD.

Cheques are processed through Morocco's Remote Interbank Clearing System or SIMT. Cheques are standardised, processing of cheques is automated, and cheque truncation is used. Net balances are calculated and settled once a day, and final settlement takes place through an RTGS system. As for risk controls, participants have access to information on their preliminary position in the clearinghouse during the day; the operator provides ultimately liquidity to the system.

At present, SIMT also processes on a national basis direct credits and direct debits. The processing cycle for direct credits and direct debits is similar to cheques. Net balances are calculated and settled at least once a day, and final settlement of net positions takes place through an RTGS system.

The Moroccan Banking Association decided to facilitate a national card switch to integrate the four previously non-interoperable ATM and PoS networks in the country. CMI is the network switch: it provides technical processing, authorisation, clearing, and payment. There were 3,629 ATMs in the country and 5 million cards with cash functions as of 2008. Accessibility of non-cash payment instruments and services for individuals through commercial banks is adequate.

Mobile Payment Providers

1. Mobicash. Mobicash is a mobile money account on an IT platform that enables account holders to conduct transactions through their mobile handsets on a USSD menu (cash in/out, P2P transfers, P2Cash transfers, bill pay and airtime top up). International transfers are available in partnership with Ping Ping in Belgium. Maroc Telecom owns and operates the MC platform, however, the funds are stored in a 'pivot account' in one of two banks, which are legally responsible for the funds. The banks have no direct interaction with the MC customers, however. MC reports 100,000 clients for Mobicash. So far, the transactions volume has been very low. MC customers can cash in and out at 420 Maroc Telecom stores. MC charges 0.5% for withdrawals and MAD1-15 for P2P and P2Cash transactions. It has a USSD driven menu with cash in/out, P2P transfers, bill pay, Airtime top up. However, the service is run with only 2 dedicated people in marketing and sales, plus some others part time.
2. Meditel. Meditel (an MNO) has launched a similar product to Mobicash using the South African based Fundamo mobile financial services provider platform and linking to a pivot account in BMCE. There is a memorandum of understanding between Medital and BMCE, but not yet a formal IOB contract. Their initial product offering includes: P2P, transfers, top up, cash in/out. Payments and use at ATMs through a card-based solution. Transfers between regular accounts and e-wallets are not yet offered. The Meditel roll out has been postponed by high level management turnover and hampered by lack of dedicated staff to the implementation. Meditel has piloted the service with employees but has not yet signed up users.



Summary

The Moroccan economy is in a period of considerable transformation and payment systems, under the supervision of the central bank, are slowly being disseminated. The official position is that this growth continues in its current exponential rate until it reaches around two thirds of the population with bank cards. Given the extensive mobile phone network, it is likely that the private sector participants as well as the state owned enterprises will extend retail payment services rapidly.

4.5 Nigeria

Highlights:

- *In most of sub-Saharan Africa, only a small percentage of upper-income households enjoy the convenience of card-based, online, and mobile banking and payments, while most consumers still pay with cash. However, Visa has rolled out mobile payment options in several sub-Saharan Countries.*
- *The Regulatory Framework for Mobile Payment Systems in Nigeria, issued by the Central Bank of Nigeria in 2009, not only promotes but also provides rules governing the operation of mobile payment services in Nigeria.*
- *Several initiatives have been introduced by The Central Bank of Nigeria (CBN) as part of efforts to implement a Payment System Vision (PSV) 2020 strategy. PSV 2020 will help the country to meet world-class standards as indicated in the principles for financial market infrastructure and trigger rapid transformation development in the financial market.*

Introduction

Nigeria is a large and growing country with a population of over 177 million and population growth rate of 2.47% as of 2014. Real GDP has grown at between 6 and 7% since 2007, with nominal and PPP GDP at \$242bn and over \$400bn respectively (CBN Annual Report, 2011). In 2012, real GDP growth rate was 6.5% and real and PPP GDP rose to \$261.5bn and \$450.5bn respectively (CBN, 2013). Foreign reserves are now in excess of \$45bn and macroeconomic conditions are generally stable. However, social conditions are less than ideal—the dollar/day poverty stands at 62.5%; life expectancy a mere 54 years and unemployment close to 24%. Private consumption expenditure has however grown since 1999, though the growth rate is now declining.

General Banking and Payment Landscape

Commercial banking pre-dates central banking and has laid the foundation of the Nigerian financial system as far back as the late nineteenth century. The first commercial bank in Nigeria was the African Banking Corporation, which opened its first branch in Lagos in 1892. The bank experienced some initial difficulties and eventually decided to transfer its interest to Elder Dempster and Co. in 1893. This led to the formation of a new bank known as the British Bank of West Africa (BBWA) in 1893, which is today known as the First Bank Nigeria Plc. Another bank known as the Barclays Bank DCO (Dominion, Colonial and Overseas) opened its first branch in Lagos in 1917. This bank is known today in Nigeria as the Union Bank Nigeria Plc. British and French Bank, now called the United Bank for Africa Plc was established in 1949 making it the third expatriate bank to dominate early Nigeria's commercial banking.



The foreign banks came principally to render services in connection with international trade, so their relations at that time were chiefly with the expatriate companies and with the government. They largely ignored the development of local African entrepreneurship. These three banks controlled almost about 90% of the aggregate bank deposits. From 1914 to the early part of 1930s, several abortive attempts were made to establish locally owned and managed banks to break the foreign monopoly. Failing to establish indigenously owned banks was as a result of the lack of capitalisation and management ability combined with the absence of regulation by any government agency. The indigenous banks could not survive the hostile and unfair competition posed by the foreign banks. It was therefore not surprising that by 1954, a total of 21 out of 25 indigenous banks had failed and went into self-liquidation.

The Nigerian banking industry evolved in four stages, the first of which can be best described as the unguided *laissez-faire* phase (1930-59), during which several poorly capitalised and unsupervised indigenous banks failed before their tenth anniversary. The second stage was the controlled regime (1960-1985), during which the Central Bank of Nigeria (CBN) ensured that only 'fit and proper' persons were granted a banking license, subject to a minimum paid-up capital. The third stage was the post-Structural Adjustment Programme (SAP) or decontrolled regime (1986-2004), during which the neo-liberal philosophy of 'free entry' was overstretched and political authorities dispensed banking licenses on the bases of patronage. The emerging fourth stage is the era of consolidation (2004-to a foreseeable future), with major emphasis on recapitalisation and proactive regulation based on prudential principles.

In the area of Central Banking, the West African Currency Board (WACB) carried out banking operations in the former British colonies in West Africa before independence. Administrative problems of the WACB led to the establishment of Central Banks in these colonies. In Ghana, it came into being in 1957, in Nigeria 1959, Sierra Leone in 1964, and in the Gambia 1964. The Central Bank of Nigeria (CBN) was established by the Central Bank Act of 1958. It was to replace the West African Currency Board (WACB) of the colonial government as part of the preparation for independent Nigeria.

According to CBN (2012), there are 21 commercial banks operating in Nigeria, along with 5 development finance institutions, 658 bureaux de change, 81 finance companies, 101 primary mortgage institutions, 5 discount houses, as well as 904 license granted for microfinance institutions.

Central Bank of Nigeria (CBN) is the regulatory body that control and administer overall monetary and financial sector policies of the Federal Government of Nigeria (1958 Act of Parliament, amended in 2007). In particular, CBN enacted a Payment Systems Management Bill to address the absence of law that explicitly and exclusively deals with payments systems in Nigeria.

On the other hand, there is also the Nigeria Deposit Insurance Corporation (NDIC) that supervise the payment systems in the country (according to NDIC Act 2006). Both CBN and NDIC provides the oversight function to ensure the effectiveness and efficiency of the nation's payment system.

The key players in the Nigerian payment systems are banks, discount houses, Nigeria Inter-Bank Settlement System (NIBSS), Nigeria Stock Exchange, payment service providers (including mobile money operators, payment terminal service providers/PTSP) and switching companies (such as Chams, ERG, Interswitch, Transact, etc.).

Large Value Payment Systems

CBN commenced the operations of the Real Time Gross Settlement System in December 2006. The CBN RTGS (Central Bank of Nigeria Inter-bank Fund Transfer - CIFT) System interfaces with the core banking application (T24 System) and has all the deposit money bank and discount houses as direct participants.

A new RTGS System was deployed on December 18, 2013 along with Central Securities Depository (CSD). The purpose of the replacement of the old RTGS System is to have a robust system that will meet all the users' requirements and addresses all the challenges with the old system.

Retail Payment Systems

Mobile Payments

Nigeria has powerful and experienced players in the traditional card payments business, as well as ambitious new entrants in the mobile money arena. The CBN has issued 11 provisional licenses for mobile payments to various licensees-Eartholeum, Ecobank, e-Tranzact, FET, Fortis Mobile Money, GTBank Mobile Money, M-Kudi, Monitise, Pagatech, Paycom and UBA/Afriipay. Full licenses are to be granted pending the rectification of certain problems encountered during the pilot phase. Further operators have been issued approvals in-principle



to carry out pilot programmes. The full launch of mobile payments commenced by December 2011, but growth has been relatively slow.

Internet and the Retail Payments Sector²¹

Only 7% of internet users worldwide are in Africa. 167.3 million Africans have access to the internet compared with 254.9 million Latin Americans, half a billion Europeans and over 1 billion Asians. Internet penetration in Africa is 15.6% versus a world average of 34.3%. However, Nigeria is Africa's top internet using nation with 48.4 million internet users (Internet World Stats, 2012). The electronic payments sector in Nigeria is dominated by ATMs, which as at 2011 constituted 93% of all alternatives to cash. The major telecommunications changes brought about by mobile services and growing internet use from 2001 and banking consolidation of 2005-2006 have provided a strong foundation for growth of electronic payments.

The Central Bank of Nigeria (CBN) notes that the volume and value of electronic card transactions increased significantly from 195,525,568 and NGN1,072.9 billion in 2010 to 355,252,201 and NGN1,6714.4 billion in 2011, an increase of 81.5% and 55.8% respectively. ATMs account for 97.8%, followed by web-payments (1%), PoS and mobile payments (0.6%) in terms of volume. In value terms, ATMs accounted for 93.4%, followed by web (3.5%), PoS (1.9%) and mobile (1.2%). The CBN's policy of promoting electronic cards and channels is driven by the objectives of reducing banking industry costs by 30%. It estimated the total direct cost of cash management in the Nigerian banking Industry was NGN114.5billion (\$715.6million) as of 2009, with cash in transit costs (24%), cash processing cost (67%) and vault management costs (9%). The CBN projects the direct cost of cash to reach NGN192bn by 2012. The CBN identifies numerous benefits including enhanced tax revenue, increased economic growth, increased financial inclusion, reduced robberies and cash-based fraud, reduced operating costs for banks, increased payments system efficiency and increased banking penetration.

Payment Service Providers

1. Interswitch. Interswitch provides domestic card issuing and acquiring processing services through Verve and international services through MCW. All 21 banks In Nigeria currently have connectivity to Interswitch, all MNOs connect to Interswitch for airtime top-up through ATMs and PoS terminals.

²¹ See RTC Advisory Services (2013)

2. ValuCard (Visa). ValuCard provides domestic and international issuing and acquiring processing services for Visa. Historically, it functioned as exclusive PoS acquirer for Visa, but that has changed by recent regulation that liberalised the market. All 21 banks in Nigeria currently have connectivity to ValuCard.
3. eTranzact (Genesis). Mobile banking and payment services to member banks and institutions operate on the eTranzact platform. They have operations in Nigeria, Ghana, Zimbabwe, Ivory Coast, UK and South Africa. All 21 banks in Nigeria and major banks in Ghana currently have connectivity to eTranzact. Also, all MNO's in Nigeria, Ghana and South Africa connect to eTranzact for airtime top-up via the mobile phones of subscribers.

'Cashless Lagos' Initiative

In a major push to encourage e-payments and other alternatives to cash, the CBN commenced a 'Cashless Lagos' policy in Lagos State as part of a wider shared services programme that seeks to achieve a 30% reduction in cost of banking services. Other objectives include increasing access, convenience and service levels across the industry; and integrating financial services into the economy.

The CBN estimated the direct cost of cash to the financial system as NGN114bn (\$718.75million) as at 2009 and projected the figure to rise to NGN192bn (\$1.2bn) in 2012. Cash-in-transit, cash processing and vault management costs make up 24%, 67% and 9% respectively of the total direct cost of cash. CBN data also indicates that pre-Cashless Lagos, cash constituted 85% of commercial payments in Nigeria. Apart from the direct cost, other costs include robberies and cash-related crimes, corruption and money laundering, non-financial sector costs of cash processing by all entities across the value chain, government revenue leakages, and inefficient treasury management. The CBN has recently announced that the cashless policy will be extended to Rivers, Kano, Anambra, Abia and Ogun States of Nigeria, and Abuja in July 2013.

Recent Developments

Nigeria has also formally launched a national ID that will also function as a prepaid payment card provided by MasterCard. They require all Nigerians to have the card by 2019 if they want to vote. This initiative is conducted by the Nigerian Identity Management Commission (NIMC) and they began registering names since the end of 2014.

In 2014, the Central Bank of Nigeria (CBN) also announced incentives to encourage e-payments by rewarding three categories of users (consumers, merchants, and sales persons).



In particular, CBN will reduce merchant's service charge (MSC), exempt the commission on turnover (COT), provide incentive point based reward system for consumers and cardholders, as well as enrol salesperson on the tipping point schemes which they will earn points accrued over a period of time.

Summary

Nigeria's large and diversified banking system is able to provide a wide range of retail payment systems, but they are highly imbalanced. Point-of-sale terminals, although widespread, are little used while mobile money is rapidly growing. The government's interest is both in the form of administrative controls and as part of the effort to reduce crime associated with cash.

4.6 Pakistan

Highlights:

- *Pakistan's payment systems infrastructure showed growth. The volume of overall e-banking transactions during October-December 2011 registered an increase of 2.6% to reach 66.96 million. The value of these transactions also grew 4.85% to reach Rs. 6,454 billion as compared to the preceding quarter (July-September, 2011).*
- *With e-commerce growing, online payment methods will act as a crucial step in ensuring adoption to online services once a customer builds trust with a retailer.*
- *Currently the most used method of payment for online purchases is through cash on delivery (COD) services, which are available to all e-commerce players by local courier companies such as TCS, BlueEx, and Leopard.*

Introduction

Pakistan continued to face economic challenges as well as energy shortages, environmental disasters such as floods, and other structural impediments that have held back investment and economic growth. Its economy grew on average at the rate of 2.9% per year since 2010. Deterioration in the utilities sector is the main factor in limiting economic growth. Electricity outages have trimmed annual GDP growth by 2%, which is one third of the level of the country's supposed long-term trend potential of about 6.5% per year. The services sector contributed 57.7% to the GDP and has become the main driver of economic growth as reflected in its 3.7% growth rate in 2012-13. This performance is mainly driven by the finance and insurance sector at 6.6%, general government services at 5.6%, as well as housing at 4.0%.

General Banking and Payment Landscape

The State Bank of Pakistan is a central bank established under the State Bank of Pakistan Act in 1956. The other banking companies in Pakistan were established under the Banking Companies Ordinance in 1962. The State Bank of Pakistan plays a pivotal role for the establishment and supervision of scheduled banks. The Financial Institutions (Recovery of Finances) Ordinance, established in 2001, provides the legal structure and procedure for the recovery of finances. Under the Banking Companies Ordinance 1962, the State Bank of Pakistan has the right to regulate and supervise all banks operating in the country. As of June 2014, there are 5 public sector commercial banks with 2,022 total branches, 22 local private banks with 8,388 total branches, 7 foreign banks with 27 branches, and 4 specialised banks with 547 branches.²²

²² See Statistical Supplement 2014 (<http://www.sbp.org.pk/reports/annual/arFY14/Stats/Eng/Chapter-6.pdf>).



The payments system is characterised by the use of credit transfers for interbank large-value payments and a cheque-based system for customer payments or retail payments (see Payment Systems and Electronic Fund Transfer Act, 2007). PRISM is the core element of Pakistan's high value payment system infrastructure and is designed to handle all large-value payments as well as government securities transactions in the country. The retail payment system is comprised of high volume and low value transactions, which are executed through paper based and electronic instruments and modes including cheques, payment orders, ATMs, IBFT, etc. In retail payments, the State Bank's Payment Systems Department (PSD) oversees and supervises switches, NIFT (the clearing house), banks ATM, and the alternate delivery channel (ADC) infrastructure.

SBP has undertaken a major initiative of standardising the Financial Articles in the country. In its first phase, the industry wide implementation of International Bank Account Number (IBAN) based on ISO 13616 was achieved. IBAN will reduce transcription errors as well as facilitate smooth integration of various payment systems. During the fiscal year of 2014, after extensive consultation with the banking industry, SBP issued a new standard for the layout, sizing, stamping and security features of customers' cheques. Adoption of new standards by the banking industry will significantly increase the speed and overall efficiency of the cheque clearing system, reduce the processing costs in the longer run and minimise chances of errors and forgeries.

In general, the banking system in Pakistan is significantly different from banking system in leading industrial economies. For instance, most customers pay their bills at the bank after they receive paper bills posted to their homes. Most of the time they have to stand and wait in long queues outside the bank since the number of cashiers are inadequate. Some banks are not eager to offer bill payment services since cash transaction is still ubiquitous in Pakistan. Lack of trust, lack of infrastructure, as well as service charges are among the most detrimental factors.

Large Value Payment Systems

Large value payment systems in Pakistan managed by the Pakistan Real-time Interbank Settlement Mechanism (PRISM) provides real time settlement of interbank money transfers, government securities and paper-based instruments, as well as individual and corporate payments (State Bank of Pakistan, 2014). PRISM has 45 direct institutions participating in the systems, including commercial banks, microfinance banks, development finance institutions and the central depository company (State Bank of Pakistan, 2014).

PRISM has two components for cash and securities. The payment component of PRISM settles payments resulting from the interbank money market, securities market transactions, foreign exchange transactions and net settlement positions of cheque clearing. The second component of PRISM is a securities settlement system for government securities transactions resulting from the sale or purchase of Market Treasury Bills (MTB) and Pakistan Investment Bonds (PIB) in the primary and the secondary market. The Payment Systems Department also performs other payments tasks while facilitating PRISM system operations, including multilateral net settlement batches (MNSB).

In 2014, PRISM settled more than 600,000 transactions and Rs. 149 trillion of value, exhibiting a growth of more than three times in volume and twice in terms of value compared to 2009. Among the total transactions processed through PRISM, 50.3% (Rs. 75 trillion) are composed of government securities, 41.2% (Rs. 61.5 trillion) pertains to interbank money transfers, while settlement of paper based instruments through National Institutional Facilitation Technologies (NIFT) is 8.5% (Rs. 12.7 trillion).²³

Retail Payment Systems

The retail payment system in Pakistan consists of relatively low value consumer payments made through bank branches (for paper-based instruments such as cheques, pay orders, money drafts, etc.) and/or electronic channels (i.e. ATMs, point-of-sale, internet banking, mobile phone banking and call centres/IVR or real time online banking).

As of 2014, 10,601 of 11,153 bank branches provide real-time online services (RTOB), which comprise about 89.2% value and 23.9% volume of total e-banking transactions. Pakistan has also recently added 393 ATM machines, bringing the total number to 8,077 machines nationwide. ATMs transactions comprise about 8.1% value and 63.8% volume, which dominated by cash withdrawals (96.0% in volume and 81.2% in value).

Electronic Banking

The Electronic Transactions Ordinance came into force in 2002 and provided the legal structure for payments through electronic transactions and brought potential change to payment methods. Following that, the Payment System and Electronic Funds Transfer Act, 2007 was implemented to regulate the modern mode of payment. The State Bank of Pakistan plays a key role to supervise and control advanced payment transactions within and across borders. However, electronic banking in Pakistan is still minimal.

²³ State Bank of Pakistan regularly published their reports and statements. A more detailed numbers and explanation can be obtained from <http://www.sbp.org.pk/reports/annual/>.



ATMs

The introduction of the ATMs and credit cards was done by foreign banks in the mid-1990s and followed by the domestic banks in late 1990s. MCB Bank Ltd. and Royal Bank of Scotland Group Plc.²⁴ was a pioneer when it introduced ATMs as well as credit cards at that time. Subsequently, almost all commercial banks have issued both credit and debit card to their customers. They also have installed their own ATM network and have linked one of the two operating ATM switch networks, Mnet and 1-Link.²⁵

As large numbers of people rely on ATMs for cash withdrawals especially during festive occasions like Eid, SBP has been focusing on improving the availability of ATM related services in the country. Specific instructions and guidelines have been issued to commercial banks from time to time to ensure maximum availability of ATM services around the clock and their performance is continuously being monitored by oversight desks.

Despite its huge numbers of transactions and customer usage, there is very little ATM network growth. Initial cost and investment has become the most detrimental factor contributing to ATM network stagnation. Policy makers have shown concern about this because of the need to move toward greater interconnection.

Debit and Credit Cards

In the composition of plastic cards, debit cards have the highest percentage share of over 90.6% followed by credit cards with 5.5% and ATMs only cards with 3.9% share as of March, 2014. Although credit cards were introduced in Pakistan long ago, neither banks nor the card holders benefited from credit cards at large; however, the liberalisation of the economy in the early 1990s enabled many banks to introduce Master and Visa credit cards, paving a way for much wider acceptance. Almost all local and foreign commercial banks operating in Pakistan offer credit card services to their customers, most in collaboration with VISA or MasterCard International (Pakistan and Gulf Economist, May, 2002).

