

**Payment, clearing and  
settlement systems in  
Mexico**



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## List of abbreviations

ABM	Asociación de Bancos de México – Mexican Bankers’ Association
AMIB	Asociación Mexicana de Intermediarios Bursátiles – the broker-dealers’ association
ASIGNA	Asigna Compensación y Liquidación – a central counterparty for derivatives
BMV	Bolsa Mexicana de Valores – the Mexican Stock Exchange
BMV Group	A holding company whose main operating subsidiaries are ASIGNA, BMV, CCV, INDEVAL and MEXDER
CCEN	Cámara de Compensación Electrónica Nacional – National Automated Clearing House. The retail payments automated clearing house
CCV	Contraparte Central de Valores – a central counterparty for operations with equities
CCP	Central counterparty
CECOBAN	Centro de Cómputo Bancario – a bank-owned company that operates CCEN
CLS	Continuous Linked Settlement
CLABE	Standard format for all bank account numbers, used in interbank credit transfers
CNBV	Comisión Nacional Bancaria y de Valores – National Banking and Securities Commission
CSD	Central securities depository
DALI	Depósito, Administración y Liquidación – a securities settlement system
EGLOBAL	A card transaction processor
INDEVAL	SD Indeval, Institución para el depósito de valores S.A. de C.V. – The Mexican central securities depository
IPAB	Instituto para la Protección al Ahorro Bancario – the Mexican deposit insurer
IPC	Índice de Precios y Cotizaciones – the representative Mexican stock exchange index
MEXDER	Mercado Mexicano de Derivados – the Mexican Derivatives Exchange
MXN	Mexican peso
PROSA	Promoción y Operación, S.A. de C.V. – a card transaction processor
RNV	Registro Nacional de Valores – National Securities Registry
RTGS	Real-time gross settlement
SHCP	Secretaría de Hacienda y Crédito Público – Ministry of Finance

*Mexico*

SIAC	Sistema de Atención a Cuentahabientes de Banco de México – the central bank system which provides liquidity and where participants' current accounts are held
SIC	Sistema Internacional de Cotizaciones – the registry for securities issued abroad that can be traded on the BMV
SICAM	Sistema para Liquidación de Cámaras – a system that clears operations from CCEN
SPEI	Sistema de Pagos Electrónicos Interbancarios – the main real-time payment system
SSS	Securities settlement system
TIIE	Tasa de Interés Interbancaria de Equilibrio. – a market representative rate, calculated by the central bank
TEF	Transferencia Electrónica de Fondos – CCEN's deferred electronic fund transfer system
UDI	Unidad de Inversión – an inflation-indexed unit of account

## Introduction

The Mexican payment and settlement systems has undergone significant change in the last 10 years. The central bank has developed Sistema de Pagos Electrónicos Interbancarios (SPEI), a near real-time hybrid settlement system for payments, helped INDEVAL, the central securities depository, to develop Depósito, Administración y Liquidación (DALI), a near real-time securities settlement system and also instituted safe and efficient intraday liquidity provision facilities. In all these projects, the central bank has striven to promote straight through processing, and to achieve high resilience and good performance in the new systems. It has also actively fostered competition among small-value payment services providers, with a view to promoting the use of safer and more efficient small-value payment methods.

SPEI is operated by the central bank and went live in 2004. It was designed to settle a large volume of payments in real time, to facilitate straight through processing and to use participants' liquidity efficiently. Any financial entity regulated by any of the Mexican financial authorities is eligible to participate in SPEI. More than 85% of SPEI payments are for less than MXN 100,000.<sup>1</sup> SPEI settles both large- and small-value payments. Moreover, SPEI settles pay-ins and pay-outs for CLS<sup>2</sup> and MXN payments for Directo a México, an international fund transfer service between USA and Mexico.<sup>3</sup>

The securities settlement system, DALI, is operated by INDEVAL. DALI went live at the end of 2008 and is a major improvement over the former securities settlement system. DALI settles more than 70% of the total volume processed in all Mexico's payment and securities clearing and settlement systems.

The two main exchanges are the Mexican Stock Exchange (BMV) for equities, and MEXDER for derivatives. Contraparte Central de Valores (CCV) clears transactions on BMV as a central counterparty (CCP), while ASIGNA is the CCP for transactions on MEXDER. BMV, MEXDER, CCV, ASIGNA as well as INDEVAL belong to the same holding company, BMV Group.

Sistema de Atención a Cuentahabientes (SIAC) manages the liquidity provision facilities and the banks' current accounts at the central bank. SIAC also manages the accounts of government entities that, by law, must be in account with the central bank.

CECOBAN, a company owned by banks, operates Cámara de Compensación Electrónica Nacional (CCEN), an automated clearing house. CCEN processes and clears deferred electronic fund transfers, cheques and direct debits. CCEN final settlement occurs in SIAC.

Almost all credit and debit cards are affiliated with Visa or MasterCard. However, two domestic bank-owned processors, Promoción y Operación, S.A. de C.V. (PROSA) and EGLOBAL process and clear all card transactions.

The central bank has a mandate to foster the proper functioning of payment systems. To achieve this, the central bank requires the systemically important payment systems to comply with the CPSS Core Principles for Systemically Important Payment Systems. Similarly, it ensures that the securities settlement systems and central counterparties comply with the relevant CPSS-IOSCO standards.

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<sup>1</sup> The MXN/USD exchange rate was 13.0587 at the end of 2009.

<sup>2</sup> Continuous Linked Settlement, see Chapter 1.2.3.

<sup>3</sup> This service is provided jointly by the US Federal Reserve Banks and the central bank of Mexico.

## **1. Institutional aspects**

### **1.1 General institutional framework**

#### **1.1.1 Institutions**

The Bank of Mexico, Mexico's central bank, is an independent public legal entity governed by the Bank of Mexico Act. It is responsible for monetary policy and acts as regulator, market operator, liquidity provider and lender of last resort in the financial system. The Bank of Mexico Act also mandates the central bank to foster the proper operation of payment systems as one of its main objectives. The law provides the central bank with broad authority to regulate payment, clearing and settlement systems.

The Ministry of Finance or Secretaría de Hacienda y Crédito Público (SHCP) is the office of the executive in charge of fiscal, economic and financial policy.

The National Banking and Securities Commission or Comisión Nacional Bancaria y de Valores (CNBV), is an agency of the SHCP. It is the main supervisor and regulator for banks and other financial entities.

#### **1.1.2 General legal aspects**

The Payment Systems Act (PSA) regulates the clearing and settlement of transfer orders in national or foreign currency and with respect to securities operations. The PSA grants the central bank exclusive powers of oversight, supervision and sanction over the payment, clearing and settlement systems and their operators. This authority also covers systems that settle cash and securities.

The central bank is legally required to publish each year a list of the systems that fall within the scope of the PSA. To do this, the central bank determines which systems fall within statutory parameters such as participant numbers and transfer volumes.<sup>4</sup>

According to the PSA, all transfer orders in national or foreign currency or securities transactions that are settled in a system listed as a systemically important payment system are final, irrevocable and enforceable.<sup>5</sup> In addition, the funds of payment systems participants on account with their payment system cannot be legally attached from the start of the payment system's daily operations until payment obligations are settled. Moreover, collateral posted for intraday liquidity cannot be legally attached until the payment obligations against that collateral are settled.

A corollary of these rules is that no "zero hour rule" exists under the PSA or under the Commercial Reorganisations Act that governs bankruptcies.

The PSA also specifies the requirements for netting arrangements. The effect of netting is to substitute a net credit or payment obligation for the rights and obligations originated by transfer orders. Thus, no specific agreement is needed by the counterparties in a payment to allow netting.

The Credit Institutions Act provides that orders and transactions settled through foreign payment systems (such as CLS) that are considered as final, irrevocable, enforceable under

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<sup>4</sup> For more details of the central bank's oversight powers see Section 1.2.1.

<sup>5</sup> The PSA establishes that the internal regulations of each payment or settlement system must determine the moment when transfer orders are considered accepted and thus become final, irrevocable and enforceable. For SPEI and DALI, their respective internal regulations provide that transfer orders are final when the systems send the credit advice messages to the respective participants.



the law governing the corresponding foreign payment system will also have such characteristics under Mexican law.

The Securities Market Act states that clearing and settlement of securities is a public service that can only be provided by the central bank, central counterparties and central securities depositories.

Central securities depositories can provide their service to national or foreign financial entities or foreign central securities depositories without acting as a counterparty in such transactions. In Mexico, the only central securities depository is INDEVAL, which is the owner and operator of the securities settlement system, DALI.

The regulatory framework for derivatives transactions is based on regulations issued by the SHCP, the CNBV and the central bank. These regulations allow derivatives trades to be executed either in OTC markets or on recognised exchanges. ASIGNA is the only CCP authorised to clear and settle derivative transactions. It is also the CCP for any derivative transaction executed on MEXDER, the Mexican derivatives exchange.

The Notes and Credit Transactions General Act regulates the issuance of cheques and the operation of cheque clearing houses. In connection with this Act, the Transparency and Financial Services Arrangement Act authorises the central bank to regulate and to licence clearing houses. CECOBAN, a private corporation, is the sole institution currently authorised by the central bank to provide cheque clearing and deferred fund transfers services.

Finally, in Mexico, any transfer of assets intended to defraud third parties that is made during the nine months before a declaration of bankruptcy may be legally voided. However, finality and irrevocability prevent courts from annulling transfers that have been accepted, settled and cleared through a listed systemically important payment system. In such a case, an aggrieved party would have to seek redress outside the payment system.

## **1.2 The role of the Bank of Mexico**

### **1.2.1 Oversight**

Four main statutes empower the central bank to oversee and regulate payment systems: (i) the Bank of Mexico Act mandates the central bank to foster the safe and efficient functioning of all payment systems; (ii) the Payment Systems Act authorises the central bank to regulate and oversee systemically important payment systems; (iii) the Securities Market Act empowers the central bank to oversee central counterparties and securities settlement systems; and (iv) the Transparency and Financial Services Arrangement Act gives the central bank a broad mandate to regulate and oversee retail payment systems and non-systemically important clearing houses.

