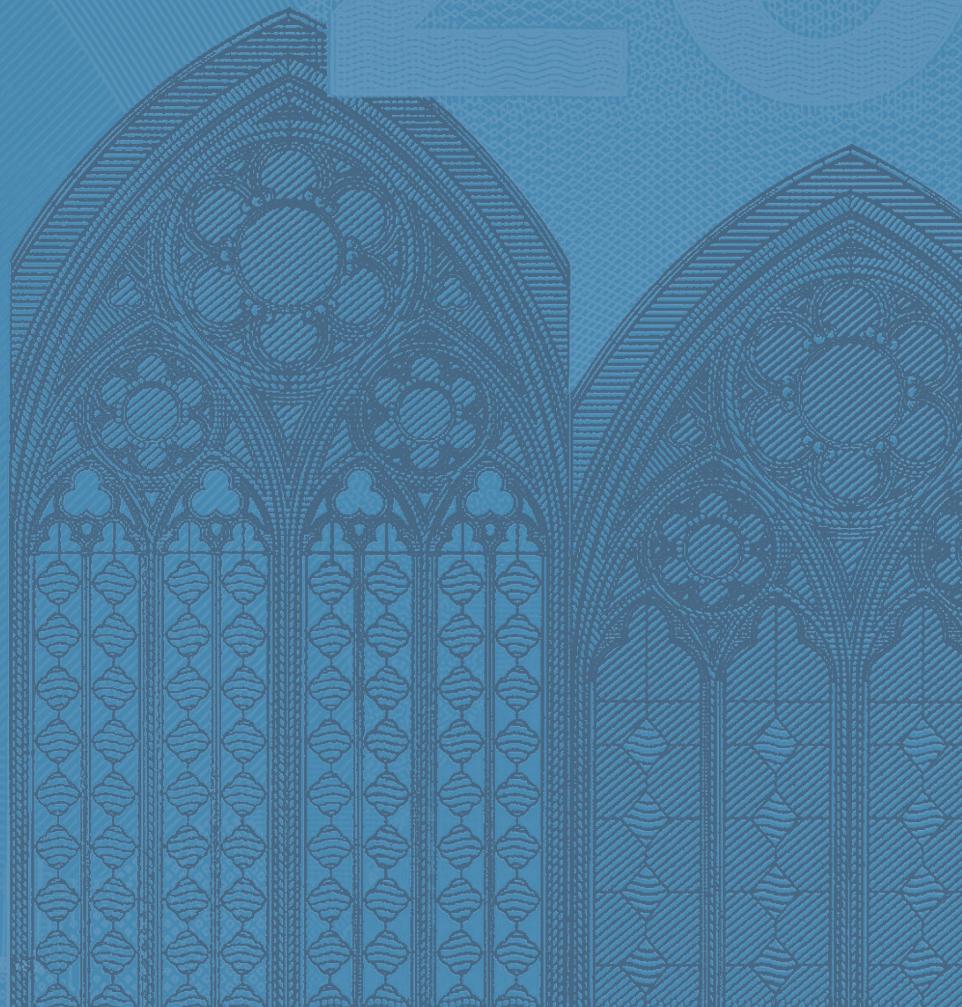


**BLUE BOOK**  
AUGUST 2007

**PAYMENT AND  
SECURITIES  
SETTLEMENT  
SYSTEMS IN THE  
EUROPEAN UNION**

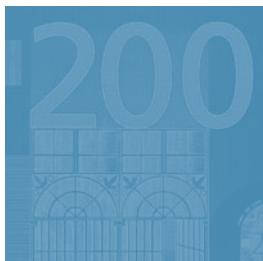
**VOLUME 2**

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COUNTRIES**

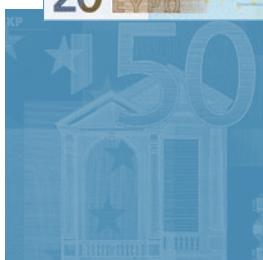




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BLUE BOOK  
AUGUST 2007

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EUROPEAN UNION  
VOLUME 2

NON-EURO AREA  
COUNTRIES

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## CONTENTS

<b>INTRODUCTION</b>	<b>5</b>
<b>GENERAL TERMS AND ACRONYMS</b>	<b>7</b>
Bulgaria	11
Czech Republic	41
Denmark	65
Estonia	95
Cyprus	123
Latvia	145
Lithuania	171
Hungary	191
Malta	221
Poland	239
Romania	279
Slovakia	303
Sweden	329
United Kingdom	355
<b>GLOSSARY</b>	<b>389</b>
<b>EDITORIAL GROUP</b>	<b>411</b>

In accordance with Community practice, countries are listed using the alphabetical order of the country names in the national languages.

In general, the systems described and figures provided in this edition of the Blue Book are as at end-2006, unless otherwise stated.



# INTRODUCTION

## INTRODUCTION

This report on “Payment and securities settlement systems in the European Union” is the fourth edition of what has become known as the “Blue Book”. The first edition was published in 1992 by the Committee of Governors of the Central Banks of the Member States of the European Economic Community as a description of the payment systems of the then 12 Member States of the European Community. The second edition was published by the European Monetary Institute in April 1996, and the third edition was produced by the European Central Bank (ECB) in June 2001. This fourth edition takes account of the fundamental changes in payment and securities settlement systems which have taken place in the period from 2001 to 2007.

The aim of the Blue Book is to provide a comprehensive description of the main payment and securities settlement systems in the Member States of the European Union (EU). These descriptions cover both the domestic and cross-border aspects of those systems. The range of systems covered is not exhaustive, and the selection of these systems is not intended to indicate their relative importance.

The ECB, like any other central bank in the world, has a direct interest in the prudent design and management of payment and settlement systems within its currency area. The smooth functioning of these systems – particularly those that process very large amounts – is of paramount importance for the stability of the financial system and is essential for the effective implementation of the ECB’s single monetary policy. Furthermore, in the field of retail payment systems and instruments, the Eurosystem seeks to foster efficiency and to reduce the potential risks associated with such systems.