According to the State Bank of Pakistan (SBP) the total number of credit cards reached 1.613 million at the end of December, 2010 (State Bank of Pakistan, 2010). In a recent study conducted by Oxford Policy Management it was revealed that consumer credit specifically, and credit in the private sector more generally, has grown sharply in the last decade and the

²⁴ Royal Bank of Scotland Group Plc. sold its Pakistan division to Faysal Bank Ltd. in 2010. See <http://www.bloomberg.com/news/articles/2010-06-16/royal-bank-of-scotland-s-pakistan-unit-bought-by-faysal-for-50-5-million>

²⁵ Pakistan has connected its two ATM networks since 16 March 2004. <http://www.atmmarketplace.com/news/pakistan-links-its-2-atm-networks/>

number of credit card holders in the country has increased five-fold since 2000 (Department for International Development - DFID, UK, 2007). Still credit cards are not very common and are provided only to people with a certain level of disposable income. As the idea behind this selective distribution is to evaluate customers' repayment worthiness before offering them a credit card, this item has emerged as a status symbol in some of the parts of the world.

Internet Banking

As of 2014, 24 banks offer internet banking services, accounting for a volume share of 4.4% and a value share of 2.1% in total e-Banking transactions. Internet banking is growing and believed by bank officials to be at a turning point in growth.

Mobile Phone Banking

As of 2014, thirteen banks use mobile banking to provide financial services to only a little over 1.5 million registered users. Mobile phone banking transactions have shown an upward trend. In terms of composition of mobile phone banking transactions during the current quarter, the share of interbank funds transfer (IBFT) is 23.4% in volume and 91.6% in value of transactions; the share of utility bills payments is 71.7% in volume and 6.8% in value of transactions and residual share of transactions pertain to funds transfers to merchants. This shows considerable use of mobile phones for small value transactions.

Point-of-Sale

The total number of PoS machines is 33,802 and both the volume and value of transactions through this channel increased by around 14.6% and 19.4% respectively in 2014 compared with that in the same quarter of 2013. While these uses increased, dedicated PoS cards are in decline because of a shift to debit cards that are equally useable at ATMs and PoS terminals.

Call Centre/Interactive Voice Response (IVR) Banking

As of March 2014, 22 banks offer call centre/IVR banking facilities to customers for bill payments and account-to-account fund transfers. Over the past 5 years, e-banking transactions have grown and compared to 2009 the volume and value of such transactions has increased by 154% and 134% respectively. However, the number of transactions through call centre & IVR banking has decreased from 0.9 million to 700,000. The reason for this decline was due to a significant shift by consumers towards other more convenient electronic channels such as mobile banking, internet banking and ATMs.



The inadequacies of infrastructure is a major stumbling block for people in Pakistan in their efforts to take advantage of electronic banking. Research by Shamshad (2006) showed that only 42.27% of bank branches are connected and working online. Similarly, Bakhtiar (2005) revealed that only 12% of customers were familiar with credit cards and debit cards and only 8% were aware of online banking facilities. Even though the internet users are increasing, perhaps the cost of internet connections and telephone services remained relatively high, resulting in lower usage of online and mobile banking.

Branchless Banking

Branchless banking, on the other hand, can be considered as a fresh innovation that made a significant progress in the country as reflected in the growth of government to person (G2P) payments that were up more than 150 percent during the first quarter of 2014. This particular innovation would help in reaching the unbanked and achieving the objective of financial inclusion, as well as ensuring transparency in the economy.

Summary

Pakistan's experience with retail payment systems is volatile and evidently undergoing many forms of simultaneous transition with major potential. While the move to mobile money is significant, there is no clear pattern in the strategic behaviour of banks concerning which retail payment systems might dominate. The highest priority, however, will be to bring a greater proportion of the population into banking and to ensure that those who have disposable income are able to participate in modern retail markets.

4.7 Turkey

Highlights:

- *Electronic payments in Turkey grew in 2014 in both volume and current value, despite the slowdown in the economy. Growth was fuelled by the growing number of cards in circulation, the higher number of ATMs and PoS terminals, as well as the benefits and privileges offered to credit card and debit card holders by card issuers.*
- *Private banks increasingly invest in developing and advertising innovative products to encourage consumers to use their credit and debit cards. State-owned banks, however, accounted for a high percentage of debit and ATM cards in circulation, due to their role in distributing salaries to government employees and pension payments.*

Introduction

Driven by private consumption and supported by a stable macroeconomic policy framework, the Turkish economy has grown significantly since the country emerged from the 2001 financial crisis. Between 2002 and 2008, Turkey's GDP experienced an annual average growth of 5.8%. Due to global turmoil in 2009, Turkey's GDP declined to US\$614 bn, but rebounded in 2010, reaching US\$729 bn and making Turkey the 16th largest economy in the world (PwC, 2011).

Restructuring of the banking sector, monetary discipline based on the independence of the Central Bank and a floating exchange rate regime, tight fiscal policy, public administration reform, and the EU accession process with reform packages enacted by the parliament all contributed to the transformation of the country after the 2001 crisis. Established in 1932, the Central Bank of the Republic of Turkey is an autonomous institution operating in accordance with the Law on the Central Bank of the Republic of Turkey of 1970 and its amendments.

Since the 2001 crisis the economy has been buoyant, inflation is in single figures and the economic outlook is promising. Public debt is below 50%. These fundamentals put Turkish macro-economic outlook in a good stance among the OIC Member States as well as its EU member neighbours.

General Banking and Payment Landscape

Banking and payment system oversight is primarily provided by two institutions: the Central Bank of the Republic of Turkey (CBRT) and Banking Regulation and Supervision Agency (BRSA). The CBRT is responsible for monetary policy and the exchange rate regime in order to achieve macro economic stability as well as in management and supervision of payment and settlement systems. The BRSA supervises all banks, financial holding companies, leasing

companies, factoring companies and consumer finance companies, as well as domestic regulations. Several memorandum of understanding (MoU) between those institutions provide the coordination, share of information, and cooperation in order to maintain financial stability as well as managing and monitoring systemic risk.

Banking Law No. 5411 enacted in March 2011 regulates the principles and procedures to ensure confidence and stability in financial markets, the efficient functioning of the credit system, and the protection of the rights and interests of depositors. Law No. 6493 (2013) on Payment and Security Settlement Systems, Payment Services and Electronic Money Institutions provides the regulation of the procedures and principles of payment and security settlement systems, payment services, payment institutions and electronic money institutions. In accordance with the European Union accession process, eventually the full range of EU regulations, including those with regard to electronic money, are supposed to be enacted into Turkish law.

There are 47 banks operating in Turkey: 13 investment banks, 24 commercial banks, four participation banks and six branches of foreign banks. There are also 45 representative offices of foreign banks (HSBC, 2013). The country's four largest banks control over 50% of the banking sector's total assets. Three of Turkey's seven largest banks – TC Ziraat Bankası, Halkbank and Vakifbank – are state-owned. Four investment banks are also state-owned. Approximately 29% of the banking sector's total assets are state-controlled. Foreign banks including Citibank, Deutsche Bank and ING Bank are active in Turkey.

Foreign banks accounted for approximately 13% of the country's total banking assets at the end of September 2012 (HSBC, 2013). These included 11 commercial banks and four investment banks. Turkey's largest majority-owned foreign bank is Denizbank, acquired by Belgium's Dexia Bank in 2006.

Large Value Payment Systems

TIC-RTGS, Turkey's national real-time gross settlement (RTGS) system is operated by the Central Bank. RPS (Retail Payment System), an RTGS system for retail payments launched in December 2012, is operated by the Central Bank. Ankara and Istanbul Interbank Clearing Houses (ICHs) operate together as a deferred net settlement system for cheque payments. BKM (Bankalararası Kart Merkezi – Interbank Card Centre) is a deferred net settlement system operated by its members. The Central Bank also operates a giro system, primarily used by non-TIC-RTGS participants, which processes credit transfers between its 21 branches on a real-time basis. Cross-border payment instructions are routed via SWIFT and settled through

accounts held with correspondent banks abroad. There are approximately 49 direct participants in TIC-RTGS, 48 direct participants in the RPS, 41 direct participants in the ICHs, and 28 participants in the BKM.

TIC-RTGS processes all high-value and urgent TRY-denominated electronic credit transfers. There is no value threshold. In addition, TIC-RTGS effects the final settlement of participants' net balances originating from the BKM and ICHs. The RPS processes domestic retail transfers. The ICHs process domestic cheque payments and promissory notes. The BKM processes all card payments involving its participants.

TIC-RTGS settles transactions individually in real time and with immediate finality. Payment instructions are exchanged online from 08:30 TST on Monday morning. Banks transmit payment instructions to the system via TICNET, a private telecommunications network owned by the Banks Association of Turkey. The KRED-SWIFT payment message was introduced in 2007. Final settlement takes place across the participant banks' correspondent accounts at the Central Bank. Retail payments are settled individually in real time with immediate finality. Final settlement takes place across participants' accounts held at the Central Bank.

Cheques are MICR-encoded before being processed via the ICHs. Final settlement takes place across special ICH settlement accounts held at the Central Bank via TIC-RTGS. Card payments are cleared by the BKM before the net balances of each member are forwarded to the Central Bank. Final settlement takes place across special settlement accounts held at the Central Bank via TIC-RTGS.

Retail Payment Systems

Credit transfers are used for both high-value and low-value payment transactions. Electronic credit transfers are used by companies for salary and supplier payments. Credit transfers can be initiated via a bank branch, ATM, telephone or online. High-value and urgent credit transfers are cleared and settled via TIC-RTGS in real time. Low-value, non-urgent and high-volume credit transfers are processed via the RPS in real time. Credit and debit transfers accounted for over 96% of the value of all cashless payments in 2011, but just 4.7% of the volume. Direct debits are available in Turkey but not widely used. Direct debits are cleared and settled via the RPS.

Cheque use in Turkey is in decline due to the increasing preference for electronic payments for both high-value and low-value transactions. Cheques are principally used for large-value corporate payments. Cheques are MICR-encoded and processed electronically via the Ankara

and Istanbul Interbank Clearing Houses. The ICHs provide same-day clearing for cheques, although overall net settlement occurs the next business day at 12:00 local time. Funds are available to beneficiaries within four to six days. Traveller's cheques are issued in all leading currencies by banks and are relatively commonplace.

Credit Cards

Plastic was first used to Turkey in 1968 with the introduction of Diners Club Cards, which were seen solely as an element of prestige. As a result of increased tourism in Turkey during the 1970s, American Express Cards entered the market. Along with the Diners Club Cards, these cards stood unrivalled until the entrance of Eurocard, Mastercard, and Access cards in 1975.

The use of payment cards in Turkey has increased rapidly in recent years. There were approximately 56 million credit cards and 94.5 million debit cards in circulation in January 2013 (HSBC, 2013). Credit and debit cards accounted for 64% and 30% respectively of all cashless payments in 2011; the value of payment card transactions over the same period was negligible. Visa and MasterCard are the principal payment card issuers in Turkey. The Interbank Card Centre (Bankalararası Kart Merkezi – BKM) clears all card payments involving its 28 member banks. All member banks must be a member of Visa or MasterCard. Other card payments are cleared via correspondent banking arrangements.

There were approximately 38,015 ATM terminals and 2.22 million PoS terminals operating in Turkey at the end of January 2013. All ATMs and PoS terminals are EMV-compliant (HSBC, 2013). The BKM provides a national ATM and PoS network for debit cards issued by its member banks. Banks also provide proprietary ATM networks.

Cards and Payments in Turkey

Turkey has a population of 75 million, over half of whom are under 30. The younger generation uses the internet and mobile phones, so these technologies enable the banks to address this segment, along with the over two million PoS devices. Turkey is a heavy credit card using country, with 55 million credit cards. There are over 90 million debit cards but the purchase volume is just 9% of that of the credit card volume.

Various banks have been making progress with several innovations, including contactless payments, NFC, biometrics and mobile payments. The contactless initiative started in 2005, when banks launched contactless cards to automate toll and bridge payments. Afterwards, Visa and MasterCard contactless cards were launched. There are also contactless facilities on

watches and key chains. In 2008, taxis started to accept contactless payments. A total of 15 out of 29 banks issue and accept over ten million contactless cards (credit and debit) and have access to more than 60,000 contactless acceptance PoS devices.

In 2013 a process began where all transactions would start with a contactless touch at the PoS. Some big retailers made the switch and contactless volumes increased dramatically. Retailers, consumers and banks are all happy with the change. There are now national standards for banks and for merchants. Any transaction over €20 can be contactless and ten banks offer NFC cards.

E-commerce volumes in the Turkish market are increasing rapidly, leading the development of national digital wallet services. Turkish banks also have various mobile payment initiatives and products including functions such as money being sent by voice, mobile and ATM and internet integrations. There are also QR code payments and very creative uses of mobile in terms of peer-to-peer and e-commerce payments.

In Turkey, the mobile PoS and the cash register are being combined in the same device. There are 300,000 merchants affected and 50,000 already have the new devices. By the end of 2015, all of the merchants in the country could be using them. So, instead of having multiple terminals for different cards, they are all being brought together into one type of terminal. With this new functionality, the transaction comes to the bank and at the same time goes to the tax authorities as well. The aim is to fight against the grey economy. This is quite challenging for banks as the old acquiring businesses are changing. Most new devices will support contactless payments, up from only 10% that presently support NFC.

The government in Turkey is introducing new laws relating to capital requirements. Credit cards are now under pressure and debit cards are becoming more crucial and rising rapidly in use.

Other Payments

1. Promissory notes. The promissory note is a popular payment instrument in Turkey with small and medium-sized enterprises. Promissory notes can be discounted by commercial banks. Promissory notes are cleared by the ICHs.
2. Postal instruments. Postal cheques and postal money orders are available via the General Directorate of Post, Telegraph and Telephone (PTT). Postal cheque accounts are often used by companies to collect recurring payments, and by government institutions to collect tax. Around 4300 PTT offices provide postal money order facilities. Domestic postal money

orders can be sent in TRY, EUR or USD. There is a maximum value threshold of TRY 20,000, EUR 3,000 and USD 3,000 respectively. Postal money orders can be sent to and from over 200 other countries and territories via the Western Union money transfer service.

Electronic Banking

Electronic banking is available in Turkey and offered by all of the country's commercial banks. There is no bank-independent electronic banking standard in Turkey; each bank offers its own proprietary system for corporate banking purposes. Services available include balance and transaction reporting and payment initiation.

Internet banking is offered by approximately 26 banks in Turkey (HSBC, 2013). Services available include balance and transaction reporting and payment initiation. There are currently around 24 million account holders registered to bank online. At the end of June 2012, Turkey had an internet penetration rate of 44%. Mobile banking is offered by 15 banks in Turkey. There are 2.9 million registered mobile banking customers (HSBC, 2013).

Summary

As an advanced emerging economy, with a growing middle class interested in novelty in general and modern payment systems, Turkey has benefitted from considerable investment in advanced retail payment systems. The government has sought to establish clear regulatory guidelines, foreign banks have quickly adapted their state-of-the-art functions to the Turkish market, and local banks have innovated quickly and efficiently in new payment systems. Both contactless and mobile payment systems are increasingly common and there are indications that e-wallets may be successful in integrating such services, so long as the proliferation of proprietary standards do not inhibit dissemination.

4.8 United Arab Emirates

Highlights:

- *The booming economy was aided by a number of factors, including strong foreign direct investment; the United Arab Emirates continues to be seen as a safe haven for investors. Strong economic growth helped to restore consumer confidence in the banking system, which was lost during the economic downturn.*
- *Following the economic downturn in 2008, the financial sector in the United Arab Emirates was the first to take a hit, and there was a huge exodus of expatriates and a collapse in consumer confidence. Nowadays, banks work simultaneously to raise awareness of the safety of using cards at PoS rather than solely for ATM withdrawal, which served to further boost the number of cards in circulation.*
- *A rise in internet penetration over the later years of the review period and into 2014 saw a rising number of consumers opting to shop online and through their mobile phones. Increasingly westernised lifestyles gave rise to the need for convenience, which fuelled online and mobile retailing.*

Introduction

Over the past decade, the Emirati economy has shown significant growth, mostly due to high-volume oil exports. The UAE's dependence on oil, however, has left the economy vulnerable to the 2008 global economic recession. That year, the GDP fell by 4.8%. The economy has since recovered with a positive GDP growth in 2011 and 2012 of 4.2% and 4.4% respectively. The slower paced growth of the economy has allowed for better control over inflation, which dropped from 12.3% in 2008 to 1.6% in 2009. Inflation is expected to stay below 3% between 2013 and 2017.

In order to reduce the country's dependence on oil, UAE authorities have tried to diversify their economy by broadening horizons into areas such as finance, construction and tourism. The United Arab Emirates' GDP is expected to continue to grow at a rate between 3% and 4% over the forecast period of 2013-2017, reaching US\$433.4 billion by 2017. The UAE will continue to be one of the most attractive and prosperous countries in the region up to 2017, and will continue to serve as a hub for the rest of the Middle East and Northern Africa.

General Banking and Payment Landscape

As of 2005, the small UAE banking sector was served by 21 domestic and 25 foreign banks, thus the UAE banking sector is quite fragmented. Banks incorporated in Abu Dhabi and Dubai hold more than 90% of the total domestic assets, with this total being divided almost equally between Abu Dhabi and Dubai banks.

Market access for foreign banks was somewhat limited because they were not allowed to open more than eight branches throughout the modern banking operation period (1980-2003). In 2003, however, laws were changed, and today banks are allowed to open more than eight branches special permission. Foreign banks confronted no obstacles, however, when they wanted to open a representative office. At the end of 2004, there were thirty-six representative offices throughout the emirates. Thus, UAE has been well represented by a cross-section of foreign banks.

Federal Law 10, enacted in 1980, is the backbone of the conventional banking sector (excluding Islamic banks), and Federal Law 6 was promulgated in 1985 to legalise Islamic banking in the UAE. Islamic banking is still a small component of the UAE banking sector. According to Islamic banking laws, banks cannot charge a fixed interest rate on deposits or loans. Variable interest rates based on a profit/loss-sharing model is the foundation of Islamic banking. Under the Federal Law 10, the Central Bank of the UAE was also established, and it took over the responsibilities of the Currency Board. The bank's duties include advising the government on monetary and financial issues, issuing currency, maintaining gold and foreign currency reserves, and formulating a credit policy. All regulation and supervisory duties are under the direction of the Central Bank. The UAE currency is pegged to the US dollar, which is why the central bank has a limited role to play in setting monetary policy and controlling interest rates; however, some monetary and credit controls are exercised through its sale and purchase of certificates of deposits.

The central bank plays a role in formulating and monitoring credit policy, and in supervising the financial sector as well (see Hashmi, 2007). All commercial banks incorporated in the UAE are licensed by the central bank, and therefore are subject to the central bank's requirements and regulations. In 1998, the central bank made it mandatory for all banks to use International Accounting Standards (IAS), and in early 1999, local banks were instructed to establish clear corporate structures. Furthermore, the UAE central bank requires banks to maintain a capital to risk-weighted assets ratio of at least 10% at all times. According to the Central Bank of UAE regulations, all banks must be majority owned by UAE nationals. They also have to be registered as 'Shareholding Company' under the UAE Companies Law and must be registered with the Federal Ministry of Economy and Trade. (Central Bank of the UAE, 2005)

With regard to payment systems, the Central Bank established the Payment Systems Oversight Unit (PSOU) in April, 2009 to supervise payment systems in general and to ensure their efficiency and compliance with the Core Principles for Systemically Important Payment Systems issued by the Bank for International Settlements (BIS). Every payment systems in the

UAE is subject to PSOU oversight and must be certified by the PSOU in order to provide payment and settlement services in the UAE region.

UAE banks, along with Saudi Arabian and Kuwaiti banks, have dominated the GCC and Middle Eastern banking sector. Because of the number of banks in the UAE, nine of the country's banks are among the top 50 Middle East banks. This ranking is based on the tier-one shareholders equity as defined by Bank of International Settlement (BIS). The UAE Central Bank requires banks to maintain a 10 % capital/assets ratio and most of the banks exceeded the requirement. Recently, return on equity and on assets have been much higher in conventional banks than Islamic banks. The highest ROE in 2004 was reported by the Union National Bank (20.3 %), while the highest ROA was reported by the Commercial Bank of Dubai (3.3 %). The top UAE bank based on capital was the Emirates Bank International, and the top UAE bank based on assets was the National Bank of Abu Dhabi.

According to HSBC (2013), there are 23 domestic commercial banks (three of which are Islamic banks) and 28 foreign banks operating in the UAE. There are also 110 representative offices of foreign banks. Four foreign wholesale/investment banks currently operate in the UAE — Arab Emirates Invest Bank, Deutsche Bank, HSBC Financial Services and Industrial and Commercial Bank of China. Emirates NBD is the UAE's largest bank in terms of total assets. In November 2012, Emirates Islamic Bank, the Islamic banking arm of Emirates NBD, completed its acquisition of Dubai Bank to become the third-largest Islamic bank in the UAE. The UAE, with an estimated USD 75 billion of total Islamic assets, is a large global market for the shariah-based banking industry. An offshore financial centre, the Dubai International Financial Centre (DIFC), was implemented in the UAE in 2004 with the aim of establishing Dubai as the regional gateway for capital and investment. There are currently 899 companies operating within the DIFC, including 17 of the world's largest banks (HSBC, 2013).

Large Value Payment Systems

Established in 1980, the UAE Central Bank is the main regulatory and supervisory body in the banking industry. It has the power to implement banking policy with regard to directing monetary credits taking into account the UAE's general policy. The UAE's banking and monetary system has made significant progress in recent years due to the Central Bank's increasingly strict control of financial institutions. In particular, 1998 was a year of impressive growth in the banking sector, attributable to some extent to adherence to the guidelines laid down by the Central Bank. In the last ten years, the Central Bank has played an important role in supervising the banking industry and has contributed in a measurable way to improving the

quality of services and performance of a number of banks. The Central Bank commitment to creating a stable economic framework ensures that prosperity reaches all the residents in the country. Oil and gas exploitation are responsible for the emergence of UAE banks as forces to reckon with in the Gulf Region.