The central bank oversees both systemically important and retail payment systems. For systemically important systems, the central bank monitors existing and planned systems, assesses them against international best practice and instructs operators to implement changes when necessary. For retail payments and retail payment systems, the central bank promotes competitiveness along with safety and efficiency.

The Payment Systems Act establishes that a payment or settlement system is systemically important when: (i) it has at least three participating financial entities, and (ii) its settlement

volume averages more than UDI 100 billion.<sup>6</sup> Payment systems operated by the central bank are systemically important, even if they do not fall within the above scope.

At the beginning of each year, the central bank lists in the Mexican Official Gazette the payment and settlement systems it considers to be systemically important. SPEI, SIAC and the securities settlement system have been listed as systemically important since 2005.

#### *Oversight activities for systemically important payment systems*

Financial stability depends on systemically important payment systems that are safe and efficient. To this end, the central bank requires that such systems comply with the CPSS core principles for systemically important payment systems.

SPEI was designed to comply with the CPSS core principles. To be able to identify any risks or quality deficits in its operation, the central bank monitors its operation and liaises regularly with its stakeholders, including the Mexican Bankers' Association or Asociación de Bancos de México (ABM), the Mexican Broker-Dealers' Association or Asociación Mexicana de Intermediarios Bursátiles (AMIB) and non-bank financial entities.

The central bank published a self-assessment for SPEI in 2007, which will be updated whenever there is a significant change in the system itself or the financial industry.

Under the Payment Systems Act, SIAC is designated a systemically important system because it is operated by the central bank and it settles, on average, more than UDI 100 billion each month. The central bank published a self-assessment of SIAC against the CPSS core principles in 2007. SIAC's main function is to manage liquidity provisions for participants in the payments systems; its payment functions are very limited (see Section 1.2.2), but it complies with all the applicable core principles.

The securities settlement system, DALI, is the third system designated as systemically important under the Payment Systems Act. It is operated by INDEVAL, the central securities depository, a private company owned by banks and broker-dealers.

DALI was designed to comply with the CPSS-IOSCO's Recommendations for Securities Settlement Systems. The central bank meets frequently with INDEVAL's officers and relevant stakeholders, mainly banks and broker-dealers, to review requests for rules and system changes and to assess DALI's performance.

INDEVAL is regulated by the National Banking and Securities Commission (CNBV) and the central bank. The central bank focuses on payment and settlement issues, while the CNBV is concerned with the conduct of participants and their compliance with legislation and regulations as issuers of securities and counterparties in securities transactions. Any change in DALI's internal rules requires the approval of both the CNBV and the central bank. Also, as an INDEVAL shareholder, the central bank has one seat on INDEVAL's board. The central bank and the CNBV cooperate whenever necessary (see Section 1.2.3).

The central bank published an assessment for DALI against the CPSS-IOSCO's Recommendations for Securities Settlement Systems, following the CPSS-IOSCO's Assessment Methodology for Securities Settlement Systems. The bank will review the assessment in the event of significant changes at DALI or within its operating environment.

The CCP for equities, CCV, a private company owned by broker-dealers and banks, is not listed as systemically important under the Payment Systems Act because it settles operations with a value of less than UDI 100 billion a month. The central bank and the CNBV have a joint mandate under the Securities Market Act to oversee CCV. The central bank can

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<sup>6</sup> The Unidad de Inversión (UDI) was introduced in 1995 as a credit system based on a price level-adjusted unit of account. One UDI, as of October 2010, was equivalent to about USD 0.36.

meet CCV's officers, at either party's option, to review rules and procedures with a view to improving the system's security and efficiency. The central bank has published an assessment for CCV against the CPSS-IOSCO's Recommendations for Central Counterparties, and has asked CCV to change its rules and procedures to better comply with the recommendations.

ASIGNA, the CCP for derivatives, is not listed as systemically important because its monthly settlement volume is less than UDI 100 billion. It is supervised by CNBV. Unlike CCV, where the Securities Market Act provides the central bank with powers to oversee it, there is no similar legislation on derivatives; thus, the central bank has only limited powers over ASIGNA, such as the right to request information. This will change if ASIGNA were to be designated as systemically important under the Payment Systems Act.

#### *Oversight activities in retail payments and retail payment systems*

The central bank oversees retail payments systems to improve their safety and efficiency as well as to promote competition among payments service providers. The bank also encourages the use of the most efficient means of payments.

CECOBAN, a private company owned by banks, operates the National Automated Clearing House or Cámara de Compensación Electrónica Nacional (CCEN), an ACH for cheques, deferred credit transfers and direct debits. The Transparency and Financial Services Arrangement Act complements the Bank of Mexico Act and empowers the central bank to oversee clearing houses such as CECOBAN. Changes in CCEN's internal rules require central bank approval, and the central bank has a seat on CECOBAN's board as well as veto powers over relevant decisions.

The central bank collects and publishes quarterly information from banks on payment instruments such as same-bank cheques, cards and internet operations. This includes data on infrastructure, operations and fees.

Finally, a recent amendment of the Transparency and Financial Services Arrangement Act empowers the central bank to oversee and regulate card payments processors.

### **1.2.2 Provision of payment and settlement services**

#### *Operation of payment systems*

The central bank has operated both SIAC and SPEI since 1990 and 2004 respectively. The main payment system is SPEI; SIAC has limited payment functions. When SIAC started operating it was the only electronic payment system provided by the central bank. It is a real-time gross settlement (RTGS) payment system designed for interbank payments that carry no information identifying third-party payers or payees. SIAC does not support STP. As SPEI is more efficient, most payments have migrated to this system (for details of SPEI, see Section 3.2). SIAC now holds banks' current accounts and the accounts of certain government entities at the central bank but processes only a few large interbank payments. The central bank manages the liquidity provision for the payment system through SIAC, as described in the section on provision of liquidity below.

The central bank prescribes the operating rules for SIAC and SPEI and recovers all development and operational costs through fees.

### *Provision of liquidity*

The central bank provides participants with liquidity through SIAC (for details of SIAC, see the above section). Intraday liquidity to banks is supplied through two mechanisms:

- (i) Overdrafts on the banks' current accounts at the central bank. A bank is allowed to overdraw its current account up to the amount of its required reserves<sup>7</sup> in the central bank. There is no charge for intraday overdrafts, but if an overdraft is not covered by the end of the day, the central bank applies an interest rate of twice the average overnight interbank rate.
- (ii) Same day repo operations with government securities. The central bank automatically accepts Mexican government securities in repo operations. If banks repurchase securities before the end of the day, the central bank does not charge an interest rate; otherwise, the central bank novates repo operation to the following business day and counts the amount of the operation as a debit on the bank's end-of-day balance in its current account.<sup>8</sup> Failure to reverse the repo at the end of the day increases the amount of the central bank's charge on the bank's account as described in paragraph (i) unless the bank has a positive balance large enough to cover the amount of the repo (ie it has received funds in the funding period after the closing of the repo facility). There is also a small fine based on the number of underlying securities left in repo.

There is a limit, based on the bank's capital, for the amount of liquidity a bank can obtain using this mechanism. Broker-dealers can obtain liquidity through this mechanism with the support of a bank. If a broker-dealer fails to reverse the repo, the supporting bank is responsible for reversing it.

### *Provision of cash settlement facilities*

SIAC holds the banks' current accounts and manages the liquidity mechanisms. Participants in SPEI and DALI have an operating account in each system. SIAC, SPEI and DALI cash accounts use central bank money. DALI is a SPEI participant and provides its participants with cash accounts to settle their securities transactions. All balances in DALI participants' accounts are at all times covered by the balance that DALI maintains in SPEI. Banks and broker-dealers use the mechanisms described above to obtain liquidity in SIAC, and they can transfer liquidity in real time to their SPEI or DALI accounts and back to SIAC. All banks participate in all three systems, all broker-dealers participate in SIAC and DALI and some of them are also SPEI participants.

The central bank also provides cash settlement facilities to the CCEN automated clearing house. Each business day, CCEN's net results settle in the banks' SIAC current accounts.

### **1.2.3 Cooperation with other institutions**

The central bank is the payment and settlement systems regulator. CNBV, SHCP and the central bank regulate banks, broker-dealers, INDEVAL and CCV, and certain other entities. Some regulations could affect the way these entities participate in, or operate (INDEVAL and CCV) payment and settlement systems. Thus, there is a need for cooperation between the regulators of the payment and settlement systems and other regulators. The central bank aims to increase the safety and efficiency of systemically important payment and settlement

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<sup>7</sup> Banks are required to maintain fixed deposits with the central bank for monetary policy purposes. These deposits are remunerated but banks cannot withdraw the principal. Bank's current accounts at the central bank are not remunerated.

<sup>8</sup> After the closing of the same-day repo facility, banks have a short period to fund their accounts.

systems with a view to maintaining financial stability. For retail payments, the central bank seeks to increase the use of the most efficient means of payment as well as the safety and efficiency of payment systems. It also monitors payment services providers with a view to ensuring that the fees they charge to their customers are reasonable. To these ends, the central bank cooperates with SHCP and CNBV in a variety of ways:<sup>9</sup>

- The central bank, SHCP, CNBV and other financial sector government entities participate in a financial stability board, chaired by SHCP. The board's purpose is to identify risks that could affect the smooth operation of the financial system, to establish policies to prevent and manage those risks and to propose and coordinate the responses of each financial authority to a crisis.
- The central bank meets with SHCP officers, whenever required, to deal with payment systems issues that involve both financial authorities, such as treasury payments and anti-money laundering. There is no memorandum of understanding between SHCP and the central bank.
- The central bank also meets with CNBV officers whenever there are payment or settlement issues that involve INDEVAL, CCV, the participants in the payments and settlement systems, or issues related to retail payments, such as user security regulations, new payment methods, rules for payment services providers or retail payments infrastructure. There is no memorandum of understanding between CNBV and the central bank; the cooperation between the two bodies takes place on an informal basis.