It can be expected that the rapid changes seen in recent years in payment instruments and in payment and securities settlement infrastructure will continue in the future. The expected adoption of the euro by further Member States in the coming years, the establishment of the Single Euro Payments Area (SEPA), new legal

initiatives such as the forthcoming Payment Services Directive and the expected further consolidation of the post-trading infrastructure for securities will all play a prominent role in this respect. The Eurosystem will continue to report on these developments in future editions of the Blue Book, which has proved to be a helpful tool for central banks, market practitioners, academics and the public in general.

### STRUCTURE OF THE BLUE BOOK

Following the entry into the EU of the former accession countries (with Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia acceding on 1 May 2004, and Bulgaria and Romania joining the EU on 1 January 2007), a separate ECB report on “Payment and securities settlement systems in accession countries”, as was published in August 2002, is no longer required. This edition of the Blue Book contains a chapter on the euro area and country chapters for all 27 EU Member States. For practical reasons, this Blue Book has been split into two volumes.

Volume 1 contains the euro area chapter and country chapters for all euro area countries, while the country chapters for the non-euro area countries are published in Volume 2. The euro area chapter describes aspects and features of payment and securities settlement systems which are common to, or relevant to, the Eurosystem as a whole. This chapter also describes the common legal and regulatory framework, focusing, in particular, on the role of the European Central Bank and the Eurosystem. The euro area chapter has been substantially extended by comparison with the previous edition of the Blue Book. This reflects, in particular, the integration and consolidation observed in payment and securities settlement systems in the euro area. The euro area chapter also reports on the SEPA project, as well as on new pan-European infrastructures such as TARGET2 in the field of large-value payments and the Euro Banking Association’s STEP2

system in the field of retail payments. The design and functioning of the Continuous Linked Settlement system, as a global infrastructure for the settlement of FX trades, is also described in detail.