The Central Bank of UAE owns and operates the following payment systems (CBUAE, 2014):

1. UAEFTS, which processes high-value payments. The UAE Funds Transfer System (UAEFTS) is the RTGS system hosted by the Central Bank of the UAE that has been operational since 25 August 2001. The system facilitates the transfer of funds between banks and other financial institutions in the UAE via their accounts held with the Central Bank. As of June 2013 a total of 108 institutions (52 banks, four non-banking finance companies (NBFC), five 3rd party service providers, 47 exchange houses) participate in the UAEFTS and processes more than 1.2 million customer credit transfers and 3,500 institutional credit transfers monthly. All commercial banks in the UAE participate directly in the RTGS and ICCS systems
2. ICCS, the cheque clearing system. ICCS (Image Cheque Clearing System) was introduced in July 2008 to allow for the truncation of cheques at the point of acceptance whilst providing a safe, secure, efficient and robust payment mechanism in the UAE. Banks will settle cheques issued on accounts held by them based on electronic images of these cheques. The ICCS Cheque Archive is available to all banks, providing access to the images of cheques cleared via ICCS and available to the presenting bank, the issuing bank, as well as the clearing house. As of June 2013 the ICCS has 82 direct participants (56 banks, 22 ministries, 4 non-banking finance companies (NBFC)) and clears an average of about 2 million items per month. There are two clearing sessions per day: the first session clears new cheques while the second exchanges returned items. Final settlement takes place across participants' accounts held at the Central Bank via UAEFTS on a same-day basis.
3. UAESWITCH, the national ATM-sharing scheme. The UAESWITCH was launched in 1996 and now comprises 43 member banks and over 4,500 ATMs. Through its connection to GCCNET, UAESWITCH allows cardholders to obtain service at ATMs throughout the Gulf region. At this moment, monthly transaction volumes are over 1.3 million balance enquiries and 5.2 million cash withdrawals worth AED 7.9 billion.
4. UAEWPS – UAE Wages Protection System. The Wages Protection System (WPS) was implemented at the Central Bank of the UAE (CBUAE) since 1st October 2009 to meet the desired objectives of the Ministry of Labour (MOL) in order to provide a safe, secure, efficient and robust mechanism to streamline the timely payment of wages to employees

by their employers. The system allows effective monitoring of the payment of wages by the employers to their respective employees.

The Payment Systems Oversight Unit (PSOU) was created in April 2009 to supervise payment systems in general and to ensure their compliance with the Core Principles for Systemically Important Payment Systems issued by the Bank for International Settlements (BIS).

Retail Payment Systems

Credit Transfers

Credit transfers can be paper-based or automated. Credit transfers are used by companies for salary and supplier payments. Credit transfers are cleared and settled via the UAEFTS, the national RTGS system, on a same-day basis. There is no value threshold. In 2011, UAEFTS processed 1.7 million transactions with a value of AED 8.2 trillion, compared to 1.3 million transactions with a value of AED 8.6 trillion in 2010 (HSBC, 2013).

Direct Debits

Direct debits are available in the UAE and are used for low-value recurring payments such as utility bills. Funds are available to the beneficiary on a next-day basis. At present there is no interbank system in the UAE for direct debits. The UAE Direct Debit System (UAEDDS), currently being tested, will provide a centrally operated method of effecting recurring payment transactions for utility services, card payments and loan repayments amongst others.

Cheques

The cheque is the dominant cashless payment instrument in the UAE, in terms of both volume and value, and is used for both retail and commercial payments. Cheques are truncated into electronic items before being cleared by the ICCS. Final settlement is via the UAEFTS on a same-day basis. In 2011, the ICCS processed 8.6 million transactions with a value of AED 1.1 trillion (HSBC, 2013).

Card Payments

The use of payment cards in the UAE has increased rapidly in recent years. Of the GCC member states, only Saudi Arabia and Kuwait have higher card issuance rates. There were approximately 10.12 million payment cards in circulation in the UAE at the end of 2011. Debit cards account for approximately 90% of all payment cards in circulation. Visa and MasterCard are the principal credit card issuers in the UAE. Each bank in the UAE establishes its own individual clearing and settlement arrangements with the card associations.



There were 4,172 ATMs and 67,708 PoS terminals in the UAE at the end of 2011. All ATMs in the UAE are interconnected via UAE SWITCH (HSBC, 2013). UAE SWITCH also connects the country's ATM network to the ATM networks of its fellow GCC member states (via the GCCNet ATM network). ATM users are also able to withdraw cash from ATMs in Lebanon, Egypt and Iran. All payments cards issued since 2011 have been EMV-compliant. Full migration to EMV is expected by 2014. All PoS terminals in the UAE have been EMV-compliant since March 2012. The e-Dirham card is an e-purse card, primarily used as a payment method for government services. It is issued to companies and individuals in the UAE by seven banks and the Ministry of Finance and Industry. The e-Dirham card can be used at EFTPOS terminals and online (E-Dirham Payment Gateway).

Electronic banking is available in the UAE and offered by the majority of the country's banks. There is no bank-independent electronic banking standard in the UAE; each bank offers its own proprietary systems for corporate banking purposes. Services available include balance and transaction reporting and payment initiation. Internet banking is becoming increasingly popular among retail users and small companies. Internet penetration in the UAE stands at 71% of the population.

Mobile banking is offered by the country's leading commercial banks; mobile account-to-account transfers are popular. At the end of 2012, there were 13 million mobile phone users in the UAE; a penetration rate of approximately 160%.

Summary

The UAE has carefully moved into state-of-the-art banking practices throughout its system with advanced mobile, PoS and other retail payment systems. Financial services rest on almost ubiquitous banking, internet and mobile phone use. Behind this is an effective large value payment system that is being used as the backbone for further extension of e-banking and other such services.

5. ANALYSIS

5.1 Retail Payment Industry

Retail payment systems in the OIC Member States have been in a period of rapid change since around 2005, during which we cannot expect to find one dominant form or even specific trends. Two features stand out. The first concerns the modernisation of large value payment systems and the foundation that can provide for orderly, government-sanctioned modern retail payment systems. The second concerns what happens once electronic retail payment systems have been initiated.

As soon as large volume payment systems are modernised, the foundation is available for the regulated, mainstream banking system to initiate a variety of retail payment systems. There are countries that have not effectively modernised their large value payment systems and so have little leeway for innovation or even experimentation with new forms of retail payment. They risk being circumvented by fringe payment systems that are effectively outside of governmental controls.

Once electronic retail payment systems are established, so long as there is room for diversity and competition, a variety of forms are likely to emerge. In countries such as Indonesia the government can take the lead in systems such as mobile banking because their private market is restrained from initiating various schemes. In Ivory Coast, however, the government has implicitly recognised that they are unable to take the lead with payment systems innovations and are willing to allow companies such as Fundamo to work in conjunction with foreign banks and telecoms companies operating within the country.

The move from paper based payment systems is relentless but not deterministic. New technologies allow for efficient systems to be built around digital exchange mechanisms and they are readily available and amenable to implementation in many different ways. Given the pressures to implement such systems quickly and incentives that private sector actors have to operate retail payment systems, it is not surprising that the majority of OIC governments have allowed for foreign credit card companies, mobile telecommunications network operators, banks and specialist companies such as Fundamo to operate either independently or in partnership with local companies, state owned enterprises and government bodies.

5.2 General Outlook and Emerging Issues

Most of the countries being studied are suffering from huge disparity in terms of telecommunication infrastructures. Major urban cities are quickly catching up with those in highly developed countries such as New York and London. They can enjoy various banking and financial services as well as technological options. However, remote and rural areas are often beyond reach.

Lack of infrastructures prompts people to become more connected via their mobile phones and tablet PCs, thanks to the increasing availability of cellular data networks. Often the cost of having these mobile internet connection are cheaper than traditional phone lines along with ADSL services. MNOs are quickly realised that voice and text services no longer generate enough margin, inducing them to focus on improved data connections instead. This also induces them to become directly involved in retail payment systems that utilize their mobile telecommunications infrastructures.

Mobile commerce is still in its infancy stage, however some major banks and retailers are already setting up their own internet shopping platforms. Some mobile-based applications available for Android, BlackBerry, and iOS operating systems have been launched as well. Even though the transactions are currently limited to merchants that collaborate with the payment gateway and many customers are still using this method to pay for low value, high volume transactions rather than tangible products and high-priced items, m-commerce shows high potential and perhaps will continue to exceed the value of internet retailing. However, several limitations are also expected to hinder its growth such as security and trust, because many people perceive mobile money issued by MNOs not to have sufficient security and robustness compared with banks.

Table 9, below, summarises the qualitative differences for the key features taken from the case studies. Here we can see the different banking authorities, the character and extent of banking services, and the type of large value payment systems. These form the background to retail payment practices. Those are described in the fourth row, followed by a comment on the general outlook.

Table 9. Qualitative comparison

| | Egypt | Indonesia | Ivory Coast | Morocco | Nigeria | Pakistan | Turkey | UAE |
|----------------------------|---|---|---|--|--|---|--|--|
| Bank supervision | The Central Bank of Egypt (CBE) | Bank Indonesia (BI) , now moved to new regulator, Otoritas Jasa Keuangan (OJK) | The Central Bank of West African States (BCEAO) | The Bank Al-Maghrib, founded as the successor to the Banque d'Etat du Maroc | The Central Bank of Nigeria (CBN) | State Bank of Pakistan (SBP)] | The independent Banking Regulation and Supervisory Agency (BRSA) or Bankacılık Düzenleme ve Denetleme Kurumu (BDDK) | Central Bank of the UAE |
| Legal Regulatory Framework | The Law of the Central Bank, the Banking Sector and Money contains the legal basis for the oversight function of the Central Bank of Egypt (CBE). | Central Bank Act, the UU No. 23/1999 on Bank Indonesia (17 May 1999), then amended with UU No.3/2004 (15 January 2004) | BCEAO Bill No. 15/2002/CM/UEMOA related to payment systems in the WAEMU space issued on September 2002. | Under the banking law, The Bank Al-Maghrib and its Governor are operationally independent in making decisions on banking and payment supervision. | CBN Act of 1958 (amended with CBN Decree No. 24 of 1991), CBN Decree Amendments No. 3 and No. 4 of 1997, No. 37 of 1998, No. 38 of 1998, 1999 and CBN Act of 2007. | The State Bank of Pakistan is a central bank established under the State Bank of Pakistan Act, 1956. The other banking companies in Pakistan were established under the Banking Companies Ordinance, 1962. The Financial Institutions (Recovery of Finances) Ordinance, 2001 provides the legal structure and procedure for the recovery of finances. | The Central Bank of the Republic of Turkey is responsible for securing the objectives of financial system stability as well as the operation, regulation and oversight of payment systems in Turkey. The Banking Regulation and Supervision Agency (BRSA), issues licences, and regulates and supervises all major financial institutions. | Union Law No. 10 of 1980 regulate the central bank, the monetary system, as well as organisation of banking and payment systems. |
| Banking service provision | There are 5 public sector banks, 27 private and joint-venture banks and eight branches of foreign banks operating in Egypt. | There are 120 commercial banks in Indonesia (four state-owned commercial banks, 79 private national banks, 26 government regional banks and 11 private Islamic commercial banks). | There are more than 20 banks, including international banks, regional banks, and private banks (2012), | In 2011, there were 76 financial institutions, including 16 commercial banks, 37 financing companies, 6 offshore banks, 14 micro-finance associations. | There are 24 banks operating in Nigeria. There also exists a network of highly structured community, development and microfinance banks and financial institutions, which serve SMEs and microfinance needs. | There are 5 public sector commercial banks with 2,022 total branches, 22 local private banks with 8,388 total branches, 7 foreign banks with 27 branches, as well as 4 specialised banks with 547 branches. | There are 47 banks (13 investment banks, 25 commercial banks, 4 participation (Islamic) banks and 5 branches of foreign banks) operating in Turkey, in addition to 48 representative offices of foreign banks. | There are 23 domestic commercial banks (three of which are Islamic banks), 28 foreign banks operating in the UAE, as well as 110 representative offices of foreign banks. Emirates NBD is the largest bank in terms of total assets. |
| Large Value Payment System | The RTGS system Automated Clearing House (ACH). | BI-RTGS SKNBI | BCAO-RTGS | Système des Règlements Bruts du Maroc (SRBM) | Central Bank Interbank Funds Transfer System (CIFTS). Nigerian Automated Clearing System (NACS) ACH operated by | Pakistan Real-time Interbank Settlement Mechanism (PRISM) | TIC-RTGS | UAE Funds Transfer System (UAEFTS) Image cheque clearing system (ICCS) |

| | | | | | | | | |
|-----------------------|--|---|--|--|--|---|--|---|
| | | | | | NIBSS which offers credit and debit transfers | | | |
| Retail Payment System | Cash. Cheques Credit transfers Payment cards Direct debits Drafts. Giros. Cross-border Mobile money | Cash Credit transfers Direct debits Payment cards Cheques and bilyet giros Postal instruments Electronic money Cross border Mobile money | Cash Cheques Credit transfers Payment cards ATM Transaction Mobile Banking/Payments Bills of exchange Promissory notes | Cash Cheques Credit transfers Debit transfers Payments cards Mobile money | Cash Cheques Credit transfers Debit transfers Payment cards Mobile payment Internet payment | Cash Cheques Payment cards Mobile money | Cash Credit transfers Direct debits Cheques Payment cards Promissory note Postal instruments | Cash Cheques Credit transfers Direct debits Payment cards Electronic money Drafts Giros Cross-border |
| General outlook | Slower growth, but not negative Increasing competition among the leading players Lack of infrastructure make smartphones and tablet PCs increasingly become popular The rising ownership of smartphones and tablet PCs Debit cards dominated the payment circulation | Payment cards remains prevalent The role of e-money is increasing MNOs are increasing their stake in providing e-money Banking and financial services are mainly focused in the more developed cities and urban markets Huge gaps in terms of access to various services and technologies Payment cards are also used as a status symbol | Cash remains the popular means of transaction Mobile payment is a quite recent but fast-growing phenomenon Mobile payment systems have a great potential in contributing towards financial inclusion | Cash payments still dominate, and electronic payments have also seen increase usage Most Moroccan consumers remain cautious when making purchases via the internet The competitive environment did not change significantly in 2013 Banks also became more active in terms of offering mobile banking solutions Small businesses are still reluctant to embrace credit card acceptance | Cash dominated the transactions CBN encourage the elimination of the amount of cash and coins Risk and security management are the major challenges A series of initiatives had been implemented to improve their positioning in the global community | Cash-dominant, sometimes even for large business transactions. Shops and restaurants rarely accept cards, or charge a premium of 2.5%. There are no 3rd party wallets, localised PayPal, nor 3rd party payment service providers. | Payment cards demonstrated volume and current value growth Pre-paid cards demonstrated the highest growth in terms of cards in numbers and value Regulation limit the performance of personal credit cards Private banks led financial cards in value terms | Banks worked together to raise awareness of the safety of using cards at POS rather than solely for ATM withdrawal A huge influx of expatriates had a profound positive effect on payment cards, with more people using public transport and roads Rising number of consumers opting to shop online and through their mobile phones Premiumisation consumers are on the rise |

Source: Compiled from official statistics, trade associations, trade press, company research, trade interviews, trade sources, and Euromonitor International

Table 10. Quantitative comparison

| | Egypt | Indonesia | Ivory Coast | Morocco | Nigeria | Pakistan | Turkey | UAE |
|--|--------------|------------------|--------------------|----------------|----------------|-----------------|---------------|------------|
| Population | 86,895,099 | 253,609,643 | 22,848,945 | 32,987,206 | 177,155,754 | 196,174,380 | 81,619,392 | 5,628,805 |
| GDP per capita | \$11,100 | \$10,200 | \$2,900 | \$7,700 | \$6,100 | \$4,700 | \$19,600 | \$65,000 |
| Number of banks | 32 banks | 120 banks | 20+ banks | 76 banks | 24 banks | 38 banks | 47 banks | 51 |
| Number of PoS terminals | 54,400 | 698,100 | 331 | 47,000 | 121,886 | 34,945 | 2,591,900 | 114,000 |
| Number of ATMs | 7,000 | 76,300 | 396 | 6,000 | 14,764 | 8,438 | 45,500 | 4,900 |
| Card in circulation | | | | | | | | |
| - ATM cards | 15,725,200 | 118,386,300 | n/a | 9,237,400 | 1,300,000 | 6,400,000 | 143,374,500 | 9,255,100 |
| - Debit cards | 14,432,100 | 95,313,000 | n/a | 6,698,800 | 900,000 | 5,900,000 | 100,165,000 | 6,863,000 |
| - Credit cards | 2,397,500 | 15,176,100 | n/a | 118,000 | 300,000 | 1,500,000 | 56,835,200 | 4,383,400 |
| - Charge cards | - | 454,300 | n/a | 241,800 | 400,000 | 300,000 | - | 55,300 |
| - Pre-paid cards | 220,200 | 37,108,000 | n/a | 192,400 | n/a | n/a | 19,507,100 | 3,082,300 |
| - Store cards | - | - | n/a | 1,370,300 | n/a | n/a | - | - |
| Card in circulation to population ratio | | | | | | | | |
| - ATM cards | 18.10% | 46.68% | n/a | 28.00% | 0.73% | 3.26% | 175.66% | 164.42% |
| - Debit cards | 16.61% | 37.58% | n/a | 20.31% | 0.51% | 3.01% | 122.72% | 121.93% |
| - Credit cards | 2.76% | 5.98% | n/a | 0.36% | 0.17% | 0.76% | 69.63% | 77.87% |
| - Charge cards | - | 0.18% | n/a | 0.73% | 0.23% | 0.15% | - | 0.98% |
| - Pre-paid cards | 0.25% | 14.63% | n/a | 0.58% | n/a | n/a | 23.90% | 54.76% |
| - Store cards | - | - | n/a | 4.15% | n/a | n/a | - | - |

Source: Compiled from official statistics, trade associations, trade press, company research, trade interviews, trade sources, and Euromonitor International

Table 10, above, provides a general comparison of quantities of payment systems and demonstrates the diversity of forms. The dominance of ATM cards in many, for example, stands in sharp contrast to their scant use in Pakistan and especially Nigeria.

Both Tables 9 and 10 are elaborated on in Annex 2, where a more complete description of governance practices are presented and further comparisons of usage of payment systems are measured.

5.3 Legal and Regulatory Bodies

In general, there are independent institutions responsible for monetary policies in the country, including retail payment system. In the case of Egypt and Nigeria, for example, the institutions are the central bank. In the case of Ivory Coast, they have a “joint” or “cross-country” central bank along with other West African countries. In the case of Turkey, the key institution is the Banking Regulation and Supervisory Agency (BRSA/BDDK). All of those institutions have to set the targets of the monetary policy, in agreement with the government or the president.

Those institutions are usually funded by the State Budget and/or fees or levies from parties who conduct their businesses in the financial sector (i.e. banks, credit companies, insurance companies, etc.). They have at least two main functions: supervision (oversight, inspection, issue/revoke licenses, impose administrative sanction, etc.) and regulatory (implement laws, establish rules and regulations, standards, etc.). The establishment and registration of payment systems must follow the procedures and comply with central banks’ regulations.

These institutions are usually led by the Board of Directors that is collective and collegial in practice, and appointed by Presidential Decree.

6. POLICY IMPLICATIONS AND RECOMMENDATIONS

Retail payment systems are intricate multi-ecosystem. For national, regional, and international policy makers, consumer, public sector, and market issues need to be addressed that take into account the different levels of development of retail payment systems in the OIC Member States. When it comes to retail payment systems, no two countries start from the same point. As can be seen from the case studies, some countries have retail payment systems that emerged out of longstanding banking and finance frameworks. Others are dominated by forces and preferences that emphasise infrastructure, as where mobile network operators initiate novel payment systems. Thus, there is no ‘one size fits all’ solution. Each member country will view the recommendations offered here through their own lens when determining their priorities. Some areas justify greater attention owing to the degree of maturity of the existing financial services sector and the existing policy and regulatory environment.

We divide the implications and recommendations into three categories: those that affect the users of retail payment systems, the implications for the systems themselves with regard to standards, architectures and controls, and the roles of authorities. We also address the broader questions underlying retail payment systems development and reform, namely reducing costs and risks, enhancing societal equity and advancing poverty alleviation.

6.1 Users

In most of the foregoing discussion the position of users has been eclipsed by the role of financial institutions, facilitating organisations such as telecommunications network operators, and the actions of states. However, the users of systems, both shoppers and retailers, stand at the forefront of the system. Yet any operating system relies entirely upon their willingness to use the technologies and their capabilities to operate it effectively.

Willingness is dependent upon two main factors: 1) the ease, familiarity, and acceptability of the system, and 2) the incentives to become engaged in relation to the direct costs. The first of these is most closely related to the societal experience with personal banking and relations with retailers because that will determine how readily the public will understand where their advantage lies. It will also affect what capabilities social groups have with regard to personal finance, and so both their ability to adjust and benefit from new systems, and their perception of what is acceptable. The second concerns the perceived benefits in comparison with costs that may be direct, as with the purchase of cards, phones and associated services, or switching

costs associated with actions such as abandoning previous practices and learning how to use new ones. Both of these features apply to retailers and to their customers.

For members of the public who are used to traditional cash transactions for immediate delivery of goods and services, any form of intermediation may seem alien. Those who have made the transition to cheque systems will have come to understand the concepts of stored value and the role of intermediaries. They will also have familiarity with concepts such as payment for services that offer greater security than cash, delays in payment clearing, and standardised accounts. From that familiarity it is conceptually a small jump to debit cards, but perhaps a larger jump to credit cards, where the concepts of debt payments and interest rates introduce both procedural and, for some, moral considerations. Those payment systems that rely on digital technologies, and especially mobile phone or mobile internet technologies, require a further leap both conceptually and for some, culturally. Here the challenge is mainly the familiarity of such technologies, which is a trivial matter to those who grow up with mobile phones and online information and entertainment, but can be a large gap to bridge for those newly introduced to such practices. Some people are also concerned about the use of information about their purchasing and selling activities, especially when so many other actors beyond familiar banks and government agencies are involved. They may recognise that privacy is compromised even if they are content with the level of security offered. They may feel threatened by the introduction of players such as telecommunications network operators (mobile and terrestrial), accounting services providers, transaction services, handset and terminal equipment manufacturers, 'trusted third party' intermediaries providing security and identity checks, etc.