The central bank has regular meetings with ABM to discuss issues related to SPEI operations, such as change proposals from the banks or from the central bank to improve efficiency. The central bank also has meetings with ABM to assess the development of payments instruments, to discuss ways of improving them and to promote their use, as well as to evaluate new instruments.

The central bank meets regularly with DALI's stakeholders, through ABM and AMIB, to discuss enhancements to DALI's safety and efficiency. The central bank also held regular meetings with stakeholders during DALI's development phase before it started operations in November 2008.

The Mexican peso has been a Continuous Linked Settlement (CLS) currency since May 2008. The central bank participates in the CLS oversight committee comprising the central banks of issue of the 17 CLS participating currencies, with the Federal Reserve Bank of New York as lead overseer.<sup>10</sup> The committee is tasked with the oversight of CLS and meets at least once a year.

### **1.3 The role of other private and public sector bodies**

#### **1.3.1 Mexican Bankers' Association**

The Mexican Banker's Association (ABM) is a private organisation that represents commercial banks. It was founded in 1928 with the aim of promoting the general interests of banks and providing them with technical and specialised services. All commercial banks

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<sup>9</sup> See Sections 1.3.3 and 1.3.4 for the roles of CNBV and SHCP.

<sup>10</sup> The oversight cooperation between the relevant central banks is governed by the *Protocol for the Cooperative Oversight Arrangement of CLS*. For more information on CLS, please see the corresponding chapter in the forthcoming second volume of this publication.

participate in ABM as associates, and development banks participate as guests. The Association shares knowledge and best practice through courses, conventions, seminars, research studies etc.

In addition, ABM serves as the main communication channel between banks when they are requested to evaluate and provide feedback to official requests and proposals, or when the banks themselves ask the authorities for operational changes and/or legal amendments.

The Association also promotes coordination among banks and authorities on issues related to means of payment such as new products, networks, ATM, POS, credit and debit cards, or SPEI and CCEN payment message formats.

ABM establishes work groups that meet regularly with central bank officers to discuss on specific matters. The central bank participates or chairs discussions on several key issues. Among the groups focused on payment and settlement issues are the Treasury Committee, which deals with liquidity and large-value payments issues; the Means of Payment Committee, which deals with retail payment systems and means of payments issues; and the Information Technology Committee, which coordinates IT developments of common interest to banks, ie formats and standards in SPEI, CCEN, DALI and card payments.

### **1.3.2 Broker-Dealers' Association**

The Broker-Dealers' Association (AMIB) was founded in 1980 to represent the interests of broker-dealers; to promote financial education; and to coordinate the definition of market participants' needs in areas such as instruments, operational schemes, infrastructure and improvements to stock market services.

AMIB is the main communication channel between broker-dealers and the authorities for payment and settlement system issues, and for providing feedback or requesting operational changes and legal amendments. AMIB is a self-regulatory organisation.

### **1.3.3 Ministry of Finance**

The Ministry of Finance (SHCP) is the office of the executive in charge of fiscal, economic, and financial policy. Among SHCP's tasks are the management of federal income and expenditure, the management of public debt and the management of development banks.

SHCP is empowered to implement and interpret legislation on financial services, as well as to issue and revoke operating licenses for entities that provide financial infrastructure, such as exchanges, central securities depositories and central counterparties.

### **1.3.4 National Banking and Securities Commission**

The National Banking and Securities Commission (CNBV) is the SHCP agency that supervises most financial entities, including banks and broker-dealers.

The CNBV is empowered to issue and revoke operating licenses for banks and broker-dealers, as well as to supervise financial market infrastructures that process securities operations, including exchanges, central securities depositories and central counterparties.

CNBV's main responsibilities are to: (i) formulate prudential regulation for banks; (ii) license financial intermediaries, such as banks; (iii) maintain the National Securities Registry (RNV), and supervise registered securities issuers; (iv) order the suspension of trading whenever the market meets with adverse conditions or its operations fail to comply with best practice; and (v) put insolvent banks into receivership.

CNBV's supervisory role comprises the following activities:

- (i) Assessing the risks faced by financial entities, the controls they have implemented, and the quality of their management with a view to ensuring that institutions maintain

adequate liquidity, are solvent, stable and comply with applicable rules and best practice.

- (ii) Onsite inspections, auditing of operations, registries and operational systems.
- (iii) Analysing economic and financial information to estimate possible effects on financial entities and the financial system as a whole.
- (iv) Devising mandatory action plans for financial entities to correct any weaknesses in their liquidity, solvency or stability.

## 2. Payment media used by non-banks

Individuals and companies use retail payments to purchase goods or services, or to pay out wages etc. Most retail payments in Mexico are made in cash, but the use of electronic payments is growing.

### 2.1 Cash payments

The central bank is the only issuer of bank notes and coins in Mexico. The official currency is the Mexican peso (MXN). The central bank issues banknotes in six denominations: MXN 20, 50, 100, 200, 500 and 1,000. The US dollar circulates along with the peso, especially in border regions and at tourist destinations.

The central bank designs its banknotes and prints them at its own works in Mexico City. The central bank distributes banknotes and coins through six branches and 45 correspondent banks.

Casa de Moneda de México, a public entity, mints coins in the following denominations: five, 10, 20, and 50 cents and one, two, five, 10, and 100 pesos. At the end of 2009, the notes and coins in circulation were worth MXN 537 billion,<sup>11</sup> an amount equal to approximately 4.5% of that year's GDP.

### 2.2 Non-cash payments

#### 2.2.1 Credit transfers

In Mexico, the most important domestic credit transfer instruments are the following: fund transfers between accounts at the same bank, interbank fund transfers processed through SPEI or CCEN,<sup>12</sup> and transfers to pay credit card balances processed by card switches. Currently, credit transfers can be initiated at the counter, via internet banking, at ATMs (to pay utility bills and top up prepaid mobile phones), and using mobile phones (although this service is still in its early stages). In addition, the Mexican Treasury (Tesorería de la Federación) has since 2008 paid the salaries of federal government employees through SPEI.

As the central bank has a mandate to promote the use of the most efficient payment instruments, it encourages the use of credit transfers instead of cheques or cash in a number of ways (for instance, through advertising campaigns). In particular, the central bank uses

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<sup>11</sup> The exchange rate was 13.0587 MXN/USD at the end of 2009.

<sup>12</sup> See Section 3 for a more specific definition of SPEI and CCEN.

moral suasion by issuing public recommendations or by deterring banks from establishing excessively high fund transfer fees. In cases where a bank refuses to lower a fee that is considered excessive, the central bank can veto it, based on powers vested to the central bank under the Transparency and Financial Services Arrangement Act.

Credit transfers have shown significant growth. Real-time credit transfers are settled through SPEI, while next-day credit transfers are processed by CCEN. In 2009, credit transfers accounted for 36% of all non-cash payments. The number of transfers increased from 348 million in 2005 to 733 million in 2009. The amount transferred has increased from MXN 42.8 trillion in 2005 to MXN 187 trillion in 2009. Interbank credit transfers are only a small fraction of the total number of transfers, but they have been increasing faster: from 22 million transactions (MXN 20.5 trillion) in 2005, they reached 81 million (MXN 107.3 trillion) in 2009. SPEI processed 50.4 million of these payments (worth MXN 106.4 trillion), while CCEN processed 21 million (MXN 850 billion). The remainder was accounted for by transfers to pay credit card balances 9.6 million (MXN 34 billion), which were processed by card switches.

The upward trend of credit transfer usage is due to a steady growth in the number of internet banking users (an average annual growth rate of around 20% since 2004, taking the number of internet banking users to 10 million by the end of 2009). Moreover, banks have reduced their SPEI fees to customers; most charge less than MXN 6. Meanwhile, the standardisation of account numbers has reduced rejection rates, making interbank transfer services more reliable. Banks currently use a standard 18-digit number, the Clave Bancaria Estandarizada (CLABE), to identify both the bank and the account. The CLABE has been widely used in interbank credit transfers since June 2004.

Due to the transaction growth in SPEI, the central bank has reduced operating fees to participants from MXN 2.80 (in 2004) to MXN 0.50 for most payments, and to MXN 0.10 for payments sent after 19:00 and before 10:00. This encourages banks to send non-urgent high-volume/low-value transactions at night or early in the day.

### **2.2.2 Cheques**

Cheques are used for paying suppliers, payrolls, taxes, credit card balances, utility bills, cable TV subscriptions and school fees. The use of MXN-denominated cheques has declined; from 569 million in 2005 to 461 million in 2009. The total value of payments made by cheque was MXN 10.7 trillion in 2005, and MXN 11 trillion in 2009. The number of cheques, as a share of all non-cash payments, has fallen from 41% in 2005 to 22% in 2009.

In January 2009, the central bank set a MXN 20,000 ceiling for cheques payable to the bearer, to combat fraud.

All interbank cheques are truncated, and receiving banks send digital records with account and amount information to the issuing bank through CCEN. Also, for cheques with a value of MXN 10,000 and above, receiving banks send a digital image to the issuing bank through CCEN.

### **2.2.3 Direct debits**

Direct debits allow service providers such as cable TV or telephone companies to charge their customers' bank accounts automatically. Initially, banks offered companies direct debit services on their own customers checking or credit card accounts. This service was reasonable for large companies, but because banks' direct debit schemes were not interoperable, it was expensive for smaller billers to maintain accounts and service agreements with a sufficient number of banks to cover their customer base.

CECOBAN has offered interoperable direct debit services to banks through CCEN since 2002. In this service, the originators must secure a mandate from the account holder to



instruct their banks to post debits of the amount due. In September 2009, the central bank issued a regulation establishing objection and cancellation procedures in order to increase the service's attractiveness to consumers.