The country chapters deal with individual domestic features which are not common to the Eurosystem. This reflects the fact that, both for historical reasons and on account of differences in the legal, regulatory and institutional environments in the various countries, payment systems differ from country to country in terms of their type and structure. The above-mentioned developments (e.g. the SEPA and TARGET2) also have a bearing on existing national infrastructures. Consequently, the country chapters also contain a considerable amount of new information by comparison with the previous edition of the Blue Book.

In order to allow a direct comparison of the various payment systems, the euro area chapter and all the individual country chapters have a similar structure. Each chapter is divided into four sections: the first provides an overview of those institutional aspects which have an impact on payment systems and briefly describes the major parties involved; the second deals with the payment media used by non-banks and with recent developments in the area of retail payments; the third focuses on interbank transfer and settlement systems; and the fourth describes the various systems for the trading, clearing and settlement of securities.

A list of general acronyms is provided at the front of each volume, and each country chapter includes a list of acronyms specific to that country. Annexes at the end of each volume contain both a glossary of terms and a list of the members of the editorial group responsible for the coordination of the volume in question.

Finally, by contrast with previous editions of the Blue Book, statistical data are not provided in this publication. Instead, the relevant statistical information is released on an annual basis in the “Blue Book Addenda”. The last

Blue Book Addendum, which included 2005 data, was published in December 2006.

# GENERAL TERMS AND ACRONYMS

## Currencies

€ or EUR	euro
BGN	Bulgarian lev
CZK	Czech koruna
DKK	Danish krone
EEK	Estonian kroon
CYP	Cyprus pound
LVL	Latvian lats
LTL	Lithuanian litas
HUF	Hungarian forint
MTL	Maltese lira
PLN	Polish zloty
RON	Romanian leu
SKK	Slovak koruna
SEK	Swedish krona
GBP	pound sterling

## Others

ACH	automated clearing house
ASI	ancillary systems interface of TARGET2
ATM	automated teller machine
BAS2	Business Administration System
BIC	Bank Identifier Code
BIS	Bank for International Settlements
CCB	correspondent central bank
CCBM	correspondent central banking model
CCP	central counterparty
CDs	certificates of deposit
CEPS	common electronic purse specifications
CESAME group	Clearing and Settlement Advisory and Monitoring Expert group
CESR	Committee of European Securities Regulators
CET	Central European Time
CLS	Continuous Linked Settlement; foreign exchange PvP system
COGEPS	Contact Group on Euro Payments Strategy
COGESI	Contact Group on Euro Securities Issues
CP	commercial paper
CPSS	Committee on Payment and Settlement Systems
CSD	central securities depository
CSM	clearing and settlement mechanism
DNS	designated-time net settlement
DvD	delivery versus delivery
DvP	delivery versus payment
EACH	European Association of Central Counterparty Clearing Houses
EBA	Euro Banking Association
ECB	European Central Bank

ECBS	European Committee for Banking Standards
ECN	electronic communication network
ECSDA	European Central Securities Depositories Association
EEA	European Economic Area
EFTPOS	electronic funds transfer at point of sale
ELMI	electronic money institution
EMI	European Monetary Institute
EMSSO	Electronic Money System Security Objectives
EMU	Economic and Monetary Union
EMV	standard for integrated circuit cards established by Europay, MasterCard and Visa
EPC	European Payments Council
EPM	ECB payment mechanism; TARGET component of the ECB
EPSS	European Payment Systems Services SA
ERP	Euro Retail Payment
ESCB	European System of Central Banks
ESSP	Euro Settlement Service Provider
ETF	exchange-traded fund
EU	European Union
EURO1	euro system of the EBA Clearing Company; EU-wide LVPS
Euroclear System	ICSD created in 1968 by the Morgan Guaranty Trust Company of New York
Eurogiro	cooperative initiative between banks and postal organisations to provide a network for cross-border payments
EuroMTS	electronic bond trading platform for European benchmark bonds
Euronext	stock exchange created by the merger of the Amsterdam, Brussels, Paris and Lisbon stock exchanges
FAFO	first available, first out
FESCO	Forum of European Securities Commissions
FESE	Federation of European Securities Exchanges
FIFO	first in, first out
FIN	store and forward messaging service for financial institutions on the SWIFT network
FIN Copy	function of the SWIFT network whereby instructions may be copied and, optionally, authorised by a third party before being released to the beneficiary
FOP	free of payment
FRA	forward rate agreement
FX	foreign exchange
GAAP	US Generally Accepted Accounting Principles
GDP	gross domestic product
GMT	Greenwich Mean Time
GNP	gross national product
HCB	home central bank