For both the buying public and retailers, it is necessary to recognise the perceptions they will have of the changes necessary to adapt to new forms of payment systems. Education and other forms of awareness building are at the core of public acceptability. In some cases, such as with the initial introduction of mobile payment systems, it has been the big commercial interests, often mobile telephone network operators, who have taken on this responsibility. In other cases it has been governments. This was most notably done in Bahrain, where considerable government expenditure was allocated to providing customer services for months after the initial launch of electronic banking services in 2009.

The key lesson from these experiences is that concerted effort must be made to achieve successful transitions to new retail payment systems. Whether this is done by governments, private bodies, or some combination of actors depends upon the foresight, willingness, strategy and means of the key players. Extensive education is needed where special problems,

such as public concern about forbidden interest rates, when some forms of credit systems are introduced.

For retailers, the role of business associations may be important because such bodies traditionally have been influential in fostering innovations that are generally regarded as beneficial to the sector. Some of the smallest businesses may need credit to afford the installation of card readers or for the upgrading of their telephone lines and possibly other aspects of infrastructure, such as reliable electricity supply. Others may benefit from training sessions to make the transition easier. Retailers are clearly aware of the network effects that prevail with any such large system. As with most networks, once a critical mass of users has been achieved there are numerous forms of pressure, and corresponding incentives, to comply with and participate in the system. Our recommendation is to ensure that careful public education and adjustment practices are available for both customers and retailers.

6.2 Systems, Standards, Architecture and Controls

Retail payment systems, as we have seen, are dependent upon the interrelated systems upon which they sit and particularly upon the qualities of national large volume payment systems. Where the mainstream banking system is to be used by new digital payment systems, and where money flow is monitored and controlled by regulated bodies, the architecture and functionality of the national payment system needs to be appropriately structured. That structure will need to include interconnection points as well as standard accounting practices, such as the timing of settlement accounts.

All of the countries being studied have already moved toward real-time gross settlement (RTGS) systems—although they sometimes use different names—for managing their large-value payment systems. Given that this is a target of the World Bank, it is a testament both to the appropriateness of the Bank’s goals and to the capabilities of the countries under study. Some of them even have upgraded and added some enhanced functions and technical capabilities to ensure the robustness of the system. There are, however, certain trade-offs between lowering the systemic risks and decreasing the costs of recent developments in large-value payment systems. Best practice seems to include both the use of state of the art clearing systems and thorough, slow transition phasing.

Most OIC countries utilise automated clearing house (ACH) systems for clearing cheques and draft payments. In the UAE, they added an image-scanning technology in processing and clearing cheques, which enables a fully electronic clearing process. This can be considered as

good practice that might be adopted by other countries in order to speed up the clearing process and prevent cheque fraud.

Innovation in retail payments is important, especially given the volatility and diversity of systems available. Liberal regimes have so far had good results in stimulating and diffusing innovation in payment systems, especially among the larger economies such as Indonesia and Turkey. In some countries foreign workers and expatriates should be considered as actors and in the UAE and Egypt they have had some influence in bringing innovation to the country.

Most OIC countries remain cash-dominant. However, our study shows the increasing growth of credit transfers in Turkey, UAE, and Indonesia, among others. Governments can make a difference by encouraging the use of non-cash instruments and moving towards the cashless society. Their influence is most direct with regard to governmental services such as taxation, licensing, penalty payments and for procurement. This can be particularly useful to combat corruption and money laundering. OIC Member States must also realise their role in combating money laundering and the financing of terrorism.

6.3 Authorities

All of the large-value payment systems are developed, managed, and controlled by central banks or, as in Turkey, by an independent supervision and regulatory agency. However, retail payment systems show some variations. In Indonesia, for instance, MNOs have to comply with the legal frameworks, laws, and regulations enacted by the central bank if they want to provide mobile money services. As with other conditions, there is no assurance that one system is superior to another and bank-led, MNOs-led, or third-party led models are all apparent in the OIC and each is capable of working. For the BAO, the Ivory Coast authority has to work for the whole of the WAEMU countries.

In summary, our recommendations are as follows:

1. Financial inclusion and financial stability are the objective of payment systems. In order to achieve both objectives, a comprehensive strategy should be adopted to develop sound retail payment systems.
2. Attention to retail issues by central banks is low and this needs to change. The initiative to develop access channels to initiate and deliver cashless payments (e.g. POS terminals) has been quite slow. The existing channels also not fully taken advantage of (e.g. ATMs) and affect the limited interoperability.

3. Commitment to financial inclusion through an innovative retail payment (for instance, mobile banking) should be encouraged. Each government must devise easier procedures for testing new approach and technology. Interoperability should also be encouraged as well as open network in order to remove the bottleneck and ensure reliability of the system.
4. Government payments can play an important role. Leveraging and integrating on existing payment network, arrangements, and products are necessary in order to achieve the objectives. Government must also encourage diversification of retail payment services by taking into account specific country's environment and the kinds of products offered.
5. An integrated database system should be established to provide transparency of credit data. Government must focus on the fragmented, standalone, or non-existent credit bureaus that making it difficult for banks and other financial institutions. Standards and practices in credit data management must be developed. Credit worthiness should also be examined and, at a national level, there must be payment data available to credit bureau services.
6. It is important for OIC Member Countries to set up a consultancy body to help the governments, and in particular the central banks, in the OIC Member Countries in order to monitor, evaluate, and provide appropriate policy recommendations.

6.4 Conclusions

The following conclusions have been reached:

1. There is a very wide range of systems currently employed, with no consensus as to best practices. The contrasting contexts explain a great deal about these differences, but there remains a great deal that can be learned and shared from our analysis of the most effective retail payment systems currently deployed.
2. There is rapid growth in the use of advanced retail payment systems in countries under study. However, growth is imbalanced, often for reasons of inappropriate blockages and inefficiencies in deployment. Banking reforms in Turkey at the end of the 20th century not only coincided with the defeat of galloping inflation, they also allowed for widespread dissemination of credit cards and laid the foundation for Turkey to become a significant role model in the OIC for competitive banking innovation.
3. Some countries employ state of the art technologies in the operation of retail payment systems that are well integrated into the underlying infrastructure of payment systems nationally and internationally. There are many lessons that can be learned from these

advanced applications. Those OIC countries with the most advanced banking systems, including Bahrain, Turkey and the UAE can offer greater assistance on retail payment systems to lesser developed banking systems in other OIC countries. The model of Islamic banking in Malaysia should be more widely studied and scrutinized, and disputes about the legitimacy of the BI Card should be considered when considering emulating this practice.

4. Regulatory practices in the countries studied range widely depending upon local conditions. Local regulators need to combine their efforts to regional and world initiatives to engage in a productive and effective process of expertise sharing on achieving goals on standardisation, reduction of irregular or corrupt practices, etc.
5. In all cases the incumbent firms, either network operators and or banks at local or national level have different levels of adaption of payment systems. Firms that are engaged in trading in more than one country seem to drive the changes towards electronic payment systems, profit and simplification are at the core of its drive and needs to be coordinated with regulators aims for effective action.
6. Although retail payment systems can be easily linked to credit access, efforts are required—from both the public and private sector—to enhance the base of individuals and firms with financial records that can be used to score credit access. Such a drive can only be beneficial to the local economy and the use of new technologies might have the extra incentive of adding value to the services to be provided.
7. For the rapidly emerging area of mobile retail payment systems, there needs to be more consideration of questions of which legal bodies have jurisdiction over new technologies. This will be necessary to ensure accountability and transparency, and to comply with local, regional, national and international laws.

ANNEX 1. COUNTRY PROFILE

Table A1. Egypt: Market data and indicators

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|----------|----------|----------|----------|----------|----------|
| No of POS terminals ('000 units) | 36.7 | 33.9 | 37.0 | 42.5 | 48.4 | 54.4 |
| No of ATMs ('000 units) | 4.2 | 4.8 | 5.3 | 6.0 | 6.5 | 7.0 |
| Value Lost to Fraud 2009-2014 (EGP mn) | 331.9 | 404.3 | 570.8 | 717.1 | 783.8 | 870.8 |
| Financial Cards by Category: Number of Cards in Circulation 2009-2014 ('000 cards) | | | | | | |
| ATM Function | 9,210.6 | 11,568.6 | 12,380.4 | 13,308.9 | 14,413.6 | 15,725.2 |
| Charge Card Function | - | - | - | - | - | - |
| Credit Function | 1,631.0 | 1,757.4 | 1,834.2 | 1,943.7 | 2,197.6 | 2,397.5 |
| Debit Function | 8,283.9 | 10,732.6 | 11,830.6 | 12,488.3 | 13,307.6 | 14,432.1 |
| Pre-Paid Function | - | - | 40.6 | 79.1 | 151.8 | 220.2 |
| Store Cards | - | - | - | - | - | - |
| Financial Cards in Circulation | 10,025.6 | 12,393.8 | 13,298.6 | 13,983.3 | 15,204.1 | 16,604.4 |
| Financial Cards Transactions by Category: Value 2009-2014 (EGP bn) | | | | | | |
| ATM Transactions | 145.8 | 172.0 | 189.2 | 199.8 | 214.6 | 238.0 |
| Card Payment Transactions | 74.5 | 87.6 | 104.8 | 123.5 | 144.9 | 167.6 |
| - Charge Card Transactions | - | - | - | - | - | - |
| - Credit Card Transactions | 25.2 | 29.5 | 34.9 | 40.2 | 46.6 | 53.6 |
| - Debit Transactions | 49.2 | 58.1 | 69.7 | 83.0 | 97.5 | 112.8 |
| - Pre-Paid Transactions | - | - | 0.2 | 0.4 | 0.8 | 1.2 |
| - Store Card Transactions | - | - | - | - | - | - |
| Total Cards Transactions | 220.3 | 259.7 | 294.1 | 323.4 | 359.5 | 405.7 |
| Financial Cards by Category: Number of Transactions 2009-2014 (mn transactions) | | | | | | |
| ATM Transactions | 442.1 | 517.3 | 545.9 | 557.2 | 569.1 | 590.7 |
| Card Payment Transactions | 319.1 | 359.9 | 397.3 | 448.4 | 515.6 | 594.4 |
| - Charge Card Transactions | - | - | - | - | - | - |
| - Credit Card Transactions | 70.3 | 80.5 | 88.3 | 97.9 | 112.9 | 129.6 |
| - Debit Transactions | 248.8 | 279.4 | 307.5 | 347.5 | 397.0 | 456.6 |
| - Pre-Paid Transactions | - | - | 1.5 | 2.9 | 5.7 | 8.2 |
| - Store Card Transactions | - | - | - | - | - | - |
| Total Cards Transactions | 761.2 | 877.2 | 943.3 | 1,005.6 | 1,084.6 | 1,185.1 |
| Financial Cards by Category: Number of Accounts 2009-2014 ('000 accounts) | | | | | | |
| Charge Card Function | - | - | - | - | - | - |
| Credit Function | 1,223.3 | 1,318.1 | 1,375.7 | 1,457.8 | 1,688.8 | 1,798.2 |
| Debit Function | 7,455.5 | 9,659.4 | 10,647.5 | 11,239.5 | 11,976.8 | 12,988.9 |
| Store Cards | - | - | - | - | - | - |
| Financial Cards in Circulation | 8,678.8 | 10,977.4 | 12,023.2 | 12,697.3 | 13,665.6 | 14,787.0 |
| Consumer Payments by Category: Value 2009-2014 (EGP bn) | | | | | | |
| Card Payment Transactions (Excl Commercial) | 74.5 | 87.6 | 104.8 | 123.5 | 144.9 | 167.6 |
| Electronic Direct/ACH Transactions | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Paper Payment Transactions | 645.1 | 717.5 | 817.0 | 946.4 | 1,065.4 | 1,056.2 |
| - Cash Transactions | 644.6 | 716.9 | 816.4 | 945.7 | 1,064.6 | 1,055.4 |
| - Other Paper Payment Types | 0.6 | 0.6 | 0.6 | 0.7 | 0.7 | 0.8 |
| Consumer Payment Transactions | 719.7 | 805.2 | 921.9 | 1,070.0 | 1,210.3 | 1,223.9 |
| Consumer Payments by Category: Number of Transactions 2009-2014 (mn transactions) | | | | | | |
| Card Payment Transactions (Excl Commercial) | 319.1 | 359.9 | 397.3 | 448.4 | 515.6 | 594.4 |
| Electronic Direct/ACH Transactions | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |

| | | | | | | |
|---|----------|----------|-----------|-----------|-----------|----------|
| Paper Payment Transactions | 20,883.2 | 21,592.2 | 22,320.0 | 23,104.9 | 23,942.5 | 24,807.6 |
| - Cash Transactions | 20,881.9 | 21,590.9 | 22,318.8 | 23,103.6 | 23,941.2 | 24,806.3 |
| - Other Paper Payment Types | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| Consumer Payment Transactions | 21,202.5 | 21,952.4 | 22,717.7 | 23,553.6 | 24,458.4 | 25,402.3 |
| M-Commerce by Category: Value 2009-2014 (EGP million) | | | | | | |
| Mobile Phone M-Commerce | - | - | - | - | 910.1 | 1,135.2 |
| - Mobile Phone - Proximity | - | - | - | - | - | - |
| - Mobile Phone - Remote | - | - | - | - | 910.1 | 1,135.2 |
| Tablet M-Commerce | - | - | - | - | 490.0 | 638.5 |
| M-Commerce | - | 783.3 | 850.0 | 1,166.7 | 1,400.1 | 1,773.7 |
| Number of Cards by Issuer 2009-2013 ('000 cards) | | | | | | |
| Bank Misr | 2,416.2 | 2,835.7 | 2,936.3 | 2,922.5 | 3,246.1 | n/a |
| National Bank of Egypt | 1,417.6 | 1,637.2 | 1,670.3 | 1,675.2 | 2,048.0 | n/a |
| Commercial International Bank | 1,104.8 | 1,391.8 | 1,377.7 | 1,377.4 | 947.2 | n/a |
| Citibank Egypt | 655.7 | 746.1 | 680.9 | 702.0 | 626.4 | n/a |
| Others | 4,431.3 | 5,782.9 | 6,633.4 | 7,306.3 | 8,336.4 | n/a |
| Total | 10,025.6 | 12,393.8 | 13,298.6 | 13,983.3 | 15,204.1 | n/a |
| Number of Cards by Operator 2009-2013 ('000 cards) | | | | | | |
| Visa Inc | 5,315.5 | 6,630.7 | 7,160.0 | 7,604.1 | 8,316.6 | n/a |
| MasterCard International Inc | 4,431.3 | 5,453.3 | 5,811.5 | 6,082.7 | 6,554.5 | n/a |
| Others | 278.7 | 309.8 | 327.1 | 296.4 | 333.0 | n/a |
| Total | 10,025.6 | 12,393.8 | 13,298.6 | 13,983.3 | 15,204.1 | n/a |
| Card Payment Transactions Value by Operator 2009-2013 (EGP million) | | | | | | |
| Visa Inc | 39,651.8 | 46,666.9 | 55,678.3 | 66,516.7 | 78,623.8 | n/a |
| MasterCard International Inc | 33,847.6 | 40,115.2 | 47,961.3 | 55,418.7 | 64,029.8 | n/a |
| Others | 989.8 | 862.6 | 1,194.0 | 1,595.0 | 2,200.7 | n/a |
| Total | 74,489.2 | 87,644.7 | 104,833.5 | 123,530.4 | 144,854.3 | n/a |
| Card Payment Transactions Value by Issuer 2009-2013 (EGP million) | | | | | | |
| Bank Misr | 16,361.8 | 18,288.8 | 21,927.4 | 25,716.8 | 32,384.8 | n/a |
| National Bank of Egypt | 15,916.8 | 18,606.4 | 21,310.9 | 26,161.6 | 31,425.2 | n/a |
| Citibank Egypt | 6,415.4 | 7,236.8 | 9,100.1 | 11,205.9 | 14,302.8 | n/a |
| Commercial International Bank | 4,020.8 | 4,324.7 | 5,240.8 | 7,308.2 | 9,044.7 | n/a |
| Others | 31,774.4 | 39,188.0 | 47,254.3 | 53,137.9 | 57,696.7 | n/a |
| Total | 74,489.2 | 87,644.7 | 104,833.5 | 123,530.4 | 144,854.3 | n/a |

Source: Euromonitor International from official statistics, trade associations, trade press, company research, trade interviews, trade sources

Table A2. Indonesia: Market Data and Indicators

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|----------|----------|----------|-----------|-----------|-----------|
| No of POS terminals ('000 units) | 262.6 | 315.2 | 381.4 | 495.5 | 581.8 | 698.1 |
| No of ATMs ('000 units) | 33.2 | 47.0 | 54.5 | 59.3 | 68.0 | 76.3 |
| Value Lost to Fraud 2009-2014 (IDR mn) | 44,361.9 | 39,397.6 | 36,732.0 | 39,003.1 | 34,180.0 | 31,342.2 |
| Financial Cards in Circulation by Type: % Number of Cards 2009-2014 | | | | | | |
| Contact Smart Cards | 20.0 | 20.7 | 22.5 | 23.0 | 25.0 | 27.0 |
| Contactless Smart Cards | 7.5 | 13.8 | 16.1 | 20.0 | 20.5 | 21.0 |
| Non-Smart Cards | 72.5 | 65.4 | 61.4 | 57.0 | 54.5 | 52.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of Cards in Circulation 2009-2014 ('000 cards) | | | | | | |
| ATM Function | 56,789.4 | 65,213.8 | 78,170.7 | 92,569.7 | 104,554.0 | 118,386.3 |
| Charge Card Function | 405.8 | 444.4 | 453.9 | 457.7 | 456.2 | 454.3 |
| Credit Function | 11,826.4 | 13,096.3 | 14,296.8 | 14,324.6 | 14,635.5 | 15,176.1 |
| Debit Function | 41,151.9 | 48,873.1 | 59,761.3 | 73,219.4 | 83,170.1 | 95,313.0 |
| Pre-Paid Function | 4,850.3 | 10,644.0 | 14,509.0 | 23,499.6 | 29,620.9 | 37,108.0 |
| Store Cards | - | - | - | - | - | - |
| Financial Cards in Circulation | 61,625.1 | 74,661.8 | 92,651.6 | 115,379.5 | 132,514.8 | 152,724.2 |
| Financial Cards Transactions by Category: Value 2009-2014 (IDR tn) | | | | | | |
| ATM Transactions | 796.0 | 930.5 | 1,162.1 | 1,426.7 | 1,678.6 | 1,945.9 |
| Card Payment Transactions | 189.3 | 224.7 | 263.7 | 310.8 | 369.7 | 465.8 |
| - Charge Card Transactions | 4.7 | 5.6 | 6.3 | 6.9 | 7.6 | 8.6 |
| - Credit Card Transactions | 128.0 | 153.1 | 171.9 | 190.6 | 211.5 | 235.2 |
| - Debit Transactions | 56.2 | 65.3 | 84.6 | 110.7 | 147.1 | 217.5 |
| - Pre-Paid Transactions | 0.4 | 0.7 | 1.0 | 2.5 | 3.5 | 4.5 |
| - Store Card Transactions | - | - | - | - | - | - |
| Total Cards Transactions | 985.3 | 1,155.2 | 1,425.9 | 1,737.4 | 2,048.2 | 2,411.7 |
| Financial Cards by Category: Number of Transactions 2009-2014 (mn transactions) | | | | | | |
| ATM Transactions | 1,139.4 | 1,307.6 | 1,620.7 | 1,958.2 | 2,304.9 | 2,651.0 |
| Card Payment Transactions | 295.6 | 348.4 | 393.3 | 510.6 | 644.8 | 815.9 |
| - Charge Card Transactions | 3.3 | 3.5 | 3.8 | 4.0 | 4.3 | 4.5 |
| - Credit Card Transactions | 176.7 | 193.5 | 204.1 | 216.7 | 234.3 | 253.9 |
| - Debit Transactions | 98.2 | 111.7 | 138.3 | 184.9 | 242.9 | 340.9 |
| - Pre-Paid Transactions | 17.5 | 39.7 | 47.1 | 105.0 | 163.3 | 216.6 |
| - Store Card Transactions | - | - | - | - | - | - |
| Total Cards Transactions | 1,435.0 | 1,656.1 | 2,014.0 | 2,468.7 | 2,949.7 | 3,466.9 |
| Financial Cards by Category: Number of Accounts 2009-2014 ('000 accounts) | | | | | | |
| Charge Card Function | 335.3 | 337.6 | 341.7 | 344.1 | 342.6 | 339.1 |
| Credit Function | 4,548.6 | 4,793.7 | 5,225.1 | 5,799.9 | 6,959.9 | 7,358.7 |
| Debit Function | 41,151.9 | 48,873.1 | 59,761.3 | 73,219.4 | 83,170.1 | 95,313.0 |
| Store Cards | - | - | - | - | - | - |
| Financial Cards in Circulation | 46,035.8 | 54,004.4 | 65,328.1 | 79,363.4 | 90,472.6 | 103,010.7 |
| Consumer Payments by Category: Value 2009-2014 (IDR tn) | | | | | | |
| Card Payment Transactions (Excl Commercial) | 182.8 | 217.1 | 255.1 | 300.2 | 357.1 | 451.4 |
| Electronic Direct/ACH Transactions | 542.4 | 677.9 | 831.2 | 963.1 | 1,059.5 | 1,181.3 |
| Paper Payment Transactions | 3,028.6 | 3,354.9 | 3,730.3 | 4,134.8 | 4,663.0 | 4,927.8 |
| - Cash Transactions | 3,027.5 | 3,353.7 | 3,728.8 | 4,133.2 | 4,661.2 | 4,925.9 |
| - Other Paper Payment Types | 1.1 | 1.2 | 1.4 | 1.5 | 1.7 | 1.9 |
| Consumer Payment Transactions | 3,753.8 | 4,250.0 | 4,816.6 | 5,398.1 | 6,079.6 | 6,560.5 |
| Consumer Payments by Category: Number of Transactions 2009-2014 (mn transactions) | | | | | | |
| Card Payment Transactions (Excl | 284.9 | 336.9 | 380.9 | 496.2 | 628.4 | 797.4 |