The number of direct debits rose from 30 million in 2005 to 42 million in 2009, and the value from MXN 49 billion in 2005 to almost MXN 141 billion in 2009. However, their share of non-cash payments hovered at around 2% between 2005 and 2009.

#### **2.2.4 Payment cards**

The number of payments with credit and debit cards at electronic terminals (POS) rose from 30% of total non-cash payments in 2005 to around 40% in 2009. Currently, debit cards, credit cards and prepaid cards are available and widely used.

##### *Debit cards*

Only banks issue debit cards. Almost all of them are affiliated to the Visa Electron or MasterCard brands. There is also a local brand, Carnet, owned and operated by PROSA. Debit cards were popularised in Mexico by the advent of electronic payroll services, and are used mainly to withdraw cash at ATMs, and to make POS payments. ATMs are also used for balance queries and to change PINs.

By the end of 2009, the number of debit cards issued by Mexican banks was 60.8 million; up from 36 million in 2005. The number of POS terminals rose from 201,852 in 2005 to 446,792 in 2009.

During 2009, the number of debit card transactions at POS was more than 475 million, up from 210 million transactions in 2005. Debit card transactions have outnumbered credit card transactions at POS since 2007. The average value of debit card transactions at POS has increased from around MXN 494 in 2005 to MXN 505 in 2009.

Some retailers offer "cash back" facilities at POS; there were 16 million cash advance transactions in 2009.

##### *Credit cards*

Credit cards are issued by most Mexican banks and certain other financial entities. Almost all credit cards are affiliated to the Visa, MasterCard or American Express brands. The Carnet brand can also be found on a few credit cards. Although there are no issuers for other credit card brands, JCB, Diners and Discovery have acquirer agreements with some Mexican card processors and banks, and their cards are widely accepted in Mexico. Credit cards are used mainly to make payments at retailers and for internet transactions. The number of credit card transactions at POS grew from 228 million in 2005 to 397 million in 2008. The value of the transactions increased from MXN 208 billion in 2005 to MXN 322 billion in 2008. In 2009, the number of credit card transactions declined to 376 million, 5.1% less than the previous year. Also, the number of credit cards declined from 25 million to 22 million during 2009.

##### *Prepaid cards*

At the end of 2009, there were around 3 million prepaid bank cards, all with the Visa Electron, MasterCard or Carnet brand.

##### *POS network*

The two switches that process card transactions are interconnected so that the acquirer customers of each can ask the other's issuer customers to authorise transactions. The

number of POS transactions grew by around 24% per year on average between 2005 and 2008. During that time, a government programme, FIMPE,<sup>13</sup> set incentives for merchants to install POS terminals. After FIMPE ended, the growth in the number of POS terminals stalled, rising by only 0.2% in 2009 to almost 447,000 installations.

Most POS terminals accept any credit and debit card issued by a Mexican bank, as well as those issued abroad under the Visa, MasterCard, Diners, Discovery or JCB brands. The Mexican Bankers' Association (ABM) sets interchange fees (IFs) for domestic transactions. Up to 2005, IFs for credit and debit transactions were the same, ranging from 2% to 3.5%, with the exception of the fixed fee of MXN 0.90 per debit card transaction charged at members of the national association of department stores (Asociación Nacional de Tiendas de Autoservicio (ANTAD)) – given that interchange fees are charged by the issuer's bank to the acquirer's bank. IFs were originally based on merchants' yearly card sales volumes. This, however, seemed to work against the promotion and expansion of the POS network, given the large number of small merchants and service providers with low yearly sales. In 2004, the Transparency and Financial Services Arrangements Act authorised the central bank to regulate IFs, enabling it to persuade the ABM to reduce IFs and to stop the practice of setting higher fees for small merchants. Also, the central bank asked banks to set lower IFs for debit card transactions than for credit card transactions. In October 2005, the ABM changed the reference IFs for credit and debit cards. Two years later, the ABM made slight downward adjustments to its schedule of IFs.

Currently, IFs for debit cards are lower than those for credit cards. Credit card IFs are the same for all brands, as are debit card IFs. For debit card transactions, a MXN 13.5 IF ceiling applies, and the ad-valorem IFs that depend on the type of merchant range between 0.5% and 1.15%. ANTAD merchants still get a very favourable IF of MXN 1.03. For credit card transactions the IFs range between 1.1% and 1.91%, depending on the type of merchant.

#### *ATM network*

Even with the growing penetration of electronic payments, small-value transactions continue to be settled overwhelmingly in cash. Most card transactions are still ATM cash withdrawals.

All ATMs are connected in a single network. The ATM network has grown 48% since 2005 to 33,905 ATMs at the end of 2009. The number of ATMs that are installed outside branches, in places such as convenience stores, malls and retail stores, increased by 62% during the same period, while growth in in-branch ATMs was 27%. The market share in the number of ATMs for the six largest banks has decreased from 89% in 2007 to 84% in 2009. In the same year, there were more than 1.3 billion ATM withdrawals, with a total value of around MXN 1.85 trillion, while in 2005 there were 1.1 billion ATM withdrawals worth MXN 1.3 trillion.

Recently, the central bank has intervened to improve transparency on fees and competition among ATM operators. Card issuers are not allowed to charge fees to their cardholders for using the ATMs of other issuers or banks. For their part, ATM operators can charge a service fee only to cardholders from other issuing financial entities, but they must notify them of the charge and ask for authorisation.

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<sup>13</sup> The Electronic Means of Payment Infrastructure Fund (FIMPE) was designed to promote and increase access to the POS network, and to encourage the use of POS among businesses and consumers alike. The programme ran from 2005 until February 2008.

### 2.2.5 Postal instruments

Telecomunicaciones de México (Telecomm-Telégrafos) is a state-owned company that, among other services, offers telegraphic domestic money drafts that are purchased and paid out in cash. The postal service also offers domestic cash transfer services via postal drafts.

### 2.2.6 Remittances

Most remittances to Mexico are handled by companies such as MoneyGram and Western Union that provide money transfer services worldwide. These companies receive US dollars from remitters primarily in the USA and deliver Mexican pesos to beneficiaries in Mexico through a Mexican agent, usually a bank or retailer with an extensive branch network.

Some retail stores and banks offer domestic remittance services; a customer pays for a cash transfer in one of the stores and notifies the beneficiary. The beneficiary can withdraw the money from any store or branch using an ID card.

In 2009, Mexico received more than 66 million cross-border remittance transactions (64 million in 2005) amounting to USD 21 billion (USD 21.6 billion in 2005).

#### *Directo a México*

In October 2003, the US Federal Reserve Banks and the central bank of Mexico established a one-way mechanism to transfer money from the United States to Mexico. This link was first used to send US government pension payments to recipients in Mexico. Since February, 2004, any US bank or credit union enrolled in Directo a México has been able to send payments to any individual who has a bank account in Mexico. Currently Directo a México does not process transfers from Mexico to the United States.

Between its launch in October 2003 and December 2009, Directo a México has processed almost 1.9 million payments worth USD 850 million.

## 2.3 Recent developments

In Mexico, many people who have mobile phones still lack access to financial services. A number of initiatives have been launched to offer payment services via mobile phones. Several banks in the country have already launched products or applications for mobile payments based on bank accounts, as well as access to internet banking via mobile phones. However, most of these applications only work for customers of the same bank.

Regulations issued by SHCP, CNVB and the central bank provide a legal framework that supports financial transactions over mobile phones. Any bank account can be linked to a mobile phone and new rules have paved the way for a category of accounts with less stringent identification requirements. The amount of money that can be paid into an account of this new type each month is restricted, to combat money laundering and to comply with FATF<sup>14</sup> recommendations. The rules also require banks to allow interbank electronic transfers on terms similar to those applying to bank transfers, regardless of the beneficiaries' mobile carrier. They also allow banks to outsource some activities, such as the opening and operating of the restricted accounts.

A wide range of payment methods using mobile phones is expected to develop in the near future.

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<sup>14</sup> The Financial Action Task Force (FATF) is an intergovernmental body that seeks to develop and promote domestic and international policies to combat money laundering and terrorist financing. Mexico has been a member of FATF since 2000.

### **3. Payment systems**

#### **3.1 General overview**

SPEI and CCEN are the interbank payment systems. The central bank owns and operates SPEI, and CECOBAN, a private company owned by banks, operates CCEN. SIAC is also an interbank payment system operated by the central bank, but most of its payment functions have migrated to SPEI (see Section 1.2.2).

SPEI is a real-time system that processes almost all large-value payments and most interbank low-value credit transfers.

CCEN processes mainly low-value payments. Most payments in CCEN are settled one day after they are entered into the system.

Bank customers can use SPEI or the CCEN TEF service (Transferencia Electrónica de Fondos) for credit transfers. When using TEF, the customer's account is debited immediately and the money credited to the beneficiary on the following business day. When using SPEI, the money is transferred within minutes. TEF transfers used to be significantly less expensive than SPEI transfers, but fees for SPEI transfers have been reduced.

#### **3.2 Large-value payment systems**

##### **3.2.1 SPEI**

###### *3.2.1.1 Institutional framework*

SPEI is an electronic funds transfer system owned and operated by the central bank. SPEI has allowed its participants to transfer money in real time since August 2004.

SPEI fully supports straight through processing (STP). Commercial banks participating in SPEI offer SPEI real-time payment services to both corporations and individuals. The system is used for both large-value payments and low-value transactions such as payrolls and person-to-person transfers. SPEI settles an average of around 300,000 transactions per day (in 2010). More than 80% are for less than MXN 100,000. The federal government disburses most of its payments, including payrolls, through SPEI.

SPEI is a hybrid system: it clears operations every few seconds, and the results are settled immediately on the participants' SPEI cash accounts. SPEI accounts open and close the day with zero balances. Participants can transfer funds into their SPEI account at any time, via an online connection with SIAC and DALI (see *Provision of cash settlement facilities* in Section 1.2.2). At the end of the day, positive balances in SPEI are credited to banks' current accounts in SIAC.