| | | | | | | |
|---|----------|----------|----------|-----------|-----------|----------|
| Commercial) | | | | | | |
| Electronic Direct/ACH Transactions | 3,260.1 | 3,651.3 | 4,125.9 | 4,922.7 | 5,006.4 | 5,131.5 |
| Paper Payment Transactions | 81,688.3 | 80,409.6 | 79,087.9 | 77,691.2 | 76,225.1 | 72,372.0 |
| - Cash Transactions | 81,649.4 | 80,370.3 | 79,046.9 | 77,649.4 | 76,185.7 | 72,333.0 |
| - Other Paper Payment Types | 38.9 | 39.3 | 41.1 | 41.8 | 39.4 | 39.0 |
| Consumer Payment Transactions | 85,233.2 | 84,397.7 | 83,594.7 | 83,110.0 | 81,859.8 | 78,300.9 |
| M-Commerce by Category: Value 2009-2014 (IDR bn) | | | | | | |
| Mobile Phone M-Commerce | - | - | - | - | 7,554.9 | 11,632.1 |
| - Mobile Phone - Proximity | - | - | - | - | 377.7 | 697.9 |
| - Mobile Phone - Remote | - | - | - | - | 7,177.2 | 10,934.2 |
| Tablet M-Commerce | - | - | - | - | 2,518.3 | 3,981.5 |
| M-Commerce | - | 1,571.4 | 3,300.0 | 6,105.0 | 10,073.3 | 15,613.5 |
| Number of Cards by Issuer 2009-2013 ('000 cards) | | | | | | |
| Bank Central Asia Tbk PT | 11,268.5 | 13,116.2 | 14,320.0 | 16,574.0 | 18,539.0 | n/a |
| Bank Negara Indonesia (Persero) Tbk PT | 8,482.4 | 11,500.7 | 13,422.0 | 15,635.0 | 17,515.3 | n/a |
| Bank Mandiri (Persero) Tbk PT | 9,983.3 | 10,881.2 | 12,669.7 | 15,898.2 | 16,935.0 | n/a |
| Bank CIMB Niaga Tbk PT | 5,191.8 | 6,451.8 | 8,155.4 | 10,648.4 | 12,857.7 | n/a |
| Bank Mega Tbk PT | 675.7 | 736.0 | 1,343.1 | 3,033.0 | 3,900.0 | n/a |
| Bank Danamon Indonesia Tbk PT | 1,606.4 | 1,812.3 | 2,075.5 | 2,350.1 | 2,700.0 | n/a |
| Bank Permata Tbk PT | 1,234.6 | 1,304.4 | 1,843.3 | 2,209.3 | 2,350.0 | n/a |
| Bank Internasional Indonesia Tbk PT | 1,245.7 | 1,433.6 | 1,692.5 | 1,958.9 | 2,141.5 | n/a |
| Citigroup Inc | 1,651.3 | 1,855.5 | 1,536.7 | 1,325.2 | 1,500.0 | n/a |
| HSBC Holdings Plc | 448.1 | 460.2 | 510.1 | 575.0 | 550.0 | n/a |
| ANZ Panin Bank PT | 336.1 | 348.3 | 367.3 | 376.5 | 350.0 | n/a |
| Others | 19,501.2 | 24,761.6 | 34,715.9 | 44,795.8 | 53,176.3 | n/a |
| Total | 61,625.1 | 74,661.8 | 92,651.6 | 115,379.5 | 132,514.8 | n/a |
| Number of Cards by Operator 2009-2013 ('000 cards) | | | | | | |
| MasterCard International Inc | 19,736.9 | 25,083.4 | 31,268.1 | 38,313.5 | 47,322.7 | n/a |
| Visa Inc | 20,672.0 | 22,113.3 | 25,212.0 | 29,015.6 | 29,722.0 | n/a |
| Rintis Sejahtera PT | 7,990.0 | 8,691.0 | 9,620.0 | 10,674.0 | 11,639.0 | n/a |
| Artajasa Pembayaran Elektronik PT | 2,469.1 | 3,470.0 | 4,658.4 | 5,784.3 | 5,905.1 | n/a |
| American Express Co | 573.8 | 610.6 | 648.0 | 659.3 | 692.0 | n/a |
| JCB Co Ltd | 210.2 | 229.4 | 246.9 | 258.7 | 310.4 | n/a |
| Others | 9,973.1 | 14,464.2 | 20,998.2 | 30,674.1 | 36,923.6 | n/a |
| Total | 61,625.1 | 74,661.8 | 92,651.6 | 115,379.5 | 132,514.8 | n/a |
| Card Payment Transactions Value by Operator 2009-2013 (IDR tn) | | | | | | |
| MasterCard International Inc | 79.3 | 94.6 | 113.6 | 136.7 | 167.8 | n/a |
| Visa Inc | 86.8 | 105.1 | 120.8 | 138.0 | 158.3 | n/a |
| American Express Co | 7.5 | 8.8 | 10.1 | 11.1 | 12.9 | n/a |
| Rintis Sejahtera PT | 8.3 | 6.8 | 7.4 | 8.7 | 10.5 | n/a |
| Artajasa Pembayaran Elektronik PT | 3.3 | 4.0 | 5.4 | 7.3 | 8.6 | n/a |
| Daya Network Lestari PT | 1.7 | 2.2 | 2.9 | 3.7 | 4.2 | n/a |
| JCB Co Ltd | 1.9 | 2.7 | 2.6 | 2.7 | 3.6 | n/a |
| Bank Mandiri (Persero) Tbk PT | 0.0 | 0.0 | 0.1 | 1.0 | 1.5 | n/a |
| Telekomunikasi Selular PT | 0.0 | 0.3 | 0.4 | 0.6 | 0.7 | n/a |
| Bank Central Asia Tbk PT | 0.3 | 0.2 | 0.4 | 0.4 | 0.5 | n/a |
| Others | 0.1 | 0.1 | 0.1 | 0.7 | 1.1 | n/a |
| Total | 189.3 | 224.7 | 263.7 | 310.8 | 369.7 | n/a |

| Card Payment Transactions Value by Issuer 2009-2013 (IDR bn) | | | | | | |
|--|-----------|-----------|-----------|-----------|-----------|-----|
| Bank Central Asia Tbk PT | 54,600.1 | 67,104.0 | 75,551.4 | 93,090.0 | 113,980.0 | n/a |
| Bank Mandiri (Persero) Tbk PT | 22,029.4 | 25,656.2 | 28,757.8 | 43,072.4 | 63,877.2 | n/a |
| Bank CIMB Niaga Tbk PT | 12,182.8 | 13,931.4 | 20,627.6 | 29,856.2 | 36,266.4 | n/a |
| Citibank Indonesia PT | 19,879.9 | 23,892.2 | 20,762.6 | 21,755.0 | 30,666.3 | n/a |
| Bank Negara Indonesia (Persero) Tbk PT | 12,687.6 | 17,653.4 | 18,188.1 | 22,469.3 | 26,911.0 | n/a |
| Bank Mega Tbk PT | 4,600.5 | 7,295.6 | 13,683.3 | 17,903.7 | 23,204.1 | n/a |
| Bank Danamon Indonesia Tbk PT | 8,864.8 | 10,165.3 | 11,547.8 | 12,833.6 | 15,027.7 | n/a |
| Bank Rakyat Indonesia (Persero) Tbk PT | 3,209.1 | 3,409.1 | 4,717.0 | 7,404.0 | 11,355.0 | n/a |
| Bank Internasional Indonesia Tbk PT | 6,189.0 | 6,422.2 | 7,282.4 | 7,916.1 | 8,514.9 | n/a |
| HSBC Holdings Plc | 4,391.5 | 5,489.3 | 5,886.2 | 6,966.4 | 7,996.2 | n/a |
| ANZ Panin Bank PT | 3,013.4 | 3,344.9 | 3,629.2 | 3,926.8 | 4,453.8 | n/a |
| Bank Permata Tbk PT | 1,670.5 | 1,714.5 | 1,964.6 | 2,455.6 | 2,578.0 | n/a |
| Telekomunikasi Selular PT | 40.0 | 280.0 | 450.0 | 620.0 | 665.0 | n/a |
| General Electric Indonesia PT | 633.7 | 687.6 | 558.6 | 480.7 | 500.6 | n/a |
| Others | 35,263.7 | 37,612.4 | 50,120.9 | 40,020.8 | 23,660.1 | n/a |
| Total | 189,255.8 | 224,658.0 | 263,727.5 | 310,770.5 | 369,656.3 | n/a |

Source: Euromonitor International from official statistics, trade associations, trade press, company research, trade interviews, trade sources

Table A3. Morocco: Market Data and Indicators

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|-----------|-----------|-----------|-----------|-----------|-----------|
| No of POS terminals ('000 units) | 15.0 | 18.0 | 20.0 | 28.0 | 36.0 | 47.0 |
| No of ATMs ('000 units) | 15.0 | 18.0 | 20.0 | 28.0 | 36.0 | 47.0 |
| Value Lost to Fraud 2009-2014 (MAD mn) | 4.4 | 5.0 | 5.5 | 6.1 | 0.8 | 0.9 |
| Financial Cards in Circulation by Type: % Number of Cards 2009-2014 | | | | | | |
| Contact Smart Cards | 0.0 | 0.0 | 0.0 | 48.0 | 67.0 | 82.0 |
| Contactless Smart Cards | - | - | - | 0.2 | 0.5 | 1.2 |
| Non-Smart Cards | 100.0 | 100.0 | 100.0 | 51.8 | 32.5 | 16.8 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Number of Cards in Circulation 2009-2014 ('000 cards) | | | | | | |
| ATM Function | 5,144.0 | 5,812.7 | 6,455.0 | 7,272.9 | 8,218.3 | 9,237.4 |
| Charge Card Function | 250.9 | 276.8 | 276.5 | 240.6 | 239.6 | 241.8 |
| Credit Function | 64.8 | 83.0 | 116.0 | 120.9 | 118.7 | 118.0 |
| Debit Function | 4,453.0 | 4,720.0 | 5,116.8 | 5,868.4 | 6,252.1 | 6,698.8 |
| Pre-Paid Function | - | - | - | 180.2 | 185.9 | 192.4 |
| Store Cards | 908.7 | 987.7 | 1,121.0 | 1,213.3 | 1,298.2 | 1,370.3 |
| Financial Cards in Circulation | 6,371.0 | 7,041.7 | 8,023.2 | 9,220.9 | 9,791.1 | 10,607.6 |
| Financial Cards Transactions by Category: Value 2009-2014 (MAD mn) | | | | | | |
| ATM Transactions | 95,832.1 | 113,081.9 | 138,299.1 | 155,586.5 | 173,479.0 | 193,342.3 |
| Card Payment Transactions | 112,414.1 | 122,715.7 | 132,764.4 | 150,864.4 | 160,700.0 | 172,560.8 |
| - Charge Card Transactions | 2,356.8 | 2,738.1 | 3,170.2 | 2,823.7 | 2,821.0 | 2,843.6 |
| - Credit Card Transactions | 689.4 | 821.4 | 1,209.6 | 1,314.0 | 1,417.3 | 1,552.0 |
| - Debit Transactions | 108,231.9 | 117,608.8 | 126,279.4 | 144,211.1 | 153,766.6 | 165,299.1 |
| - Pre-Paid Transactions | - | - | - | 229.4 | 236.3 | 249.4 |
| - Store Card Transactions | 1,136.0 | 1,547.4 | 2,105.2 | 2,286.2 | 2,458.8 | 2,616.7 |
| Total Cards Transactions | 208,246.2 | 235,797.6 | 271,063.5 | 306,450.9 | 334,179.0 | 365,903.1 |
| Financial Cards by Category: Number of Transactions 2009-2014 (mn transactions) | | | | | | |
| ATM Transactions | 136.4 | 161.5 | 184.8 | 211.6 | 240.2 | 273.4 |
| Card Payment Transactions | 264.2 | 278.3 | 298.3 | 347.6 | 368.8 | 395.0 |
| - Charge Card Transactions | 3.9 | 4.6 | 5.2 | 4.6 | 4.6 | 4.6 |
| - Credit Card Transactions | 1.1 | 1.4 | 2.0 | 2.2 | 2.4 | 2.6 |
| - Debit Transactions | 257.6 | 270.0 | 288.0 | 328.2 | 348.7 | 374.0 |
| - Pre-Paid Transactions | - | - | - | 9.2 | 9.5 | 9.9 |
| - Store Card Transactions | 1.6 | 2.3 | 3.2 | 3.4 | 3.7 | 3.9 |
| Total Cards Transactions | 400.6 | 439.8 | 483.1 | 559.2 | 609.0 | 668.4 |
| Financial Cards by Category: Number of Accounts 2009-2014 ('000 cards) | | | | | | |
| Charge Card Function | 239.0 | 263.6 | 264.5 | 236.7 | 229.9 | 226.9 |
| Credit Function | 55.9 | 61.7 | 79.1 | 102.6 | 105.1 | 106.8 |
| Debit Function | 4,365.7 | 4,627.5 | 5,055.4 | 5,571.5 | 6,043.7 | 6,503.2 |
| Store Cards | 908.7 | 987.7 | 1,121.0 | 1,213.3 | 1,298.3 | 1,370.3 |
| Financial Cards in Circulation | 5,569.2 | 5,940.4 | 6,519.9 | 7,124.1 | 7,677.0 | 8,207.2 |
| Consumer Payments by Category: Value 2009-2014 (MAD bn) | | | | | | |
| Card Payment Transactions (Excl Commercial) | 110.6 | 120.6 | 130.3 | 148.6 | 158.4 | 170.2 |
| Electronic Direct/ACH Transactions | 0.2 | 0.3 | 0.4 | 0.8 | 1.4 | 2.1 |
| Paper Payment Transactions | 284.5 | 292.3 | 315.2 | 323.1 | 345.2 | 353.3 |
| - Cash Transactions | 284.1 | 292.0 | 314.9 | 322.7 | 344.9 | 353.1 |
| - Other Paper Payment Types | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 | 0.3 |
| Consumer Payment Transactions | 395.2 | 413.3 | 445.9 | 472.4 | 505.0 | 525.6 |
| Consumer Payments by Category: Number of Transactions 2009-2014 (mn transactions) | | | | | | |
| Card Payment Transactions (Excl | 261.9 | 275.5 | 295.0 | 344.5 | 365.7 | 391.9 |

| | | | | | | |
|--|-----------|-----------|-----------|-----------|-----------|---------|
| Commercial) | | | | | | |
| Electronic Direct/ACH Transactions | 0.2 | 0.4 | 0.8 | 1.2 | 1.9 | 2.7 |
| Paper Payment Transactions | 4,645.3 | 4,749.4 | 4,854.6 | 4,961.0 | 5,068.0 | 5,175.1 |
| - Cash Transactions | 4,644.8 | 4,749.0 | 4,854.3 | 4,960.6 | 5,067.7 | 5,174.8 |
| - Other Paper Payment Types | 0.5 | 0.4 | 0.4 | 0.3 | 0.3 | 0.3 |
| Consumer Payment Transactions | 4,907.4 | 5,025.3 | 5,150.4 | 5,306.6 | 5,435.6 | 5,569.6 |
| M-Commerce by Category: Value 2009-2014 (MAD mn) | | | | | | |
| Mobile Phone M-Commerce | - | - | - | - | 270.8 | 365.2 |
| - Mobile Phone - Proximity | - | - | - | - | - | - |
| - Mobile Phone - Remote | - | - | - | - | 270.8 | 365.2 |
| Tablet M-Commerce | - | - | - | - | 30.1 | 45.1 |
| M-Commerce | 88.4 | 115.6 | 155.3 | 213.9 | 300.9 | 410.4 |
| Number of Cards by Issuer 2009-2013 ('000 cards) | | | | | | |
| AttijariWafa Bank | 1,373.3 | 1,526.7 | 1,525.5 | 1,664.1 | 1,879.6 | n/a |
| Banque Populaire, Groupe | 887.1 | 974.3 | 963.3 | 1,046.6 | 1,168.1 | n/a |
| BMCE | 883.0 | 982.0 | 980.7 | 1,070.6 | 1,168.1 | n/a |
| Société Générale, Groupe | 561.2 | 618.6 | 611.7 | 661.1 | 720.9 | n/a |
| BMCI | 338.2 | 368.7 | 362.0 | 387.7 | 408.8 | n/a |
| Credit Du Maroc | 266.5 | 286.7 | 277.0 | 292.2 | 318.6 | n/a |
| CIH | 87.0 | 98.6 | 99.4 | 110.0 | 122.1 | n/a |
| Others | 1,974.5 | 2,186.2 | 3,203.5 | 3,988.6 | 4,004.9 | n/a |
| Total | 6,371.0 | 7,041.7 | 8,023.2 | 9,220.9 | 9,791.1 | n/a |
| Number of Cards by Operator 2009-2013 ('000 cards) | | | | | | |
| Visa Inc | 4,312.5 | 4,563.4 | 4,956.2 | 5,722.8 | 6,122.0 | n/a |
| MasterCard International Inc | 315.7 | 359.8 | 392.5 | 361.5 | 358.2 | n/a |
| Others | 1,742.7 | 2,118.6 | 2,674.5 | 3,136.5 | 3,310.9 | n/a |
| Total | 6,371.0 | 7,041.7 | 8,023.2 | 9,220.9 | 9,791.1 | n/a |
| Card Payment Transactions Value by Operator 2009-2013 (MAD mn) | | | | | | |
| Visa Inc | 104,660.4 | 113,374.9 | 121,985.9 | 140,193.8 | 150,076.2 | n/a |
| MasterCard International Inc | 6,617.8 | 7,793.4 | 8,673.3 | 8,155.1 | 7,928.7 | n/a |
| Others | 1,136.0 | 1,547.4 | 2,105.2 | 2,515.6 | 2,695.1 | n/a |
| Total | 112,414.1 | 122,715.7 | 132,764.4 | 150,864.4 | 160,700.0 | n/a |
| Card Payment Transactions Value by Issuer 2009-2013 (MAD mn) | | | | | | |
| AttijariWafa Bank | 28,697.3 | 31,506.2 | 34,261.8 | 40,027.9 | 43,680.6 | n/a |
| Banque Populaire, Groupe | 19,772.9 | 21,432.1 | 23,028.9 | 26,389.6 | 28,829.5 | n/a |
| BMCE | 18,395.4 | 20,192.6 | 21,975.4 | 24,206.9 | 27,889.4 | n/a |
| Société Générale, Groupe | 11,721.7 | 12,751.0 | 14,972.9 | 16,189.0 | 16,801.9 | n/a |
| BMCI | 7,548.6 | 8,138.3 | 8,707.1 | 10,162.8 | 11,074.6 | n/a |
| Credit Du Maroc | 5,578.3 | 5,939.2 | 6,247.6 | 6,815.4 | 7,494.3 | n/a |
| CIH | 1,808.4 | 2,013.2 | 2,236.8 | 2,668.8 | 3,098.7 | n/a |
| Aksal Groupe SA | 267.0 | 367.4 | 504.9 | 675.7 | 811.0 | n/a |
| Marjane Holding SA | 263.0 | 362.0 | 497.4 | 642.8 | 754.9 | n/a |
| Comptoir Métallurgique Marocain | 140.1 | 192.8 | 265.0 | 328.1 | 387.6 | n/a |
| Digibuy SA | 78.0 | 107.3 | 147.5 | 182.6 | 216.5 | n/a |
| Al Mazar SA | 64.3 | 88.4 | 121.5 | 154.2 | 176.6 | n/a |
| Others | 18,079.0 | 19,625.2 | 19,797.5 | 22,420.5 | 19,484.2 | n/a |
| Total | 112,414.1 | 122,715.7 | 132,764.4 | 150,864.4 | 160,700.0 | n/a |

Source: Euromonitor International from official statistics, trade associations, trade press, company research, trade interviews, trade sources

Table A4. Nigeria: Market Data and Indicators

| | 2000 | 2005 | 2010 | 2011 | 2012 | 2015 |
|--|---------|---------|-----------|-----------|-----------|-----------|
| Financial cards in circulation | | | | | | |
| - ATM cards (mn cards) | 0.5 | 0.6 | 0.9 | 1.0 | 1.1 | 1.3 |
| - Debit cards (mn cards) | 0.4 | 0.5 | 0.7 | 0.7 | 0.8 | 0.9 |
| - Credit cards (mn cards) | - | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 |
| - Charge cards (mn cards) | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| Financial cards' transactions | | | | | | |
| - ATM cards (US\$ mn, at constant prices) | 2,832 | 4,240 | 5,254 | 5,151 | 5,570 | 6,483 |
| - Debit cards (US\$ mn, at constant prices) | 47 | 1,168 | 7,261 | 7,278 | 7,967 | 10,689 |
| - Credit cards (US\$ mn, at constant prices) | 1,174 | 3,031 | 2,886 | 3,015 | 3,364 | 4,674 |
| - Charge cards (US\$ mn, at constant prices) | 1,178 | 1,834 | 1,733 | 1,821 | 2,020 | 2,799 |
| Cash transactions (US\$ mn, at constant prices) | 25,593 | 35,898 | 40,603 | 42,141 | 46,223 | 57,163 |
| Other paper transactions (US\$ mn, at constant prices) | 1,125 | 1,410 | 1,362 | 1,292 | 1,330 | 1,316 |
| Annual savings (NGN mn, at constant prices) | 621,114 | 942,672 | 1,224,618 | 1,127,106 | 1,141,905 | 1,280,497 |
| Savings ratio (% of disposable income) | 5.7 | 4.1 | 4.2 | 4.3 | 4.4 | 4.5 |
| Annual lending rate (%) | 21.3 | 17.9 | 17.6 | 16.0 | 16.8 | - |
| Consumer lending | | | | | | |
| - Consumer credit (outstanding balance) (US\$ mn) | 7,246 | 12,105 | 15,443 | 16,050 | 17,601 | 23,368 |
| - Mortgages/housing (outstanding balance) (US\$ mn) | 15,270 | 29,860 | 50,217 | 51,414 | 53,226 | 61,849 |