###### *3.2.1.2 Participation*

The Bank of Mexico encourages the direct participation of all regulated financial entities. At the end of 2009, some 46 banks, 32 non-banks (broker-dealers, foreign exchange firms, pension fund managers, insurance companies etc) and the DALI securities settlement system were participants. Telecomm-Telégrafos, the Mexican government agency that provides telecommunications and financial services to rural areas, has also participated in SPEI since the first quarter of 2010. The central bank defines the system operating rules and establishes the requirements for participation. Access criteria are published by the central bank. Any financial entity regulated by the Mexican financial authorities is allowed to participate in SPEI. CLS, the sole foreign participant in SPEI, has indirect access via the central bank.

### 3.2.1.3 *Types of transactions*

SPEI participants can make MXN-denominated credit transfers to any other participant in the system. The most important types of transfers are: (i) from one participant to another (usually large-value payments used to settle obligations between entities) and (ii) from a customer of a participant to a customer of another participant (generally low-value payments).

Participants can transfer funds from their SPEI accounts to their SIAC current accounts, and vice versa.

Payment messages use a proprietary format. Most messages go through the central bank's private network, but internet is used as a backup communication channel and as the primary channel for some small participants. Both networks use the TCP/IP protocol, and the same message structure. Only CLS, as the sole foreign SPEI participant, uses SWIFT to communicate with the central bank, which provides CLS with indirect access to SPEI.

### 3.2.1.4 *Operation of the system and settlement procedures*

SPEI's operating rules are prescribed by the central bank (in Circular 17/2010) and in the system's operating manual. The former is publicly available and contains the general rules of the system. The latter is only available to participants and is more detailed and technical.

SPEI opens at 19:00 (Mexico City time) on the calendar day proceeding the value day and accepts payments until 17:30 of the value day. The central bank sends the federal government's payroll at the opening of the system and banks have until 08:40 to credit the beneficiaries' accounts. Until recently, banks offered the SPEI service to their customers from 08:30 to 16:00, but the central bank now requires them to extend this schedule in order to bring the terms of interbank payment services closer to those of same-bank transfers, which some banks offer on a round-the-clock basis. Since September 2010, banks have offered the SPEI service to their customers, via e-banking applications, from 06:00 to 17:30.

The system places new payment instructions in a queue. Roughly every 20 seconds, SPEI runs a clearing process for all payments in the queue. The clearing process uses an algorithm that determines a set of payments that can be settled with available balances. Payments in this set generate debits and credits to the participants' accounts held in SPEI. This process may overdraw some accounts for a fraction of a second, but the complete process does not generate overdrafts. All relevant information is backed up off-site. After all relevant information is backed up, the system sends a settlement advice to both the sender and the receiving participants. SPEI rules indicate that finality for all payments takes place when the settlement advices are sent. Payments that cannot be settled remain in the queue for the next clearing process. Payments that have not been settled by the end of the day are cancelled. There are no fines for payments that stay in the queue, to avoid establishing incentives for participants to delay sending payment instructions.

A participant may assign high priority to some payments and reserve part of its account balance to settle these payments.

SPEI's rules require a sending bank to forward a payment order instructed by a customer within five minutes after it accepts the payment instruction. The rules also require the recipient bank to credit the beneficiary's account within five minutes after receiving the settlement advice. By 2011, these margins will be shortened to 30 seconds.

The communication protocol is available to all participants and interested software vendors. This allows participants to develop automatic processes to achieve STP.

### 3.2.1.5 *Risk management*

The 2002 Payment Systems Act ensures finality of all payments settled by SPEI. This Act allows each system to define the moment of finality. In SPEI finality occurs when settlement advices are sent (see Section 3.2.1.4).

SPEI settles in real time and does not use credit lines. The clearing process seeks to efficiently use liquidity available on the account as well as from incoming payments. An algorithm looks for a set of payments that can be settled given the available liquidity. These processes do not generate credit risks since overdrafts are not allowed.

SPEI's rules oblige participants to send in their customers' transfers instructions within five minutes of accepting them. This rule ensures that final users get a better service and that payments are distributed more uniformly during all banking hours to avoid concentration of liquidity needs.

Further, participants can segregate funds to settle high-priority payments.

The central bank has a business continuity strategy for SPEI that is based on international recommendations and standards. Measures include a secondary site, periodical testing, and training of key staff. SPEI only sends a settlement advice message after the corresponding information has been successfully backed up at the alternate site. In case of equipment failure, connections are redirected to the alternate site where service is resumed within minutes. SPEI requires its larger participants to maintain two dedicated communication channels through separate nodes of the telecommunications network.

Security in SPEI is based on digitally signed messages. Participants must use digital certificates obtained and managed through a public key infrastructure developed by the central bank. Messages travel in an encrypted private network or are encrypted through the internet.

SPEI complies with the CPSS Core Principles for Systemically Important Payment Systems.

#### *3.2.1.6 Pricing*

Pricing is based on the principle of full recovery of costs. The central bank charges each participant a fee for each payment instruction, money transfer to other systems and returned transfer. The fee per transaction charged by the central bank to the participants, for instructions processed between 19:00 and 10:00 is MXN 0.10; for the rest of day, this fee is MXN 0.50. Transactions subject to these fees are: credit transfers, charged to the sender of the instruction, and return transfers, charged to the sender of the instruction that could not be credited by the receiver and which generated the return transfer. Participants that request the system to resend information are charged a penalty rate of MXN 0.01 per byte. This is to encourage system participants to maintain reliable information backup processes.

Moreover, an annual fee is charged to SPEI participants for the use of the central bank's private telecommunications network.

#### *3.2.1.7 Major ongoing and future projects*

To keep operational risk low, the central bank is developing a methodology to evaluate the business continuity plans of SPEI participants. All participants will be evaluated and recommendations will be issued accordingly. The central bank will soon require critical participants to maintain stringent and robust recovery plans. The system's disaster recovery plan is currently also undergoing a major review.

If the number of payment instructions continues to grow, the central bank may further reduce the cost per transaction, especially during non-peak hours, with a view to increasing the incentive to enter payment instructions early.

SPEI's rules have been modified to improve the service offered by the banks to their customers. Banks have been required to: (i) extend their e-banking service hours from 06:00 to 17:30 (as of September 2010); (ii) expand and standardise tracking information to improve tracking services (applicable as of April 2011); (iii) ensure that issuing banks send payments to SPEI within 30 seconds after accepting an instruction from a customer (applicable as of

June 2011); and (iv) ensure that receiving banks credit the beneficiaries' accounts within 30 seconds after receiving SPEI's settlement notification (applicable as of June 2011).

### **3.3 Retail payment systems**

In 1982, the central bank, together with the banks, created a trust, CECOBAN, to clear cheques. The central bank managed CECOBAN until 1997 when banks took control.

#### **3.3.1 CCEN**

CECOBAN, a private company owned by banks, owns and operates CCEN, which processes the interbank cheques service, the direct debits service, and the deferred Electronic Funds Transfers (TEF) service.

CECOBAN is the only clearing house authorised by the central bank to settle in SIAC through the Sistema para Liquidación de Cámaras (SICAM), which is operated by the central bank. SICAM allows banks to grant credit lines to other banks to facilitate settlement, and banks have empowered SICAM to draw on these credit lines. Every evening, SICAM receives from CCEN the net positions for each of the above services and determines the resources each participant has available to settle its obligations. When a participant has a negative net position, a procedure checks that its resources (ie either a positive current account balance in SIAC or unused pledged collateral at the central bank) will cover its settlement obligations. If necessary, SICAM draws on the credit lines. Credits or debits to SIAC current accounts take place early the next day.

##### *3.3.1.1 Participation*

Any bank can participate in CCEN. Banks must be certified by CECOBAN.

##### *3.3.1.2 Types of transactions*

###### *Cheques*

CECOBAN implemented CCEN, the current clearing house, in 2001. CCEN clears all interbank domestic cheques denominated in MXN and in USD. Net amounts from cleared cheques denominated in MXN are settled in the central bank, while net amounts from cheques denominated in USD are settled in a commercial bank.

Since 2003, banks have truncated all cheques received, sending data files with the relevant information to CCEN. Banks receive from the clearing house a digital image of all cheques with value equal or greater than MXN 10,000 and send it to the issuing bank.

In recent years, the number of cheque transactions has been on the decline, although the total value of transactions has remained almost constant. CCEN processed 163 million interbank cheques in 2005, while in 2009 it processed 134 million. The total value of cheque transactions was MXN 3 trillion in 2005 and MXN 3.1 trillion in 2009. An interchange fee of MXN 6 is paid by the issuing bank to the receiving bank.

###### *Direct debits*

CCEN has provided a direct debit service since 2002. Direct debits allow a biller to instruct its bank to debit the current accounts that the biller's customers may have with other CCEN participant banks. To send direct debit instructions, the biller needs authorisation from its customers. Direct debits are settled one business day after the instruction has been received.

Direct debits use the standardised CLABE account number to identify the accounts involved in the interbank operation.

The volume of direct debits processed by CCEN rose from 3 million in 2005 to almost 10 million in 2009, with the total value of these transactions rising from MXN 8 billion to MXN 30 billion over the same period. Given the total amount of non-cash payments, the use of direct debits is very limited, not least because more than 60% of all direct debit transactions result in returns due to lack of funds. In order to promote the use of direct debits, the central bank issued a regulation in September 2009 to improve procedures for contracts, objections and service cancellations. An interchange fee of MXN 1.4 is paid by the payer's bank to the payee's bank if the transaction is successful, and MXN 0.7 if not.

#### *Credit transfers*

CECOBAN has provided a deferred credit transfer service (TEF) since 1996. Funds are credited to the beneficiary account on T+1. In 2009, CECOBAN processed 21 million TEF payments, up from 16.6 million in 2005. The total value of TEF credit transfers rose from MXN 629 billion in 2005 to MXN 850 billion in 2009.

#### *3.3.1.3 Operation of the system and settlement procedures*

SICAM receives net positions for cheques, for credit transfers and for direct debits, and clears them in a single process for final settlement.

#### *CCEN process*

Between 17:30 and 20:30 (on day T), the issuing banks send electronic files to CCEN with all transactions for each of the three services. CCEN validates the format and dates, and notifies each participating bank of the outcome of these validations before 20:30. CCEN then processes the electronic files and generates outgoing files for each participating bank.

Receiving banks must access these files by 21:00. If any of the transactions contained in an incoming file cannot be executed, the banks generate a returned items file that must be submitted to CCEN between 21:30 and 06:30 of the following day (T+1). CCEN forwards to the banks the details of each returned item. Finally, CCEN validates this information and obtains the net amounts for each bank in each service between 06:45 and 07:30, and sends the results to the central bank, which uses SICAM to complete settlement through SIAC.

#### *SICAM process*

To proceed with settlement, CCEN sends to the central bank the following information:

- The gross amount of all cheques that each bank collects for each of the other banks.
- The gross amount of all credit transfers each bank sent to each of the other banks.
- The gross amount of all direct debits each bank seeks to collect from each of the other banks.

Using that information, SICAM determines net positions for each of the three services between 07:30 and 08:15.

To support timely settlement of these positions, banks may grant permanent credit lines to each other, and register them in SICAM. These credit lines are valid until revoked. Once SICAM knows the resulting net credit and debit balances, it determines how far each credit line needs to be drawn for settlement.

SICAM computes the corresponding debits or credits, including those generated by the credit lines, and by 08:30 instructs SIAC to post them in the participant banks' current accounts with SIAC. The central bank has standing instructions to debit or credit banks accounts in SIAC based on banks' liquidity needs or balance in SICAM.



When the balance in the current account of the participant bank plus the collateral and credit lines received from other participants are not enough to cover its debit position, SICAM excludes from clearing as many obligations to decrease its debit position as needed.

SICAM notifies banks whose transactions were excluded so they can stop payment to their customers.

#### *3.3.1.4 Risk management*

The central bank does not provide banks with extra credit to settle SICAM transactions. SICAM allows banks to grant credit lines to each other. It then calculates the amount of credit needed to settle net positions.

The central bank sets a limit on the amount of any individual credit line that a bank may grant to another bank on the basis of the lender's net capital. It also sets a limit on the aggregate amount of the credit lines a bank may grant to all other banks. SICAM analyses balances, credit lines and the collateral pledged to the central bank's overdraft facility for all banks and determines if it will be necessary to exercise credit lines.

#### *3.3.1.5 Pricing*

CCEN charges a monthly fee that covers the first 10,000 transactions. Then a variable fee is applied. The variable fee starts at MXN 0.55 per transaction and falls progressively to MXN 0.10.

### **3.3.2 ATM and POS networks**

#### *3.3.2.1 Institutional framework*

Retail interbank card payments and cash withdrawals are processed and cleared by two processors, PROSA and E-GLOBAL, and settled at a settlement bank.

PROSA and E-GLOBAL exchange information under the terms of a collaboration agreement that establishes the main features and terms of the card payments process, as well as a communication protocol.

Clearing takes place at the end of the day and settlement is done the following working day by a commercial settlement bank that holds accounts for all affiliated banks.

#### *3.3.2.2 Participation*

The two largest banks own a controlling share of E-GLOBAL, while PROSA is owned by a consortium of banks.

Every Mexican bank participating in the cards market uses either PROSA or E-GLOBAL to process its domestic interbank retail payment transactions.

#### *3.3.2.3 Types of transaction*

PROSA and E-GLOBAL process most ATM, POS and internet transactions online. Only a few POS transactions are still processed offline. The processing entities route, process payment messages, clear and settle transactions at the end of the day.

#### *3.3.2.4 Operation of the system and settlement procedures*

##### *Interbank transaction at an ATM*

Processing of a transaction that involves both PROSA and E-GLOBAL is illustrated with the following transaction example: first, a cardholder uses his card, issued by a bank affiliated with E-GLOBAL, to withdraw cash at an ATM operated by a bank affiliated with PROSA (acquiring bank). The ATM sends an authorisation query to PROSA and PROSA forwards it

to E-GLOBAL, which in turn sends it to the issuing bank. The issuing bank checks the cardholder's balance and authorises the transaction through E-GLOBAL. Afterwards, E-GLOBAL sends the authorisation to PROSA, which forwards it to ATM which in turn releases the cash to the cardholder.

International transactions are cleared every day by each payment card scheme and settled on US business days. PROSA and E-GLOBAL have links with Visa, MasterCard and some other entities; they buy or sell US dollars for settlement at rates fixed by the payment card schemes.

#### *Interbank transaction at a POS*

Processing of a transaction that involves both PROSA and E-GLOBAL is illustrated with the following transaction example: A customer uses his card (either credit or debit) at a store. The merchant's bank (acquiring bank) sends a payment authorisation request to the issuer bank via the acquiring bank's processor, PROSA. PROSA sends the request to the issuer bank's processor, E-GLOBAL, which forwards it to its associate, the issuer bank, which verifies the cardholder's account balance. Once the transaction is accepted, the authorisation is sent back to E-GLOBAL, which forwards it to PROSA. After the merchant receives the authorisation and prints the related receipt, the customer receives the requested product or service.

#### *Clearing and settlement process*

Every business day, each processor computes net positions for their affiliates and sends them to the affiliates by 13:30. Affiliates of E-GLOBAL settle net positions bilaterally at a settlement bank. PROSA notifies a commercial bank that acts as settlement bank of the net positions for transactions between PROSA affiliates and between these affiliates and those of E-GLOBAL. Affiliates with short positions send funds to the settlement bank. Then the settlement bank sends the corresponding funds to affiliates with long positions. Settlement concludes by 15:30. Settlement of such transfers is usually via SPEI.

#### *3.3.2.5 Risk management*

In order to manage credit risk, processors obtain guarantees<sup>15</sup> from all card issuers involved in the settlement process. Also, processors have credit lines with some banks to ensure that they can complete the settlement process. If a bank does not settle its short position, PROSA draws on these credit lines, with the interest costs borne by the bank that failed to meet its obligations on time.

#### *3.3.2.6 Pricing*

ATM operators charge user fees that may vary according to the ATM's location.<sup>16</sup>

In October 2009, the central bank issued a regulation to make ATM fees for interbank transactions more transparent. The new regulation prohibits foreign fees.<sup>17</sup>

Between October 2009 and May 2010, the acquiring bank charged the issuer bank an interchange fee of MXN 7.25 per authorised transaction. Processors charged their associates or customer banks for transaction processing (eg special authorisations or

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<sup>15</sup> Guarantees are generally deposits or letters of credit.

<sup>16</sup> For instance, a cash withdrawal from an ATM located in a bank branch is less expensive than a cash withdrawal from an ATM located in a convenience store.

<sup>17</sup> A foreign fee is a fee levied by the card issuer on cardholders who carry out a transaction at the ATM of another bank.

digitalisation of receipts signed by the cardholder). Consequently, whenever cardholders used an ATM not operated by their own bank, they faced a foreign fee that was usually much larger than the interchange fee. After May 2010, only the acquiring banks can charge cardholders a fee when they carry out an interbank transaction. Acquirers now pay a new interchange fee to the issuers. Currently, this interchange fee is MXN 2.92. Both the acquiring and the issuer bank pay transaction fees to the processors.

### 3.3.2.7 Major ongoing and future projects

Some foreign processors and payment schemes have complained that the fees of established processors are too high, especially on the acquiring side, and represent an unfair barrier to market entry. The central bank is currently working to promote fair access for new card processors, as well as to set efficient mechanisms for the clearing and settlement of card payments. Both current and new processors will require approval from the central bank. As current processors are not regulated, they will have to apply to the central bank for authorisation, but the central bank does not expect them to have any difficulty in meeting the criteria, as the main goal of these new regulations will be to eliminate barriers of entry to the business of switching and processing low-value payments. The central bank will set the standards, terms and communication protocols for both current and prospective processors.

## 4. Systems for post-trade processing, clearing and securities settlement

### 4.1 General overview

Domestic equities, foreign equities in the Sistema Internacional de Cotizaciones (SIC),<sup>18</sup> convertible bonds, common share certificates, warrants, domestic mutual funds, and funds (ETFs) are traded on the Bolsa Mexicana de Valores (BMV), the country's sole stock exchange. All transactions in the equity market are traded through SENTRA Equities, an electronic trading system developed and operated by BMV. At the end of 2009, Mexican equities had a total market capitalisation of MXN 4.6 trillion, equivalent to almost 40% of that year's GDP. The daily average trading volume on the BMV in 2009 was more than MXN 7 billion.

Most primary and secondary market transactions for debt securities are performed over the counter. There are four inter-dealer brokers specialised in OTC fixed income securities. These provide an electronic trading platform to financial entities such as mutual funds, pension funds and insurance companies.

Most counterparties that are not banks or broker-dealers do not participate directly in DALI, the securities settlement system. Thus, it is their custodians that send transactions directly to DALI for settlement. If a counterparty is a direct participant in DALI, it can send its transactions to DALI directly or via the inter-dealer broker.

Most customers of these brokers have empowered them to send transactions directly to DALI for settlement. Otherwise, direct participants in DALI must instruct DALI directly.

CCV is a CCP for securities. CCV clears almost all equity transactions that are traded on BMV and settles them through the DALI securities settlement system.

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<sup>18</sup> Registry for securities issued abroad that can be traded on the BMV.

ASIGNA is a CCP for the MEXDER derivatives exchange. Interest rates futures are the most important contracts settled by ASIGNA (more than 50% of the total notional amount), followed by government bonds futures (about 19%), foreign exchange futures (on the US dollar, about 14%) and the IPC index (Mexican stock exchange index) futures.