Source: National statistics, Euromonitor International

Table A5. Pakistan: Market Data and Indicators

| | 2000 | 2005 | 2011 | 2012 | 2013 | 2015 |
|--|---------|---------|---------|---------|---------|---------|
| Financial cards in circulation | | | | | | |
| - ATM cards (mn cards) | 0.7 | 1.1 | 4.0 | 5.2 | 6.4 | 10.3 |
| - Debit cards (mn cards) | 0.7 | 1.0 | 3.5 | 4.9 | 5.9 | 9.6 |
| - Credit cards (mn cards) | 0.6 | 0.9 | 1.4 | 1.4 | 1.5 | 2.0 |
| - Charge cards (mn cards) | 0.1 | 0.1 | 0.3 | 0.3 | 0.3 | 0.3 |
| Financial cards' transactions | | | | | | |
| - ATM cards (US\$ mn, at constant prices) | 44 | 47 | 187 | 254 | 301 | 438 |
| - Debit cards (US\$ mn, at constant prices) | 1,100 | 986 | 1,563 | 1,656 | 1,929 | 3,444 |
| - Credit cards (US\$ mn, at constant prices) | 7,444 | 9,679 | 7,439 | 8,323 | 10,452 | 19,838 |
| - Charge cards (US\$ mn, at constant prices) | 530 | 689 | 441 | 489 | 504 | 653 |
| Cash transactions (US\$ mn, at constant prices) | 80,534 | 89,656 | 112,541 | 137,762 | 130,093 | 151,419 |
| Other paper transactions (US\$ mn, at constant prices) | 4,061 | 4,077 | 4,159 | 4,518 | 4,389 | 4,922 |
| Annual savings (PKR mn, at constant prices) | 411,879 | 643,048 | 760,451 | 771,280 | 801,890 | 890,034 |
| Savings ratio (% of disposable income) | 4.0 | 4.6 | 4.2 | 4.1 | 4.1 | 4.1 |
| Consumer lending | | | | | | |
| - Consumer credit (outstanding balance) (US\$ mn) | 1,439 | 5,287 | 14,489 | 17,343 | 19,851 | 34,087 |
| - Mortgages/housing (outstanding balance) (US\$ mn) | 4,108 | 13,384 | 22,936 | 28,854 | 31,660 | 40,724 |

Source: National statistics, Euromonitor International

Table A6. Pakistan: Number and value of transactions

| Number of transactions (000) | 2006 | 2008 | 2010 | 2012 |
|------------------------------------|---------|---------|---------|---------|
| Electronic | 20,160 | 33,773 | 53,367 | 74,562 |
| Paper | 82,131 | 84,338 | -1,606 | 92,431 |
| Total | 102,291 | 118,111 | 144,973 | 166,993 |
| % share | | | | |
| Electronic | 19.71 | 28.60 | 36.81 | 44.65 |
| Paper | 80.29 | 71.40 | 63.19 | 55.35 |
| Value of transactions (Rs Billion) | 2006 | 2008 | 2010 | 2012 |
| Electronic | 2,479 | 4,119 | 4,821 | 6,555 |
| Paper | 25,036 | 39,875 | 40,536 | 43,675 |
| Total | 27,515 | 43,994 | 45,357 | 50,230 |
| % share | | | | |
| Electronic | 9.01 | 9.36 | 10.63 | 13.05 |
| Paper | 90.99 | 90.64 | 89.37 | 86.95 |

Source: Statistical Bulletin (2003-2012), Quarterly Reports on Payment Systems, 2006-2012, www.sbp.org.pk.

Table A7. Paper vs non-paper based instruments 2012

| Paper- based Instrument | Percentage share in number of transactions | Percentage share in value of transactions |
|-------------------------|--|--|
| Cash cheques | 46% | 47% |
| Transfer cheques | 31% | 26% |
| Clearing cheques | 17% | 16% |
| Pay orders | 2% | 4% |
| Demand drafts | 2% | 2% |
| Tele transfers | 0% | 2% |
| Others | 2% | 3% |
| e-Banking instruments | Sources of e-banking transactions & number (000) | Sources of e-banking transactions & value (Rs billion) |
| ATM | 61% | 7% |
| RTOB | 29% | 91% |
| POS | 6% | 0% |
| Internet banking | 3% | 2% |
| Mobile banking | 1% | 0% |
| Call center | 0% | 0% |

Source: Quarterly Reports on Payments System (2012) www.sbp.org.pk

Table A8. Turkey: Market Data and Indicators

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|-----------|-----------|-----------|-----------|-----------|-----------|
| No of POS terminals ('000 units) | 1,738.6 | 1,823.5 | 1,976.8 | 2,134.4 | 2,293.7 | 2,591.9 |
| No of ATMs ('000 units) | 23.8 | 27.6 | 32.5 | 36.3 | 42.0 | 45.5 |
| Value Lost to Fraud 2009-2014 (TRY mn) | 27.1 | 27.1 | 27.2 | 27.2 | 27.2 | 27.2 |
| Financial Cards in Circulation by Type: % Number of Cards 2009-2014 | | | | | | |
| Contact Smart Cards | 34.4 | 33.5 | 30.4 | 27.1 | 22.3 | 18.3 |
| Contactless Smart Cards | 2.3 | 2.6 | 4.3 | 6.3 | 9.9 | 12.1 |
| Non-Smart Cards | 63.3 | 63.9 | 65.3 | 66.5 | 67.7 | 69.5 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Financial Cards by Category: Number of Cards in Circulation 2009-2014 ('000 cards) | | | | | | |
| ATM Function | 109,053.2 | 116,875.5 | 126,287.2 | 135,771.3 | 143,374.5 | 152,263.7 |
| Charge Card Function | - | - | - | - | - | - |
| Credit Function | 44,392.6 | 46,956.1 | 51,360.8 | 54,342.1 | 56,835.2 | 58,876.6 |
| Debit Function | 64,661.9 | 69,916.5 | 81,879.9 | 91,263.0 | 100,165.0 | 112,585.4 |
| Pre-Paid Function | 11,941.1 | 13,174.4 | 14,789.0 | 16,780.5 | 19,507.1 | 22,734.4 |
| Store Cards | - | - | - | - | - | - |
| Financial Cards in Circulation | 120,995.6 | 130,047.0 | 148,029.7 | 162,385.7 | 176,076.0 | 193,219.7 |
| Financial Cards Transactions by Category: Value 2009-2014 (TRY bn) | | | | | | |
| ATM Transactions | 199.6 | 229.3 | 268.2 | 323.3 | 375.7 | 429.7 |
| Card Payment Transactions | 191.0 | 225.1 | 281.1 | 353.1 | 417.2 | 473.2 |
| - Charge Card Transactions | - | - | - | - | - | - |
| - Credit Card Transactions | 183.4 | 214.2 | 265.5 | 332.4 | 389.6 | 440.3 |
| - Debit Transactions | 4.9 | 7.8 | 12.0 | 16.3 | 22.2 | 26.4 |
| - Pre-Paid Transactions | 2.7 | 3.1 | 3.6 | 4.4 | 5.4 | 6.6 |
| - Store Card Transactions | - | - | - | - | - | - |
| Total Cards Transactions | 390.7 | 454.4 | 549.3 | 676.5 | 792.9 | 902.9 |
| Financial Cards by Category: Number of Transactions 2009-2014 (mn transactions) | | | | | | |
| ATM Transactions | 741.4 | 793.5 | 857.1 | 959.4 | 1,030.4 | 1,086.2 |
| Card Payment Transactions | 3,460.2 | 3,826.8 | 4,309.5 | 4,914.9 | 5,572.2 | 6,164.4 |
| - Charge Card Transactions | - | - | - | - | - | - |
| - Credit Card Transactions | 1,756.5 | 1,958.7 | 2,182.5 | 2,428.5 | 2,642.2 | 2,780.5 |
| - Debit Transactions | 153.9 | 220.2 | 308.4 | 437.4 | 574.2 | 655.8 |
| - Pre-Paid Transactions | 1,549.7 | 1,647.8 | 1,818.6 | 2,049.0 | 2,355.7 | 2,728.0 |
| - Store Card Transactions | - | - | - | - | - | - |
| Total Cards Transactions | 4,201.6 | 4,620.3 | 5,166.6 | 5,874.3 | 6,602.6 | 7,250.6 |
| Financial Cards by Category: Number of Accounts 2009-2014 ('000 accounts) | | | | | | |
| Charge Card Function | - | - | - | - | - | - |
| Credit Function | 37,671.9 | 38,560.3 | 40,094.2 | 43,157.4 | 46,804.2 | 50,658.8 |
| Debit Function | 58,511.2 | 60,297.3 | 64,649.2 | 75,329.5 | 83,962.0 | 95,968.6 |
| Store Cards | - | - | - | - | - | - |
| Financial Cards in Circulation | 96,183.0 | 98,857.6 | 104,743.4 | 118,486.9 | 130,766.2 | 146,627.4 |
| Consumer Payments by Category: Value 2009-2014 (TRY bn) | | | | | | |
| Card Payment Transactions (Excl Commercial) | 182.6 | 211.2 | 257.9 | 317.9 | 370.4 | 412.9 |
| Electronic Direct/ACH Transactions | 22.4 | 20.0 | 31.4 | 35.6 | 41.3 | 48.1 |
| Paper Payment Transactions | 396.0 | 455.4 | 504.0 | 504.7 | 541.6 | 527.4 |
| - Cash Transactions | 395.6 | 455.0 | 503.5 | 504.2 | 541.2 | 526.9 |
| - Other Paper Payment Types | 0.4 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 |
| Consumer Payment Transactions | 601.0 | 686.6 | 793.3 | 858.2 | 953.4 | 988.4 |
| Consumer Payments by Category: Number of Transactions 2009-2014 (mn transactions) | | | | | | |
| Card Payment Transactions (Excl | 3,428.5 | 3,788.0 | 4,261.8 | 4,854.3 | 5,500.9 | 6,080.7 |

| | | | | | | |
|--|-----------|-----------|-----------|-----------|-----------|----------|
| Commercial) | | | | | | |
| Electronic Direct/ACH Transactions | 123.6 | 143.0 | 166.7 | 183.1 | 198.9 | 217.9 |
| Paper Payment Transactions | 12,841.4 | 12,244.6 | 11,567.1 | 11,747.9 | 11,976.4 | 12,199.9 |
| - Cash Transactions | 12,840.4 | 12,243.6 | 11,566.1 | 11,747.0 | 11,975.5 | 12,199.1 |
| - Other Paper Payment Types | 1.0 | 1.0 | 1.0 | 0.9 | 0.8 | 0.8 |
| Consumer Payment Transactions | 16,393.5 | 16,175.7 | 15,995.6 | 16,785.3 | 17,676.1 | 18,498.5 |
| M-Commerce by Category: Value 2009-2014 (TRY mn) | | | | | | |
| Mobile Phone M-Commerce | - | - | - | - | 172.6 | 341.2 |
| - Mobile Phone - Proximity | - | - | - | - | 25.9 | 40.9 |
| - Mobile Phone - Remote | - | - | - | - | 146.7 | 300.3 |
| Tablet M-Commerce | - | - | - | - | 30.5 | 74.9 |
| M-Commerce | 35.0 | 54.3 | 81.4 | 125.9 | 203.0 | 416.2 |
| Number of Cards by Issuer 2009-2013 ('000 cards) | | | | | | |
| Türkiye Cumhuriyeti Ziraat Bankası AS | 14,736.4 | 16,266.0 | 18,831.7 | 20,774.7 | 22,351.6 | n/a |
| Yapı ve Kredi Bankası AS | 12,489.5 | 15,019.2 | 17,204.8 | 18,705.4 | 20,612.0 | n/a |
| Akbank TAS | 11,739.7 | 12,774.5 | 15,504.7 | 16,951.0 | 18,419.3 | n/a |
| Garanti Bankası AS | 12,207.7 | 13,041.2 | 14,522.9 | 16,000.0 | 17,000.0 | n/a |
| Türkiye İş Bankası AS (İsbank) | 11,015.9 | 11,457.9 | 13,121.3 | 15,225.9 | 15,868.1 | n/a |
| Türkiye Vakıflar Bankası TAO | 9,282.8 | 9,400.7 | 10,558.7 | 11,723.3 | 12,998.6 | n/a |
| Finansbank AS | 6,093.3 | 7,317.8 | 9,120.6 | 10,104.6 | 10,598.4 | n/a |
| Türkiye Halk Bankası AS | 6,180.2 | 6,609.5 | 7,665.0 | 8,306.3 | 10,111.4 | n/a |
| HSBC Bank AS | 7,135.9 | 5,644.3 | 5,740.6 | 5,901.2 | 6,280.0 | n/a |
| TEB AS | - | - | 3,844.1 | 4,211.3 | 4,530.9 | n/a |
| Citigroup Inc | 2,678.9 | 2,572.6 | 2,829.0 | 3,013.6 | 3,026.1 | n/a |
| Denizbank | 2,017.4 | 2,360.3 | 2,781.5 | 3,043.3 | 2,100.1 | n/a |
| Asya Katılım Bankası AS | 1,669.4 | 1,811.8 | 1,912.8 | 1,948.3 | 1,859.1 | n/a |
| Seker Bankası AS | 608.3 | 588.3 | 615.3 | 659.6 | 691.2 | n/a |
| Fortis Bank AS | 3,478.3 | 3,696.9 | - | - | - | n/a |
| Others | 19,661.7 | 21,486.0 | 23,776.6 | 25,817.1 | 29,629.3 | n/a |
| Total | 120,995.6 | 130,047.0 | 148,029.7 | 162,385.7 | 176,076.0 | n/a |
| Number of Cards by Operator 2009-2013 ('000 cards) | | | | | | |
| Visa Europe | 63,301.0 | 69,290.6 | 79,368.7 | 84,974.9 | 91,291.1 | n/a |
| MasterCard International Inc | 45,451.8 | 47,183.2 | 53,456.3 | 60,198.3 | 65,258.5 | n/a |
| Karayollari Genel Mudurlugu | 5,270.7 | 6,998.1 | 7,367.8 | 7,927.0 | 8,000.0 | n/a |
| Belbim AS | 2,485.5 | 2,421.3 | 3,099.9 | 3,937.7 | 4,849.4 | n/a |
| Sodexo Pass | 339.9 | 367.0 | 401.2 | 449.4 | 500.6 | n/a |
| Multinet | 292.7 | 330.0 | 368.6 | 416.6 | 468.2 | n/a |
| American Express Co | 299.8 | 398.0 | 415.7 | 432.0 | 450.6 | n/a |
| Edenred Group | - | 205.4 | 258.7 | 330.0 | 380.0 | n/a |
| Accor Services | 178.5 | - | - | - | - | n/a |
| Others | 3,375.7 | 2,853.3 | 3,292.7 | 3,719.8 | 4,877.5 | n/a |
| Total | 120,995.6 | 130,047.0 | 148,029.7 | 162,385.7 | 176,076.0 | n/a |
| Card Payment Transactions Value by Operator 2009-2013 (TRY bn) | | | | | | |
| Visa Europe | 98.1 | 119.0 | 155.0 | 188.7 | 234.5 | n/a |
| MasterCard International Inc | 89.1 | 101.6 | 120.9 | 158.4 | 175.4 | n/a |
| American Express Co | 1.0 | 1.5 | 1.6 | 1.6 | 1.8 | n/a |
| Belbim AS | 0.9 | 0.9 | 1.0 | 1.3 | 1.6 | n/a |
| Sodexo Alliance | 0.5 | 0.6 | 0.7 | 0.9 | 1.1 | n/a |
| Karayollari Genel Mudurlugu | 0.6 | 0.8 | 0.9 | 1.0 | 1.0 | n/a |
| Multinet | 0.4 | 0.5 | 0.5 | 0.6 | 0.7 | n/a |
| Edenred Group | - | 0.2 | 0.3 | 0.4 | 0.4 | n/a |

| | | | | | | |
|---|-----------|-----------|-----------|-----------|-----------|-----|
| Accor Services | 0.2 | - | - | - | - | n/a |
| Others | 0.1 | 0.1 | 0.2 | 0.2 | 0.6 | n/a |
| Total | 191.0 | 225.1 | 281.1 | 353.1 | 417.2 | n/a |
| Card Payment Transactions Value by Issuer 2009-2013 (TRY mn) | | | | | | |
| Garanti Bankasi AS | 38,529.8 | 43,370.1 | 52,659.6 | 61,866.5 | 70,088.4 | n/a |
| Yapi ve Kredi Bankasi AS | 32,517.5 | 35,599.9 | 45,340.7 | 58,848.5 | 69,647.8 | n/a |
| Akbank TAS | 21,048.2 | 24,558.1 | 33,656.0 | 45,325.7 | 54,725.0 | n/a |
| Türkiye İş Bankasi AS (İsbank) | 22,626.1 | 27,510.0 | 35,425.2 | 45,574.5 | 53,053.7 | n/a |
| Finansbank AS | 18,133.4 | 20,651.5 | 30,002.8 | 37,535.7 | 39,357.3 | n/a |
| Türkiye Vakıflar Bankasi TAO | 6,739.0 | 9,473.3 | 11,086.7 | 13,811.1 | 18,116.0 | n/a |
| HSBC Bank AS | 10,227.8 | 11,088.0 | 12,283.9 | 15,398.8 | 17,686.2 | n/a |
| Denizbank | 6,545.9 | 9,067.7 | 7,985.0 | 11,439.0 | 16,231.8 | n/a |
| Türkiye Cumhuriyeti Ziraat Bankasi AS | 5,694.0 | 7,989.8 | 9,268.6 | 11,638.8 | 14,064.4 | n/a |
| Türkiye Halk Bankasi AS | 4,392.1 | 5,181.8 | 6,106.8 | 7,560.2 | 12,621.7 | n/a |
| Asya Katılım Bankasi AS | 3,162.4 | 3,594.5 | 3,747.8 | 4,575.3 | 5,632.6 | n/a |
| Citigroup Inc | 875.0 | 989.6 | 1,125.2 | 1,499.7 | 1,777.6 | n/a |
| TEB AS | - | - | 962.6 | 1,226.8 | 1,601.6 | n/a |
| Belbim AS | 890.4 | 850.9 | 1,036.9 | 1,278.6 | 1,577.4 | n/a |
| Seker Bankasi AS | 668.6 | 728.3 | 811.4 | 1,008.5 | 1,341.3 | n/a |
| Sodexo Pass | 515.4 | 576.0 | 736.2 | 923.5 | 1,141.9 | n/a |
| Karayolları Genel Müdürlüğü | 628.1 | 847.3 | 883.3 | 976.1 | 965.4 | n/a |
| Multinet | 395.0 | 453.9 | 522.7 | 623.2 | 737.6 | n/a |
| Edenred Group | - | 225.1 | 267.5 | 352.2 | 426.6 | n/a |
| Fortis Bank AS | 3,279.1 | 3,517.3 | - | - | - | n/a |
| Accor Services | 195.3 | - | - | - | - | n/a |
| Others | 13,979.7 | 18,800.0 | 27,212.2 | 31,680.3 | 36,383.8 | n/a |
| Total | 191,042.7 | 225,073.1 | 281,121.2 | 353,142.9 | 417,178.1 | n/a |

Source: Euromonitor International from official statistics, trade associations, trade press, company research, trade interviews, trade sources