INDEVAL, the Mexican CSD, provides deposit and custody services and is the centralised custodian for all securities registered in the Registro Nacional de Valores (RNV) and traded on Mexican financial markets. INDEVAL owns and operates DALI. Each DALI depositor holds a cash account and as many securities accounts as needed to meet its operating requirements in the system. Transactions are settled in these accounts on a delivery-versus-payment (DVP) basis.

DALI settles securities transactions in debt and equity markets. In 2009, 79% of the total amount settled in DALI represented transactions in government securities, 20% was transactions in debt securities issued by banks and corporations, and less than 1% was equity market transactions.<sup>19</sup>

There is no trade repository operating in Mexico.

## **4.2 Central counterparties and clearing systems**

### **4.2.1 CCV**

#### *4.2.1.1 Institutional framework*

Contraparte Central de Valores de México (CCV) is a CCP for stocks traded on BMV. CCV is authorised by the Ministry of Finance (SHCP) to provide clearing, settlement and risk management services to the Mexican securities market. CCV started operations in February 2004 and has been a wholly owned subsidiary of BMV since May 2008.

The Securities Market Act (SMA) regulates the activities of CCV, its risk management procedures and its governance arrangements. SMA empowers the National Banking and Securities Commission (CNBV) and the central bank to regulate CCV and it gives SHCP the power to revoke CCV's operating license under criteria specified in the SMA.

The legal framework provides with a high degree of certainty that actions taken by the CCV within its own rules may not be reversed.

As CCV is not operated by the central bank nor does it settle, on average, more than UDI 100 billion a month, it is not subject to the Payment System Act.

CCV is a direct participant in DALI, the securities settlement system operated by INDEVAL (see Section 4.4.1 for details of DALI). CCV holds securities and cash received from its participants in account with DALI and settles its MXN cash and securities obligations on a net basis through DALI.

#### *4.2.1.2 Participation*

CNBV monitors the financial and operational soundness of banks and broker-dealers. Only institutions with operating licences as banks or broker-dealers can participate in the CCV, which verifies on an ongoing basis that participants continue to meet the eligibility conditions.

Participants in CCV can be settlement agents, or non-settlement agents. Non-settlement agents need a settlement agent to settle their transactions. Settlement agents are legally

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<sup>19</sup> Most equity transactions in DALI are transfers in which custodians deliver/receive stocks to/from a trader agent in charge of selling/buying of securities on behalf of the investor on BMV.

responsible for fulfilling both their own obligations and those of their non-settlement agent customers. CCV segregates obligations and collateral received from settlement and non-settlement agents, and determines margin requirements and net obligations individually for each agent. By June 2010, CCV had 28 participants, 24 settlement agents and four non-settlement agents.

#### 4.2.1.3 *Types of transactions*

CCV clears and settles domestic and foreign equities, as well as warrants traded on BMV.

#### 4.2.1.4 *Operation of the system*

CCV operates from 08:30 to 15:30 (BMV's trading hours) every business day. Transactions confirmed and matched on BMV are sent to CCV in real time. For each transaction closed on BMV, CCV verifies that the two participants have enough collateral to cover the transaction before it accepts and novates it as the CCP. CCV is a participant in DALI and has cash and securities accounts there. To pledge collateral to CCV, participants transfer cash and eligible securities to CCV through DALI. CCV revaluates credit exposures approximately every hour from the trading day (T) to the settlement day (T+3), making margin calls when necessary.

At the start of the settlement day (T+3), CCV determines the net obligations in securities and cash. Settlement agents and non-settlement agents then transfer securities and cash to CCV's DALI accounts to fulfil their net obligations. About an hour after opening the system, CCV determines, on a first-in, first-out basis, which of its obligations to fulfil and pays out cash and securities. After a second hour, and every hour thereafter, when it has received more cash and securities in its DALI accounts, CCV again determines which of its obligations to fulfil and pays out cash and securities. If by the end of the day CCV has not received enough securities or cash from its participants to fulfil all its obligations or if CCV has not borrowed the required securities or cash, CCV returns to participants any cash or securities received during the day related to the obligations it could not fulfil. CCV may temporarily deliver cash to participants instead of securities for obligations that remain pending. CCV has one additional day to fulfil its cash obligations (T+4) and a further day for securities obligations (T+5). CCV pays fines to affected participants, based on the amount and the length of the delay. Cash obligations not settled by T+4 or securities obligations not delivered by T+5 constitute a default. In 2009 CCV settled 99.76% of its transactions by value on the due date. Cash balances in DALI are used as a settlement asset for MXN obligations, and all participants' balances in DALI are fully covered by central bank money in DALI's account with SPEI.

#### 4.2.1.5 *Risk management*

CCV's most important risk control mechanism is based on margin requirements and intraday margin calls. CCV determines the initial margin requirements so that they cover 99% of the observed price variations in a three-day period under normal market conditions. In the following days CCV estimates variation margins for each participant approximately every hour based on the latest market prices and makes margin calls whenever the corresponding margin requirements are not met. New transactions are accepted only if the collateral posted by each participant is sufficient to cover the margin requirements for the new transactions too.

CCV accepts domestic currency cash deposits, Mexican government and private bonds, highly liquid equities and letters of credit to meet margin requirements. Haircuts are applied to securities to cover potential losses for one day under normal market conditions. Currently, participants cover 95% of their margin requirements with cash deposits.

In addition to margin requirements, CCV has access to two funds created to cover potential losses arising from a participant default in extreme scenarios:

- A fund based on contributions from each participant,<sup>20</sup> the Compensation Fund.
- A fund based on penalties and sanctions paid to CCV, the Reserve Fund.

The order in which CCV would use available resources to deal with a default of a member is:

- (i) margin funds from the defaulting participant;
- (ii) the defaulting participant's contribution to the Compensation Fund;
- (iii) the Reserve Fund;
- (iv) 20% of CCV's capital;
- (v) the remainder of the Compensation Fund; and
- (vi) the remainder of CCV's capital.

CCV has a credit line with a bank so that cash needs can be promptly met.

#### 4.2.1.6 Pricing

CCV charges participants a monthly fee that depends on the value of the cleared and settled transactions. CCV also charges participants an annual fee for the use of its IT infrastructure. CCV's fee schedule is published on its website.<sup>21</sup>

#### 4.2.1.7 Major ongoing and future projects

The most important project now under way focuses on strengthening CCV's risk management and default procedures. CCV has met with the CNBV and the central bank to discuss ways to improve these procedures.

## 4.2.2 ASIGNA

### 4.2.2.1 Institutional framework

ASIGNA Compensación y Liquidación (ASIGNA) is the CCP for all derivatives contracts traded on MEXDER. ASIGNA was established as a trust in 1998 to provide clearing and settlement services for futures and options contracts. ASIGNA is a subsidiary of BMV.

Mexican derivatives markets are not regulated by any specific legislation. The most important general legal provisions that apply to ASIGNA's services are (i) the "Mandatory rules for corporations and trust participating in the establishment and operation of a market for listed exchange futures and options", jointly issued by SHCP, CNBV and the central bank and (ii) the "Prudential regulations to which participants in the market for listed future and options should adhere in their operations", issued by the SHCP and the CNBV. ASIGNA is supervised by the CNBV.

ASIGNA operates under its Internal Rules and its Policies and Procedures Manual. This code defines all regulations and requirements (both financial and operational) for clearing members, the operating processes (recording, acceptance, clearing and settlement of transactions), margin requirements (initial and variations), default procedures and fees and commissions.

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<sup>20</sup> Representing 12% of the previous month's average of participants' end-of-day margin requirements.

<sup>21</sup> [www.contraparte-central.com.mx](http://www.contraparte-central.com.mx).

ASIGNA is not subject to the Payment System Act, because its settlement volume is less than UDI 100 billion a month.

#### *4.2.2.2 Participation*

Only trusts administered by Mexican banks and authorised by SHCP for this purpose can directly participate in ASIGNA. Clearing members must comply with the operational and IT requirements stated in ASIGNA's rules.

Clearing members are either own-position clearing members, which clear and settle their own transactions, or third-party position clearing members, which clear and settle transactions on behalf of customers. At the end of 2009, ASIGNA had nine clearing members; four of them own-position clearing members and five third-party clearing members.

#### *4.2.2.3 Types of transactions*

ASIGNA acts as a central counterparty for futures and option contracts traded on MEXDER: futures on government bonds, interest rates (interbank interest rate – TIIE), foreign exchange (USD and EUR), stocks and the Mexican stock exchange index (IPC); and options on stocks, USD and futures on the IPC.

#### *4.2.2.4 Operation of the system*

ASIGNA operates from 07:30 to 15:00 (MEXDER's trading hours) every business day. Transactions traded on MEXDER are sent to ASIGNA on a real-time basis. ASIGNA uses novation to become the central counterparty to all accepted MEXDER transactions.

ASIGNA accepts and clears transactions and determines margin requirements on an intraday basis (see Section 4.2.2.5).

Contracts are marked to market at the end of each trading day and ASIGNA compensates losses and gains over all open contracts for each participant. Net balances must be paid in cash before 10:00 on the following day. This is also the deadline for participants' contributions to the default fund (known as the Clearing Fund, see Section 4.2.2.5).

When contracts expire, they may be settled in cash or through delivery of the underlying, as is the case for futures on fixed-rate bonds, futures and options on stocks, and futures on currency. ASIGNA has a procedure to guarantee the delivery of the underlying to participants for each type of contract.

#### *4.2.2.5 Risk management*

ASIGNA's risk management is based on margin requirements, initial margins for new contracts and variation margins for open contracts. The margin requirements are set to cover the expected change in prices for a single day with a 99% confidence level, using the Theoretical Intermarket Margin System (TIMS) methodology. ASIGNA determines margin requirements approximately every 20 minutes during operating hours.

ASIGNA accepts domestic currency cash deposits and/or Mexican securities to meet margin requirements. The Margin Fund is based on these contributions. Haircuts are applied to securities to protect against price fluctuations.

Third-party position clearing members can ask their customers for additional margin payments. These additional contributions depend on each customer's margin requirements and credit risk exposure. Clearing members manage these contributions and can use them in case of a customer default.