Table A9. UAE: Market Data and Indicators

| | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--|---------|---------|----------|----------|----------|----------|
| No of POS terminals ('000 units) | 97.8 | 104.5 | 106.5 | 108.0 | 112.0 | 114.0 |
| No of ATMs ('000 units) | 3.6 | 3.8 | 4.2 | 4.5 | 4.9 | 4.9 |
| Value Lost to Fraud 2009-2014 (AED mn) | 49.9 | 52.8 | 56.1 | 57.6 | 60.5 | 62.1 |
| Financial Cards in Circulation by Type: % Number of Cards 2009-2014 | | | | | | |
| Contact Smart Cards | 28.0 | 29.0 | 30.0 | 31.0 | 32.0 | 33.0 |
| Contactless Smart Cards | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 |
| Non-Smart Cards | 70.0 | 68.5 | 67.0 | 65.5 | 64.0 | 62.5 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Financial Cards by Category: Number of Cards in Circulation 2009-2014 ('000 cards) | | | | | | |
| ATM Function | 5,867.7 | 6,117.0 | 6,740.3 | 7,641.9 | 8,423.7 | 9,255.1 |
| Charge Card Function | 43.7 | 45.5 | 47.6 | 50.0 | 52.7 | 55.3 |
| Credit Function | 2,939.7 | 3,087.9 | 3,350.0 | 3,650.0 | 3,986.5 | 4,383.4 |
| Debit Function | 4,551.8 | 4,885.7 | 5,240.8 | 5,757.0 | 6,256.7 | 6,863.0 |
| Pre-Paid Function | 1,210.9 | 1,626.2 | 2,033.1 | 2,400.0 | 2,746.3 | 3,082.3 |
| Store Cards | - | - | - | - | - | - |
| Financial Cards in Circulation | 8,746.0 | 9,645.2 | 10,671.5 | 11,857.0 | 13,055.7 | 14,303.8 |
| Financial Cards Transactions by Category: Value 2009-2014 (AED bn) | | | | | | |
| ATM Transactions | 190.8 | 243.5 | 274.3 | 300.9 | 319.6 | 342.7 |
| Card Payment Transactions | 56.2 | 60.4 | 64.4 | 69.1 | 74.5 | 81.4 |
| - Charge Card Transactions | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 |
| - Credit Card Transactions | 36.7 | 38.2 | 40.0 | 41.9 | 44.2 | 47.3 |
| - Debit Transactions | 16.6 | 17.4 | 18.9 | 20.8 | 22.8 | 25.2 |
| - Pre-Paid Transactions | 2.7 | 4.6 | 5.3 | 6.2 | 7.2 | 8.6 |
| - Store Card Transactions | - | - | - | - | - | - |
| Total Cards Transactions | 247.0 | 303.9 | 338.7 | 370.0 | 394.1 | 424.0 |
| Financial Cards by Category: Number of Transactions 2009-2014 (mn transactions) | | | | | | |
| ATM Transactions | 286.3 | 300.9 | 323.5 | 349.7 | 381.2 | 416.5 |
| Card Payment Transactions | 199.1 | 209.3 | 226.7 | 246.5 | 269.3 | 297.6 |
| - Charge Card Transactions | 1.8 | 1.9 | 2.0 | 2.2 | 2.4 | 2.5 |
| - Credit Card Transactions | 100.8 | 105.2 | 112.1 | 120.2 | 129.7 | 142.0 |
| - Debit Transactions | 78.6 | 80.2 | 86.6 | 93.7 | 101.2 | 110.4 |
| - Pre-Paid Transactions | 18.0 | 21.9 | 26.0 | 30.5 | 36.1 | 42.7 |
| - Store Card Transactions | - | - | - | - | - | - |
| Total Cards Transactions | 485.4 | 510.2 | 550.2 | 596.2 | 650.5 | 714.1 |
| Financial Cards by Category: Number of Accounts 2009-2014 ('000 accounts) | | | | | | |
| Charge Card Function | 43.6 | 44.8 | 46.3 | 48.7 | 52.0 | 55.2 |
| Credit Function | 876.1 | 867.2 | 883.4 | 910.0 | 951.5 | 999.0 |
| Debit Function | 4,539.3 | 4,812.5 | 5,117.6 | 5,460.0 | 5,844.9 | 6,311.9 |
| Store Cards | - | - | - | - | - | - |
| Financial Cards in Circulation | 5,459.0 | 5,724.5 | 6,047.3 | 6,418.7 | 6,848.5 | 7,366.1 |
| Consumer Payments by Category: Value 2009-2014 (AED bn) | | | | | | |
| Card Payment Transactions (Excl Commercial) | 39.2 | 42.4 | 45.4 | 49.1 | 53.3 | 58.6 |
| Electronic Direct/ACH Transactions | 8.1 | 9.1 | 10.3 | 11.7 | 13.1 | 14.9 |
| Paper Payment Transactions | 308.7 | 317.5 | 356.4 | 378.7 | 402.6 | 398.8 |
| - Cash Transactions | 260.3 | 269.0 | 298.2 | 322.6 | 349.7 | 377.5 |
| - Other Paper Payment Types | 48.4 | 48.5 | 58.2 | 56.1 | 52.9 | 21.4 |
| Consumer Payment Transactions | 356.0 | 369.0 | 412.1 | 439.4 | 469.0 | 472.3 |
| Consumer Payments by Category: Number of Transactions 2009-2014 (mn transactions) | | | | | | |

| | | | | | | |
|---|----------|----------|----------|----------|----------|---------|
| Card Payment Transactions (Excl Commercial) | 167.9 | 176.3 | 191.4 | 208.5 | 228.2 | 252.4 |
| Electronic Direct/ACH Transactions | 49.9 | 57.3 | 65.8 | 75.9 | 87.5 | 101.2 |
| Paper Payment Transactions | 3,329.5 | 3,298.4 | 2,999.6 | 2,850.5 | 2,733.5 | 2,594.6 |
| - Cash Transactions | 3,260.3 | 3,227.1 | 2,913.2 | 2,766.5 | 2,653.6 | 2,562.3 |
| - Other Paper Payment Types | 69.2 | 71.2 | 86.4 | 84.0 | 79.9 | 32.3 |
| Consumer Payment Transactions | 3,547.2 | 3,531.9 | 3,256.8 | 3,134.8 | 3,049.2 | 2,948.3 |
| M-Commerce by Category: Value 2009-2014 (AED mn) | | | | | | |
| Mobile Phone M-Commerce | - | - | - | - | 35.9 | 52.0 |
| - Mobile Phone - Proximity | - | - | - | - | 3.1 | 5.1 |
| - Mobile Phone - Remote | - | - | - | - | 32.7 | 46.9 |
| Tablet M-Commerce | - | - | - | - | 24.3 | 34.8 |
| M-Commerce | 25.6 | 38.2 | 42.3 | 47.2 | 60.1 | 86.8 |
| Number of Cards by Issuer 2009-2013 ('000 cards) | | | | | | |
| Emirates NBD | 1,248.7 | 1,453.6 | 1,618.7 | 1,811.3 | 1,998.8 | |
| National Bank of Abu Dhabi | 940.9 | 1,124.2 | 1,264.9 | 1,410.2 | 1,556.2 | |
| Abu Dhabi Islamic Bank | 928.6 | 1,043.7 | 1,167.4 | 1,309.1 | 1,453.1 | |
| Abu Dhabi Commercial Bank | 747.5 | 867.3 | 1,032.3 | 1,249.6 | 1,381.3 | |
| National Bank of Ras Al-Khaimah | 787.0 | 882.8 | 1,005.5 | 1,204.3 | 1,331.7 | |
| Dubai Islamic Bank | 703.5 | 823.7 | 958.3 | 1,137.7 | 1,266.4 | |
| Mashreq Bank | 620.0 | 706.5 | 782.5 | 872.3 | 964.8 | |
| CitiBank, UAE | 598.0 | 688.1 | 728.9 | 774.7 | 825.1 | |
| HSBC Bank Middle East | 501.2 | 562.1 | 632.5 | 679.5 | 740.3 | |
| First Gulf Bank PJSC | 325.4 | 348.9 | 364.5 | 392.7 | 429.5 | |
| Union National Bank | 193.5 | 203.5 | 214.4 | 233.3 | 249.4 | |
| Standard Chartered Bank Plc | 397.5 | 357.6 | 275.5 | 224.9 | 235.0 | |
| American Express Co | 142.0 | 150.8 | 161.3 | 173.7 | 189.3 | |
| Royal Bank of Scotland Group | 554.0 | - | - | - | - | |
| Emirates Bank International | - | - | - | - | - | |
| National Bank of Dubai | - | - | - | - | - | |
| Others | 58.3 | 432.4 | 464.8 | 383.7 | 434.8 | |
| Total | 8,746.0 | 9,645.2 | 10,671.5 | 11,857.0 | 13,055.7 | |
| Number of Cards by Operator 2009-2013 ('000 cards) | | | | | | |
| Visa Inc | 5,462.0 | 5,960.1 | 6,538.8 | 7,258.3 | 7,991.4 | |
| MasterCard International Inc | 2,820.5 | 3,127.2 | 3,469.0 | 3,847.3 | 4,232.7 | |
| American Express Co | 142.0 | 150.8 | 161.3 | 173.7 | 188.0 | |
| Diners Club UAE | 45.3 | 48.2 | 55.0 | 56.0 | 60.1 | |
| Others | 276.2 | 358.8 | 447.4 | 521.6 | 583.6 | |
| Total | 8,746.0 | 9,645.2 | 10,671.5 | 11,857.0 | 13,055.7 | |
| Card Payment Transactions Value by Operator 2009-2013 (AED mn) | | | | | | |
| Visa Inc | 29,659.3 | 30,971.3 | 32,815.0 | 35,062.4 | 37,584.2 | |
| MasterCard International Inc | 22,032.5 | 23,055.9 | 24,736.7 | 26,320.4 | 28,150.2 | |
| Road & Transport Authority (RTA) | 2,151.0 | 3,743.6 | 3,995.0 | 4,480.8 | 5,281.1 | |
| American Express Co | 1,501.2 | 1,497.7 | 1,506.9 | 1,568.3 | 1,630.2 | |
| Diners Club UAE | 515.0 | 524.9 | 497.4 | 484.0 | 513.8 | |
| Majid Al Futtaim Finance LLC | 105.9 | 237.4 | 312.9 | 376.1 | 439.6 | |
| M H Alshaya Co | - | - | 207.1 | 320.1 | 375.0 | |
| Department of Transport | 43.0 | 95.9 | 122.4 | 168.6 | 198.8 | |



| | | | | | | |
|--|----------|----------|----------|----------|----------|--|
| Others | 188.5 | 233.0 | 245.9 | 353.1 | 354.4 | |
| Total | 56,196.3 | 60,359.8 | 64,439.3 | 69,133.9 | 74,527.4 | |
| Card Payment Transactions Value by Issuer 2009-2013 (AED mn) | | | | | | |
| Emirates NBD | 7,000.5 | 7,556.9 | 8,351.7 | 9,339.9 | 10,071.5 | |
| Abu Dhabi Commercial Bank | 4,679.8 | 6,934.8 | 7,548.8 | 8,308.3 | 8,912.5 | |
| National Bank of Abu Dhabi | 6,002.5 | 6,253.2 | 6,709.8 | 7,374.5 | 7,954.2 | |
| HSBC Bank Middle East | 3,694.1 | 4,061.2 | 4,488.6 | 4,901.3 | 5,210.9 | |
| Mashreq Bank | 3,375.3 | 3,567.9 | 3,801.0 | 3,983.5 | 4,236.4 | |
| Dubai Islamic Bank | 2,852.4 | 3,011.3 | 3,389.2 | 3,864.0 | 4,221.4 | |
| CitiBank, UAE | 3,229.9 | 3,387.0 | 3,624.3 | 3,896.9 | 4,206.8 | |
| National Bank of Ras Al-Khaimah | 2,765.3 | 2,850.6 | 3,186.3 | 3,735.7 | 4,116.8 | |
| Standard Chartered Bank Plc | 2,859.0 | 3,002.3 | 3,225.4 | 3,430.2 | 3,664.2 | |
| Department of Transport | 1,882.6 | 2,632.1 | 2,367.6 | 2,553.1 | 3,112.5 | |
| Union National Bank | 2,134.2 | 2,206.7 | 2,393.4 | 2,647.0 | 2,899.5 | |
| Road & Transport Authority (RTA) | 331.0 | 1,242.6 | 1,787.1 | 2,174.7 | 2,538.7 | |
| First Gulf Bank PJSC | 1,516.9 | 1,609.0 | 1,711.6 | 1,854.4 | 1,957.9 | |
| American Express Co | 1,344.0 | 1,375.4 | 1,398.0 | 1,480.8 | 1,551.9 | |
| Abu Dhabi Islamic Bank | 606.8 | 636.1 | 667.6 | 706.6 | 745.0 | |
| Majid Al Futtaim Finance LLC | 106.9 | 239.6 | 315.9 | 439.2 | 558.7 | |
| Royal Bank of Scotland Group | 716.3 | - | - | - | - | |
| Emirates Bank International | - | - | - | - | - | |
| National Bank of Dubai | - | - | - | - | - | |
| Others | 11,098.8 | 9,793.1 | 9,473.0 | 8,443.8 | 8,568.4 | |
| Total | 56,196.3 | 60,359.8 | 64,439.3 | 69,133.9 | 74,527.4 | |

Source: Euromonitor International from official statistics, trade associations, trade press, company research, trade interviews, trade sources

Table A10. Qualitative Comparison

| | Egypt | Indonesia | Ivory Coast | Morocco | Nigeria | Pakistan | Turkey | UAE |
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| General Overview | Egypt has a well-balanced economy by regional standards, which is diversified across manufacturing and extraction activity, including the mining, oil and gas sectors (15.5 per cent) agriculture (14.75 per cent), construction (4.6 per cent), tourism (3.1 per cent), as well as various segments in a rapidly emerging services sector. Manufacturing activity is the largest single contributor to GDP, accounting for 16.2 per cent of the total GDP. The manufacturing sector is also an important element of the broader national expansion plan, with six segments identified as areas of potential growth: engineering machinery and equipment, consumer electronics, life sciences, biotechnology, automotive components and handicrafts. | The Indonesian economy is built on a free market system with a free foreign exchange policy. Unless otherwise regulated in the frequently updated 'Negative List of Investments', foreign investment companies are generally allowed to be set up with up to 100 per cent foreign shareholding. The Indonesian economy has demonstrated continuing growth since the economic recession in 1998. Its rising middle-class, large domestic market and relatively low degree of export-led growth have significantly contributed to its resilience to the 2009 global financial crisis. With regards to macroeconomic stability, the World Bank recognised a significant drop in the country's Debt-to-GDP ratio from 61 per cent in 2003 to 26 per cent in 2013. | Cote d'Ivoire (hereafter, Ivory Coast) has a population of approximately 21 million and an approximate GDP growth of 2.3% in 2008 and 3.2% in 2009. GDP per capita is estimated to be US\$1,700. The Ivory Coast economy has historically been highly dependent on the production and export of tropical products. It is the world's largest producer of cocoa beans and a significant exporter of coffee and palm oil. Since 2007 oil and gas production have grown in relative importance. Dependence on agricultural exports has exposed the economy to swings in commodity prices. | Morocco has capitalised on its proximity to Europe and relatively low labour costs to build a diverse, open, market-oriented economy. In the 1980s Morocco pursued austerity measures and pro-market reforms, overseen by the IMF. However, despite Morocco's economic progress, the country suffers from high unemployment and poverty. In 2011, high food and fuel prices strained the government's budget and widened the country's current account deficit. | Nigeria is a large and growing country with 2014 population of over 177 million and population growth rate of 2.47%. Real GDP has grown at between 6-7% since 2007, with nominal and PPP GDP at \$242bn and over \$400bn respectively (CBN Annual Report, 2011). In 2012, real GDP growth rate was 6.5% and real and PPP GDP rose to \$261.5bn and \$450.5bn respectively (CBN, 2013). Foreign reserves are now in excess of \$45bn and macroeconomic conditions are generally stable. However, social conditions are less than ideal—the dollar/day poverty stands at 62.5%; life expectancy a mere 54 years and unemployment close to 24%. Private consumption expenditure has however grown since 1999, though the growth rate is now declining. | The country is continued to face economic challenges as well as energy shortages, rains and floods, and other structural impediments. Pakistan's economy grew on average at the rate of 2.9% per year since 2010. Deterioration in the utilities sector is the main factor in limiting the economic growth. Services sector contributed 57.7% to the GDP and has become the main driver of economic growth as reflected on its 3.7% growth rate in 2012-13. | Turkey is one of the world's newly industrialised economies, the 15th largest economy in the world and the sixth largest in the EU area. It is a predominately free-market economy driven by its industry and service sectors, although its traditional agriculture sector still accounts for a large proportion of employment. The major sector is services, accounting for 63.8 per cent of GDP, followed by industry which represents 27.3 per cent and agriculture by 8.9 per cent. Its proximity to both Asia and Europe enables it to act as a bridge between the continents, as well as an energy corridor. Following a period of liberalisation and the enactment of the 1995 EU customs union, the country experienced rapid economic growth. As at October 2014, a number of concerns had been raised regarding the country's slowing growth due to a number of factors, including: political developments, monetary tightening, macro prudential measures, economic problems in the EU countries, geopolitical tensions and a drought affecting agricultural production. | The UAE is one of the world's largest oil and natural gas exporters. The UAE has the seventh highest GDP per capita in the world. The UAE has a strong economy which was founded on oil and gas revenues, but has more recently been characterised by strong diversification. The UAE has become a leading financial centre in the area, invested heavily in its industrial sector and become a leading luxury tourism destination, all of which has resulted in a stable and diversified economy. The UAE has experienced consistently high growth since 2005, maintaining an average growth of 3.2 per cent, despite the crisis during 2008. Economic growth of the UAE is estimated to have reached 4.3 per cent in 2013. In October 2014, the IMF predicted GDP growth of 4.5 per cent for 2014, showing great optimism for the area and further predicts 4.6 per cent growth for 2015. |
| Bank supervision | The Central Bank of Egypt (CBE) [www.cbe.org.eg] | Bank Indonesia (BI) [www.bi.go.id], now moved to new regulator, Otoritas Jasa Keuangan (OJK) [www.ojk.go.id] | The Central Bank of West African States (BCEAO) [www.bceao.int] | The Bank Al-Maghrib, founded as the successor to the Banque d'Etat du Maroc [www.bkam.ma] | The Central Bank of Nigeria (CBN) [www.cenbank.org] | State Bank of Pakistan (SBP) [www.sbp.org.pk] | The Independent Banking Regulation and Supervisory Agency (BRSA) or Bankacılık Düzenleme ve Denetleme Kurumu (BDDK) [www.bddk.org.tr] | Central Bank of the UAE [www.centralbank.ae] |
| Legal Regulatory | The Law of the Central Bank, the Banking | Central Bank Act, the UU No. 23/1999 on | BCEAO Bill No. 15/2002/CM/UEMOA | Under the banking law, The Bank Al-Maghrib and | CBN Act of 1958 (amended with CBN | The State Bank of Pakistan is a central | The Central Bank of the Republic of Turkey is | Union Law No. 10 of 1980 regulate the central |

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| Framework | Sector and Money contains the legal basis for the oversight function of the Central Bank of Egypt (CBE). | Bank Indonesia (17 May 1999), then amended with UU No.3/2004 (15 January 2004) | related to payment systems in the WAEMU space issued on September 2002. | its Governor are operationally independent in making decisions on banking and payment supervision. | Decree No. 24 of 1991, CBN Decree Amendments No. 3 and No. 4 of 1997, No. 37 of 1998, No. 38 of 1998, 1999 and CBN Act of 2007. | bank established under the State Bank of Pakistan Act, 1956. The other banking companies in Pakistan were established under the Banking Companies Ordinance, 1962. The Financial Institutions (Recovery of Finances) Ordinance, 2001 provides the legal structure and procedure for the recovery of finances. | responsible for securing the objectives of financial system stability as well as the operation, regulation and oversight of payment systems in Turkey. The Banking Regulation and Supervision Agency (BRSA), which was established under the Banks Law (Law No 4389 enacted in 1999; repealed by the Banking Law, Law No 5411 enacted in 2005), issues licences, and regulates and supervises all major financial institutions. Turkey's Electronic Payment Law, which was enacted on 20 June 2013, represents an alignment with European Union legislation. | bank, the monetary system, as well as organisation of banking and payment systems. |
| Banking service provision | There are 5 public sector banks, 27 private and joint-venture banks and eight branches of foreign banks operating in Egypt. The Egyptian banking sector is dominated by two state-owned institutions: the National Bank of Egypt and Banque Misr. The CBE has implemented several banking reforms over the past few years, including the application of Basel II standards, which banks are expected to comply with by June 2013. The capital adequacy ratio reached approximately 13.0% in December 2013 compared to the minimum ratio of 10%. Additionally the CBE has exempted banks' deposits from the required reserve ratio, in order to help provide finance to SMEs in the country. Foreign banks are prominent within the financial sector and | There are 120 commercial banks in Indonesia (four state-owned commercial banks, 79 private national banks, 26 government regional banks and 11 private Islamic commercial banks). Since 1999 Indonesia has opened up its financial sector to foreign banks in order to recapitalise some domestic banks and both foreign and domestic entities are now permitted to purchase up to 99% of a domestic bank's shares. Foreign banks have purchased a number of domestic banks and around 50% of all banking assets in Indonesia are now foreign-owned. | There are more than 20 banks, including international banks, regional banks, and private banks (2012), including Banque Atlantique Côte d'Ivoire (BACI), Bank of Africa - Côte d'Ivoire, Societe Generale de Banques en Côte d'Ivoire, Standard Chartered Bank Côte d'Ivoire, and Ecobank Côte d'Ivoire. | In 2011, there were 76 financial institutions, including 16 commercial banks, 37 financing companies, 6 offshore banks, 14 micro-finance associations. The main banks in Morocco are Banque Commercial du Maroc (BCM), Banque Marocaine du Commerce Extérieur (BMCE), Banque Marocaine du Commerce et de l'Industrie (BCMI) and Credit de Maroc (CDM). | There are 24 banks operating in Nigeria. There also exists a network of highly structured community, development and microfinance banks and financial institutions, which serve SMEs and microfinance needs. The Nigerian financial market is largely dominated by domestic players, with a few foreign banks. The key domestic players are First Bank, Zenith Bank, Guaranty Trust Bank and United Bank for Africa (UBA). These banks have a wide branch network (unlike the foreign banks, Stanbic IBTC being an exception) beyond the main commercial cities. In late 2010, Nigeria's government announced fundamental changes to the structure of the banking sector, forgoing the universal banking model, and splitting the banking sector into three categories: commercial banks, merchant banks (which | There are 5 public sector commercial banks with 2,022 total branches, 22 local private banks with 8,388 total branches, 7 foreign banks with 27 branches, as well as 4 specialised banks with 547 branches. | There are 47 banks (13 investment banks, 25 commercial banks, 4 participation (Islamic) banks and 5 branches of foreign banks) operating in Turkey, in addition to 48 representative offices of foreign banks. Approximately 29% of total banking assets in Turkey is state-controlled; three commercial banks (TC Ziraat Bankasi, Vakifbank and Halkbank) and 4 investment banks are state-owned. Foreign investment in the Turkish banking sector is limited. At present, 12 commercial banks and three investment banks in Turkey are foreign-owned banks. Foreign banks account for around 15% of the country's total banking assets. | There are 23 domestic commercial banks (three of which are Islamic banks), 28 foreign banks operating in the UAE, as well as 110 representative offices of foreign banks. Emirates NBD is the largest bank in terms of total assets. |