In addition to the Margin Fund, ASIGNA has access to two funds created to cover potential losses arising from a participant default:

- the Clearing Fund, which is based on domestic currency cash contributions from each participant.<sup>22</sup> This fund can be mutualised.
- the Members' Fund: own-position clearing members must maintain a fund of at least UDI 2.5 million or 4% of their margin requirements. Third-party position clearing members must maintain at least UDI 5 million or 8% of their margin requirements.

The order in which ASIGNA would use available resources to deal with a default of a participant is:

- (i) the defaulting participant's contribution to the Margin Fund;
- (ii) the defaulting participant's contribution to the Clearing Fund;
- (iii) the defaulting participant's contribution to the Members Fund;
- (iv) if the defaulting participant is a third-party position clearing member and if there is an own-position clearing member administered by the same bank as the defaulting participant, then the available resources from this own-position clearing member are also used (after and including steps (ii) and (iii)).
- (v) the remaining balance of the Clearing Fund; and
- (vi) ASIGNA's own resources, which amount to at least UDI 15 million.

#### 4.2.2.6 Pricing

ASIGNA charges the following fees:

- A clearing and settlement fee that depends on the number, type and underlying of contracts cleared. For clearing member transactions the fee is approximately half of the one applicable to its customers. This fee ranges from MXN 0.33 to MXN 60 for futures contracts, and from MXN 0.07 to MXN 9 for options contracts.
- A delivery fee to cover the cost of cash and securities transfers involved in the delivery processes. For a domestic currency cash transfer the fee is MXN 80 (futures on USD) and MXN 120 (futures on Mexican government bonds), for a USD cash transfer it is USD 25 and for securities transfers (through the Mexican CSD INDEVAL) the charge is MXN 12.
- An exercise and assignment fee, for each stock option exercised or assigned. Currently this fee is MXN 2.

ASIGNA collects fees and commissions at the beginning of each month.

#### 4.2.1.7 Major ongoing and future projects

If MEXDER's plans to include OTC contracts materialise, ASIGNA will offer clearing services for these new MEXDER-traded products.

ASIGNA plans to replace its IT platform in the medium term.

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<sup>22</sup> Maximum of (i) MXN 100,000; (ii) 10% of the previous month average of participants' end-of-day margin requirements; (iii) 10% of the participants' end-of-last-trading-day margin requirements.



### 4.3 Securities settlement systems

#### 4.3.1 DALI

##### 4.3.1.1 Institutional framework

The Institución para el depósito de valores (INDEVAL) is Mexico's sole CSD. It is licenced by the SHCP to provide custody, clearing, and settlement services. INDEVAL started operations in 1978 as a government agency and became a private entity in 1982. DALI, which has been operating since November 2008, is a SSS owned and operated by INDEVAL.

The Securities Market Act (SMA) regulates INDEVAL's activities and its governance arrangements. INDEVAL is currently owned by 39 banks and broker-dealers, BMV, and the central bank. Each shareholder has one share, and all shares have the same rights. The institution's board of directors has 14 members. The SMA mandates that both the central bank and SHCP have a seat on INDEVAL's board. A group of broker-dealers and banks has controlling interests in both INDEVAL and BMV. INDEVAL's directors are appointed each year at a shareholder meeting.

As DALI is a systemically important payment system under the Payment Systems Act, transactions settled through this system are final.<sup>23</sup> INDEVAL's rules and procedures are set out in its operating rules.

INDEVAL is regulated jointly by CNVB and the central bank. SHCP can revoke the INDEVAL's concession to operate as a CSD.

The Notes and Credit Transactions General Act and the Commercial Entities General Act require that all debt securities and equities issued in Mexico are evidenced by signed paper certificates. INDEVAL provides a custodial service for all certificates relating to bonds issued by banks and firms, and most of those relating to equities. Certificates for bonds issued by the Federal Government are held at the central bank. INDEVAL therefore holds securities on an immobilised but not on a dematerialised basis.

##### 4.3.1.2 Participation

Both domestic and foreign financial entities are allowed to participate directly in DALI. All participants in DALI must fulfil certain technical requirements. The main participants in DALI are banks, broker-dealers, CCV (the CCP for all equities traded on BMV) and the central bank. At the end of 2009, INDEVAL had 106 domestic and four<sup>24</sup> foreign direct participants.

##### 4.3.1.3 Types of transactions

DALI settles all kinds of operations with Mexican securities, which include government and private bonds, and equities. DALI also settles operations with foreign securities, mainly equities, and ETFs held in sub-custody by INDEVAL. INDEVAL also provides sub-custody services through global custody banks and international central securities depositories (ICSDs). In addition, DALI provides securities lending and borrowing services as well as tri-party repo services.

##### 4.3.1.4 Operation of the system

DALI operates from 07:46 to 16:15 every business day. DALI offers participants two access mechanisms: INDEVAL Financial Protocol and Portal DALI. INDEVAL Financial Protocol was

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<sup>23</sup> Details on finality in DALI are described in Section 4.3.1.4.

<sup>24</sup> One CSD and three banks.

designed for computer-to-computer communications (H2H). Based on the ISO 15022 message format, this protocol supports straight through processing to reduce costs and operational risks. Portal DALI is a web interface that enables depositors to access DALI services from their browsers. All instructions to DALI bear a digital signature, based on a public key infrastructure. All settlement advices sent by DALI also bear a digital signature.

DALI settles most money market trades on the trade day. DALI uses a liquidity-saving clearing model and settles transactions on a DVP, near real-time basis. The system maintains a queue of pending trades and chooses at frequent intervals<sup>25</sup> the highest-value set of transactions that can be cleared and settled with the available cash and securities balances. Transactions that cannot be settled immediately are queued for later settlement. Settlement is final when DALI sends its depositors a settlement advice with the debits and credits in their accounts.

#### 4.3.1.5 Risk management

As the netting scheme in DALI generates no overdrafts in participants' accounts, DALI does not extend credit to its depositors and thus faces no credit risk from the settlement process. DALI participants have a domestic currency cash account in the system to settle payments generated by transactions. DALI has an account in SPEI, and DALI participants make payments in SPEI to DALI to fund their accounts. Balances in the DALI cash accounts are at all times fully backed by deposits in central bank money in SPEI. DALI uses an optimal clearing procedure that, at least every two minutes, determines the transactions that can be settled with the available participants' balances in cash and securities. Some transactions may be settled only partially.

DALI's liquidity-saving model significantly reduces liquidity risk, and near real-time settlement avoids end-of-day risk concentration.

#### 4.3.1.6 Links to other systems

Any party with a bank account can credit any DALI participant's cash account through SPEI. DALI participants can also transfer balances from their DALI cash account to any SPEI account and, through it, to any bank account in Mexico.

When DALI closes at the end of the day, all cash balances are automatically transferred to predefined accounts. If a DALI participant is also a participant in SPEI, the predefined account generally is its SPEI account. In other cases, the predefined account is a bank account.

#### 4.3.1.7 Pricing

Each month, participants pay fees of two principal types: one levied on the value of the securities they hold at INDEVAL and another based on the number of transactions settled. For debt securities (including Federal Government securities) the monthly fee ranges from 0.00014% to 0.000075% of the average value in that month; while for equities it is between 0.00058% and 0.00017% of the average value. Custody fees for INDEVAL shareholders are rated at 50% of the fees paid by other participants. Transaction fees depend on the role of the participant in the transaction: whether it is transferring securities or making a payment, and also on whether it uses H2H or Portal DALI to access the system (see Section 4.3.1.4). The fee for H2H transactions is half that for Portal DALI transactions. This arrangement has a twofold purpose, to reflect the actual costs of these two services in INDEVAL's fees, and to promote STP. The H2H fee for domestic securities transfers between two accounts of the

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<sup>25</sup> No later than two minutes after receiving a new instruction.

same participant is MXN 8 per transaction, if the securities transfer is between the accounts of two different participants the fee is MXN 12. The H2H fee for a payment transaction is MXN 2.

For cross-border securities transactions, participants pay custody and transaction fees that are based on the fees that INDEVAL pays to the respective global custodian or ICSD. Changes in INDEVAL's fees require the approval of CNBV and the central bank.

#### *4.3.1.8 Major ongoing and future projects*

INDEVAL has started work on two major projects, a trade repository for OTC derivatives and a CCP for debt securities.

## **4.4 Use of securities infrastructure by the Bank of Mexico**

The central bank is a direct participant in DALI for the following activities: First, the central bank is the financial agent of the Federal Government and the payment agent for securities issued by the Federal Government. Second, the central bank holds the physical certificates that back Federal Government securities while INDEVAL manages the custody of these securities through its book entry system.

Transactions in the primary and secondary market are settled through DALI. The central bank acts as agent in DALI to pay interest on Federal Government securities and to redeem these securities. At the end of 2009, Federal Government securities worth MXN 2.7 trillion were outstanding.

The central bank also acts as the issuing and paying agent for securities issued by the Mexican deposit insurer, IPAB, and for central bank bonds.

SHCP provides a securities lending programme for banks and broker-dealers that act as market-makers for Federal Government securities. At the end of 2009, there were eight market-makers appointed by SHCP. The securities lending programme is jointly operated by INDEVAL and the central bank.

The central bank provides liquidity to banks with a view to (i) regulating the supply of money in the market (monetary policy implementation); (ii) giving support to banks with liquidity needs (discount window); and (iii) promoting the smooth functioning of the payment system. In its monetary policy implementation and in the discount window facility, the central bank provides banks with liquidity through repo transactions. To participate, banks transfer securities to the central bank's securities account in DALI. For its part, the central bank registers a repo in its books and delivers cash to the banks' current accounts at the central bank. To provide liquidity to the payment system, the central bank accepts same-day repo operations with banks and sends instructions to DALI to settle these repos. To use this facility, banks must give DALI a standing instruction to grant the central bank access to their accounts (see Section 1.2.2).