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| | include Barclays Bank (Barclays Bank Egypt) and HSBC (HSBC Bank Egypt). | | | | are restricted to investment) and wholesale banking activities or specialised banks (which are non-interest banks). | | | |
| Large Value Payment System | The RTGS system - processes large-value and urgent domestic payments denominated in EGP and interbank money market transactions. Transactions are settled irrevocably in real-time and with immediate finality. Automated Clearing House (ACH) - electronically processes all cheque and draft payments in Egypt, regardless of value. Payments are then sent to the RTGS system for final settlement. Cheques can be cleared on a same day basis if they are drawn at banks in Cairo's clearing house district. Other cheques can take up to a maximum of five days to clear. | BI-RTGS - operated by Bank Indonesia, processes large-value and urgent interbank payments denominated in IDR. All banks operating in Indonesia are members of the system. During 2011 BI-RTGS was upgraded, with a direct debit module added to process direct debits automatically in real-time between banks. SKNBI - processes all low-value electronic and paper-based payments. There are two sub-systems in SKNBI. Debit clearing processes all interbank paper-based debit transfers, including cheques and bilyet giro. Credit clearing processes all low-value electronic credit transfers. Paper-based payments are processed through the debit clearing element of SKNBI. | BCAO-RTGS - operated by The Central Bank of West African States (BCEAO) for the members of the West African Economic and Monetary Union (WAEMU) | Système des Règlements Bruts du Maroc (SRBM) | Central Bank Interbank Funds Transfer System (CIFTS) - owned and operated by the CBN, processes high-value and urgent, NGN-denominated funds transfers. CIFTS settles all transactions electronically in real-time. It also settles net balances deriving from NACS. Nigerian Automated Clearing System (NACS) - owned and operated by the Nigeria Inter-Bank Settlement System (NIBSS), processes low-value retail payments and cheques, electronic fund transfers and transactions from point-of-sale (POS) terminals. Payments are usually settled on a T+2 basis. Automated credit transfers are cleared and settled on a same day basis. There are also a series of non-NACS, semi-automated clearing houses for the manual processing and clearing of cheques. ACH - operated by NIBSS which offers credit and debit transfers. | Pakistan Real-time Interbank Settlement Mechanism (PRISM) - provides real time settlement of interbank money transfers, government securities, paper-based instruments, as well as individual and corporate payments. PRISM has two components, namely cash and securities. The payment component of PRISM settles payments resulting from interbank money market, securities market transactions, foreign exchange transactions and net settlement positions of cheque clearing. The second component of PRISM is a securities settlement system for government securities transactions resulting from sale/purchase of Market Treasury Bills (MTB) and Pakistan Investment Bonds (PIB) in the primary and the secondary market. | TIC-RTGS - processes domestic transfers in TRY regardless of value. There are 49 direct participants in TIC-RTGS. All direct participants must hold a settlement account at the central bank. The Ankara and Istanbul Interbank Clearing Houses (ICHS) operate together as a deferred net settlement system for cheque payments in TRY. The Interbank Card Centre (BKM) operates a deferred net settlement system for card payments in TRY. The Central Bank continues to operate a giro system, primarily used by non-TIC-RTGS participants, which processes a limited number of credit transfers between its 21 branches on a real-time basis. International payment transfers can be routed via SWIFT through correspondent banking arrangements. | UAE Funds Transfer System (UAEFTS) - provides an automated national interbank real-time gross settlement (RTGS) system. UAEFTS was upgraded during 2012 and all participants now transmit payment messages using International Bank Account Numbers (IBAN). The UAEFTS processes all AED interbank funds transfers regardless of the amount and settles the net balances of participants in the Clearing House and UAE SWITCH (the national ATM network). Image cheque clearing system (ICCS) - All cheques are scanned on submission and the image is sent by the presenting bank to the Central Bank for the payment to be processed. The ICCS enables fully electronic clearing of cheques regardless of where they are presented. |
| Retail Payment System | Cash - Egypt is a cash-based society, with only around 10% of Egyptians currently holding a bank account. Cheques - Cheques are the most popular cashless payment instrument in Egypt in terms of both value and volume. In the | Cash - (banknotes and coins) is the most widely used. Credit transfers - the most important cashless payment method in Indonesia in terms of value, used by large companies to make supplier, tax or salary payments or for treasury operations. | Cash Cheques Credit transfers Payments cards ATM Transaction Mobile Banking/Payments Bills of exchange Promissory notes | Cash Cheques Credit transfers Debit transfers Payment cards Mobile money | Cash - the most important payment method in Nigeria. Cheques - rarely used in transactions where the counterparties to the transaction do not have a strong relationship. As a norm, bankers' drafts are used to mitigate the counterparty credit risk. All cheques are now | Cash - most of the retail payments are cash. Cheques Payment cards - Almost every commercial banks have issued both credit and debit card to its customers. They also have installed their own ATM network and have linked one of the two operating ATM switch | Cash Credit transfers - Credit transfers are widely used for retail transactions, salaries and pension payments. Direct debits - Direct debit usage is very limited in Turkey, although the number of direct debit transactions should increase significantly once | Cash Cheques - the most common form of non-cash payment instrument in the UAE. Credit transfers - are used for domestic large-value transactions and salary payments. Interbank credit transfers regardless of value are settled via the |

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| | <p>2012/2013 year, 13.3 million domestic currency cheques were cleared in Egypt, with a total value of EGP 727.6bn.</p> <p>Credit transfers - The electronic credit transfer is not widely used in Egypt as only a small proportion of Egyptians hold bank accounts. However, the introduction of the central RTGS system in 2009 has led to an increased use of credit transfers, as transaction times are cut and processing costs are reduced.</p> <p>Payment cards - ATM and debit cards are the most widely available types of card. Egypt's Ministry of Finance has initiated a scheme whereby the country's 12 million public sector workers can draw their salaries using ATM cards. As of December 2013, there were around 13 million debit cards and 2.19 million credit cards in circulation in Egypt. There were 6,488 ATMs and 48,416 POS terminals in Egypt as of December 2013.</p> <p>Direct debits - mostly used for low-value intra-bank recurring payments such as credit card payments. A 2012 pilot scheme introduced direct debit processing via the ACH.</p> <p>Drafts - Companies operating in Egypt sometimes use drafts for trade purposes.</p> <p>Giros - Giros are widely available in Egypt, predominantly for bill payment purposes. Companies</p> | <p>Direct debits - available for making regular payments, need to be arranged on a bilateral basis between the payer's and the beneficiary's bank.</p> <p>Payment cards - Debit cards with an ATM function are currently the most common type of cards. However, credit card use is increasing rapidly. There are currently 56 banks issuing debit cards, 22 banks issuing credit cards and 106 banks issuing ATM cards in Indonesia. A local software company, PT Artajasa has implemented an interbank direct debit system, in which 79 local banks participate.</p> <p>Cheques and bilyet giros - cheques are primarily used by companies, not a common payment method amongst individuals. Bilyet giros are similar to cheques, except they cannot be exchanged for cash. Cheques and bilyet giros are not a common payment method amongst individuals.</p> <p>Postal instruments - can be used by people without access to a bank account to transfer funds.</p> <p>Electronic money - is growing rapidly in Indonesia, especially for high-frequency retail payments. There are currently 17 e-money providers, including 8 banks and 9 non-bank financial institutions. At the end of 2012, there were approximately 21.9 million e-money cards in circulation.</p> | | | <p>processed electronically by NACS and are cleared on a T+1 basis. Funds are available to beneficiaries within two days.</p> <p>Credit transfers</p> <p>Debit transfers</p> <p>Payment cards - The use of credit cards, debit cards and direct debits for retail and commercial payments is rapidly increasing. In 2012, card payments in Nigeria increased at an annualised rate of 7.7% in volume and 25.4% in value. Local currency-denominated debit cards and local and foreign currency-denominated credit cards are available. Stringent account opening requirements currently limit the widespread use of credit cards. The use of electronic banking platforms, in particular electronic funds transfers (NEFTs) and direct debits, is growing rapidly in Nigeria. The ATM and point of sale (POS) infrastructure base is also developing in Nigeria. There were 11,702 ATMs and 101,154 POS terminals in operation in Nigeria at the end of June 2013.</p> <p>Mobile payment</p> <p>Internet payment</p> | <p>networks, Mnet and 1-Link. In the composition of plastic cards, debit cards have the highest percentage share of over 90.6% followed by credit cards with 5.5% and ATMs only cards with 3.9% share as of quarter ended 31st March, 2014. Currently almost all local and foreign commercial banks operating in Pakistan offer credit card services to their customers, most in collaboration with VISA or MasterCard International.</p> <p>Mobile money</p> | <p>banks start using the TIC-RTGS system's direct debit facility.</p> <p>Cheques - As a proportion of the total share of cashless payments, cheques have declined as the availability and popularity of electronic alternatives has increased. Banks generally give value within 4-6 days.</p> <p>Payment cards - The use of payment cards has increased rapidly over recent years and they are the most popular cashless payment method. There were approximately 102.2 million debit cards and 57.3 million credit cards in circulation at the end of March 2014. Visa and MasterCard are the principal card issuers in Turkey.</p> <p>Promissory note - is a popular payment instrument in Turkey within the small and medium-sized enterprise business sector.</p> <p>Postal instruments - Postal cheques and postal money orders are available via the General Directorate of Post, Telegraph and Telephone (PTT).</p> | <p>UAEFTS RTGS system. Low-value payments are settled in batches.</p> <p>Direct debits - direct debits have only recently been introduced and their availability is increasing, with most international banks and some domestic banks offering the service.</p> <p>Payment cards - card payments are popular with retail customers in the UAE and their usage continues to rise, with over 10.4 million credit and debit cards in circulation at the end of 2012.</p> <p>Electronic money - mainly used for government payments in the UAE. The e-Dirham card is issued by several banks plus the Ministry of Finance and Industry to both companies and individuals and payments can be made either online (e-Dirham payment gateway) or at EFTPOS terminals. In 2012 a new generation of e-Dirham cards incorporating enhanced chip functionality were issued. There are plans to integrate e-Dirham card facilities into national identity cards, which Emiratis have been required to present for all government and private transactions since 1 April 2009.</p> <p>Drafts - demand drafts are cleared by the clearing house.</p> <p>Giros - paper-based credit transfers are also available in the UAE.</p> <p>Cross-border - cross-border transactions are usually settled via SWIFT-based links to correspondent banks and are consequently subject to individual arrangements in terms of</p> |
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| | <p>use Giros for salary or pension payments. Cross-border - Cross-border transactions are usually settled via SWIFT-based links to correspondent banks and are consequently subject to individual arrangements in terms of charges and value dates.</p> <p>Mobile money</p> | <p>Cross border - cross-border transactions are usually settled via SWIFT-based links to correspondent banks. All the major banks have direct SWIFT connections. Supporting documentation is required in most instances.</p> <p>Mobile money</p> | | | | | | <p>charges and value dates. All the major banks have direct SWIFT connections.</p> |
| General outlook | <p>Slower growth, but not negative, in financial cards and payments due to the political and social developments. Increasing competition among the leading players, resulted in more attractive offers on retail payment products. Lack of infrastructure (i.e. fixed phone lines and internet services) particularly in rural areas make smartphones and tablet PCs increasingly become popular. The rising ownership of smartphones and tablet PCs encouraged the use of internet banking and mobile banking, as well as the growth of m-commerce. Debit cards dominated the payment circulation due to the variety of options available and most debit cards do not require its users to have regular full-time employment.</p> | <p>Payment cards remains prevalent, but weakening Indonesian rupiah and tightening regulation to keep the growth of credit cards maximum of 2 cards per person with less than Rp. 10 million monthly income have slowed down growth. The role of e-money, besides debit cards and credit cards, is increasing as an alternative to cash and other electronic means, with growing acceptance at participating merchants and billers. MNOs are increasing their stake in providing e-money, mainly to unbanked customers segment boosted by the penetration of mobile phones that exceeded the number of population. Banking and financial services are mainly focused in the more developed cities and urban markets, about half of the population above 15 years old is still unbanked and almost half of the banked population is still underserved. Huge gaps in terms of access to various services and technologies across</p> | <p>Cash remains the popular means of transaction, financial turmoil has been provoked by uncertainty and sanctions drove people to withdraw bank cash. Mobile payment is a quite recent but fast-growing phenomenon with four mobile money providers, the highest of the WAEMU region. With 92% mobile penetration rates and 90% unbanked population (2012), mobile payment systems have a great potential in contributing towards financial inclusion.</p> | <p>Cash payments still dominate, and electronic payments have also seen increase usage in Morocco, but the usage of financial cards is becoming increasingly common, as ownership of such cards is increasing. The expanding middle-classes, urbanisation and improvements in technological infrastructure, with the added push of the growing popularity of online purchases, will ensure strong growth. Although 3D Secure was used by a few online retailers from April 2014, most Moroccan consumers remain cautious when making purchases via the internet. Therefore, The Centre Monétique Interbancaire and Maroc Télécommerce called banks for the generalisation of the 3D Secure system amongst all retail websites to protect consumers. The competitive environment did not change significantly in 2013. The leaders in retail value terms remained AttijariWafa Bank and Groupe Banque Populaire, although in terms of cards in circulation, while AttijariWafa Bank led, it was BMCE that was</p> | <p>Cash dominated the transactions, which represent more than 99% of customer activity in banks (2010). CBN has introduced a regulation to encourage the elimination of the amount of cash and coins in the economy. There are so many payment platforms, but risk management and security issues are the major challenges affecting the systems. A series of initiatives had been implemented to improve their positioning in the global community, i.e. introduction of chips on the bank cards, migration from magnetic stripe to Europay, Mastercard, and Visa (EMV), etc.</p> | <p>The majority of Pakistan's economic transactions is based on cash, sometimes even for large business transactions. Shops and restaurants rarely accept cards, or charge a premium of 2.5%. There are four payment gateways, two ATM switches with high pricing for transfers, yet there are also no 3rd party wallets, localised PayPal, nor 3rd party payment service providers. SBP requires all payment service providers (PSPs) in Pakistan to have US\$2 million in paid up capital to apply for a license. This will discourage smaller companies to promote new innovations and alternative payment methods.</p> | <p>Payment cards demonstrated volume and current value growth, despite the slowdown in the Turkish economy. Growth was fuelled by the growing number of cards in circulation, the higher number of ATMs and POS terminals, as well as the benefits and privileges offered to credit card and debit card holders by card issuers. Pre-paid cards demonstrated the highest growth in terms of cards in circulation and in current value terms in 2014. These cards are benefiting from increased urbanisation and the rising working population, stimulating the growth of closed loop pre-paid transportation and parking/toll cards and open loop pre-paid food cards provided to employees by employers. In February 2014, the government launched a regulation stating that the upper limit of newly issued credit cards cannot exceed twice the monthly personal income of the card holder in the first year of issue, and four times the monthly personal income in the following years, and the combined upper limit cannot exceed the specified amount. This</p> | <p>Following the economic downturn in 2008, the financial sector in the United Arab Emirates was the first to take a hit. Banks worked simultaneously to raise awareness of the safety of using cards at POS rather than solely for ATM withdrawal, which served to further boost the number of cards in circulation. 2014 saw a huge influx of expatriates had a profound positive effect on credit and debit cards as well as closed loop pre-paid cards, with more people using public transport and roads. Also, the booming construction industry in the United Arab Emirates increased the need for lower-income labourers flocked in from Asian countries, thus boosting the growth of pre-paid cards. There was a rise in internet penetration over the later years of the review period and into 2014, which saw a rising number of consumers opting to shop online and through their mobile phones. Increasingly hectic lifestyles gave rise to the need for convenience, which fuelled online and mobile retailing. This,</p> |

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| | | <p>Indonesia's archipelago, due to unequal development of infrastructure in telecommunications, transportation, and public facilities</p> <p>Payment cards are also used as a status symbol through which they can earn privileges such as executive lounges in airports or special access to certain merchants during promotional events.</p> <p>Certain financial cards have been associated with a certain lifestyle</p> <p>Young professionals, with growing disposable income, will still be the most attractive consumer group for increasing the customer base of payment cards and m-commerce.</p> | | <p>ranked second in 2013.</p> <p>The market is dominated by commercial and retail banks; independent issuers hold smaller shares, mainly by providing pre-paid cards and store cards.</p> <p>Banks also became more active in terms of offering mobile banking solutions.</p> <p>In February 2014, Al Barid Bank, for example, introduced a new mobile banking service; this application applies to old and new generation mobiles, and may be done via 3G or SMS. This product targets all population groups, with or without a bank account.</p> <p>Despite the increasing frequency of credit card usage, small businesses, which account for a substantial share of transactions, are still reluctant to embrace credit card acceptance.</p> <p>Independent traditional retailers have been more reluctant to accept financial cards due to several factors, including the high rental fees for POS devices, the time between the actual time the transaction takes place and the time of payment by the issuing bank to the retailer, and the commission charged by the issuer to the retailer.</p> | | | <p>affected the performance of personal credit cards, leading the category to register slower growth.</p> <p>In 2013 private banks led financial cards in value terms, as they invested in developing and advertising innovative products to encourage consumers to use their credit and debit cards.</p> <p>State-owned banks, on the other hand, accounted for a high percentage of debit and ATM cards in circulation, due to their role in distributing salaries to government employees and pension payments.</p> <p>Over the forecast period financial cards and payments is expected to continue to register strong growth in the number of cards in circulation as well as in value terms.</p> <p>Advances in technology, such as financial cards which use NFC and QR code payment technology, and the increased advantages and privileges offered by card issuers to financial cardholders will stimulate growth in the market.</p> | <p>coupled with the rising number of Western expatriates familiar with using internet retailing in their home countries, boosted online sales and pushed the growth of overall financial cards in 2014.</p> <p>Premiumisation and the launch of cards tailored to affluent consumers are on the rise. The leading banks are increasingly focusing on launching products to cater for this affluent segment through the offer of exclusive rewards schemes and high-value competitions, with Mashreq Bank and Emirates NBD strong in these areas.</p> |
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Table A11. Quantitative Comparison

| | Egypt | Indonesia | Ivory Coast | Morocco | Nigeria | Pakistan | Turkey | UAE |
|-------------------------|-----------------------------|------------------------------|-----------------------------|-----------------------------|------------------------------|------------------------------|-----------------------------|----------------------------|
| Population | 86,895,099 (July 2014 est.) | 253,609,643 (July 2014 est.) | 22,848,945 (July 2014 est.) | 32,987,206 (July 2014 est.) | 177,155,754 (July 2014 est.) | 196,174,380 (July 2014 est.) | 81,619,392 (July 2014 est.) | 5,628,805 (July 2014 est.) |
| GDP per capita | \$11,100 (2014 est.) | \$10,200 (2014 est.) | \$2,900 (2014 est.) | \$7,700 (2014 est.) | \$6,100 (2014 est.) | \$4,700 (2014 est.) | \$19,600 (2014 est.) | \$65,000 (2014 est.) |
| Number of banks | 32 banks | 120 banks | | | 24 banks | | 47 banks | |
| Number of POS terminals | 54,400 (2014) | 698,100 (2014) | 331 (2012) ²⁶ | 47,000 (2014) | 121,886 (2014) | 34,945 (2012) | 2,591,900 (2014) | 114,000 (2014) |
| Number of ATMs | 7,000 (2014) | 76,300 (2014) | 396 (2012) | 6,000 (2014) | 14,764 (2014) | 8,438 (2014) | 45,500 (2014) | 4,900 (2014) |
| Card in circulation | | | | | | | | |
| - ATM cards | 15,725,200 (2014) | 118,386,300 (2014) | n/a | 9,237,400 (2014) | 1,300,000 (2015) | 6,400,000 (2013) | 143,374,500 (2014) | 9,255,100 (2014) |
| - Debit cards | 14,432,100 (2014) | 95,313,000 (2014) | n/a | 6,698,800 (2014) | 900,000 (2015) | 5,900,000 (2013) | 100,165,000 (2014) | 6,863,000 (2014) |
| - Credit cards | 2,397,500 (2014) | 15,176,100 (2014) | n/a | 118,000 (2014) | 300,000 (2015) | 1,500,000 (2013) | 56,835,200 (2014) | 4,383,400 (2014) |
| - Charge cards | - | 454,300 (2014) | n/a | 241,800 (2014) | 400,000 (2015) | 300,000 (2013) | - | 55,300 (2014) |
| - Pre-paid cards | 220,200 (2014) | 37,108,000 (2014) | n/a | 192,400 (2014) | - | - | 19,507,100 (2014) | 3,082,300 (2014) |
| - Store cards | - | - | n/a | 1,370,300 (2014) | - | - | - | - |
| Transaction value | | | | | | | | |
| - ATM cards | EGP 238,000,000,000 (2014) | IDR 1,945,900,000,000,000 | n/a | MAD 173,479,000,000 (2014) | n/a | n/a | TRY 429,700,000,000 (2014) | AED 342,700,000,000 (2014) |
| - Debit cards | EGP 112,800,000,000 (2014) | IDR 217,500,000,000,000 | n/a | MAD 153,766,600,000 (2014) | n/a | n/a | TRY 26,400,000,000 (2014) | AED 25,200,000,000 (2014) |
| - Credit cards | EGP 53,567,000,000 (2014) | IDR 235,200,000,000,000 | n/a | MAD 1,417,300,000 (2014) | n/a | n/a | TRY 440,300,000,000 (2014) | AED 47,300,000,000 (2014) |
| - Charge cards | - | IDR 8,600,000,000,000 | n/a | MAD 2,821,000,000 (2014) | n/a | n/a | - | AED 300,000,000 (2014) |
| - Pre-paid cards | EGP 1,200,000,000 (2014) | IDR 4,500,000,000,000 | n/a | MAD 236,300,000 (2014) | n/a | n/a | TRY 6,600,000,000 (2014) | AED 8,600,000,000 (2014) |
| - Store cards | - | - | n/a | MAD 2,458,800,000 (2014) | n/a | n/a | - | - |
| Number of transaction | | | | | | | | |
| - ATM cards | 590,700,000 (2014) | 2,651,000,000 (2014) | n/a | 273,400,000 (2014) | n/a | n/a | 1,086,200,000 (2014) | 416,500,000 (2014) |
| - Debit cards | 456,600,000 (2014) | 340,900,000 (2014) | n/a | 374,000,000 (2014) | n/a | n/a | 655,800,000 (2014) | 110,400,000 (2014) |
| - Credit cards | 129,600,000 (2014) | 253,900,000 (2014) | n/a | 2,600,000 (2014) | n/a | n/a | 2,780,500,000 (2014) | 142,000,000 (2014) |
| - Charge cards | - | 4,500,000 (2014) | n/a | 4,600,000 (2014) | n/a | n/a | - | 2,500,000 (2014) |
| - Pre-paid cards | 8,200,000 (2014) | 216,600,000 (2014) | n/a | 9,900,000 (2014) | n/a | n/a | 2,728,000,000 (2014) | 42,700,000 (2014) |
| - Store cards | - | - | n/a | 3,900,000 (2014) | n/a | n/a | - | - |

²⁶ According to the World Bank (2012), based on interview with 9 banks in Ivory Coast



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