HICP	Harmonised Index of Consumer Prices
IASC	International Accounting Standards Committee
IBAN	International Bank Account Number
ICM	Information and Control Module of TARGET2
ICMA	International Capital Market Association
ICSD	international central securities depository
IFTS	interbank funds transfer system
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
IP	Internet Protocol
ISDN	integrated services digital network
ISIN	International Securities Identification Number
ISMA	International Securities Markets Association
LVPS	large-value payment system
MiFID	Directive 2004/39/EC on markets in financial instruments
MoU	memorandum of understanding
M-PEDD	Multi-purpose Pan-European Direct Debit
NCB	national central bank
NCSD	Nordic Central Securities Depository
NDF	non-deliverable forward
OECD	Organisation for Economic Co-operation and Development
OTC	over the counter
PCI DSS	payment card industry data security standard
PE-ACH	pan-European automated clearing house
PIN	personal identification number
PKI	public key infrastructure
POS	point of sale
PvP	payment versus payment
repo	repurchase agreement
RTGS	real-time gross settlement
SCF	SEPA cards framework
SEPA	Single Euro Payments Area
SET	secure electronic transaction
SFD	Settlement Finality Directive
SIPN	secure IP network
SIPS	systemically important payment system
SSP	Single Shared Platform of TARGET2
SSS	securities settlement system
STEP1	low-value payments solution operating on the EURO1 platform
STEP2	retail clearing system of the EBA Clearing Company
STP	straight-through processing
SWIFT	Society for Worldwide Interbank Financial Telecommunication
SWIFTNet FIN	store and forward messaging service for financial institutions on the new SWIFTNet platform

TARGET	Trans-European Automated Real-time Gross settlement Express Transfer system
TARGET2	second generation of the TARGET system
TCP/IP	Transmission Control Protocol/Internet Protocol
TfT	trade for trade
TIPANET	Transferts Interbancaires de Paiements Automatisés
Treaty	Treaty establishing the European Community
TRN	transaction reference number
VAT	value added tax
WAP	Wireless Application Protocol
XML	Extensible Markup Language



# BULGARIA

## CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>12</b>
<b>INTRODUCTION</b>	<b>13</b>
<b>1 INSTITUTIONAL ASPECTS</b>	<b>14</b>
1.1 The general institutional framework	14
1.2 The role of the Bulgarian National Bank	16
1.3 The role of other private and public sector bodies	20
<b>2 PAYMENT MEDIA USED BY NON-BANKS</b>	<b>22</b>
2.1 Cash payments	22
2.2 Non-cash payments	23
2.3 Recent developments	24
<b>3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS</b>	<b>25</b>
3.1 General overview	25
3.2 The real-time gross settlement system	25
3.3 The ancillary payment systems	29
3.4 Recent developments	30
<b>4 SECURITIES SETTLEMENT SYSTEMS</b>	<b>31</b>
4.1 Trading	31
4.2 Clearing	35
4.3 Settlement	35

## LIST OF ABBREVIATIONS

ACB	Association of Commercial Banks
BISERA	Banking Integrated System for Electronic tRAnsfers
BNB	Българска народна банка (Bulgarian National Bank)
BORICA	Bank Organisation for Payments Initiated by Cards
BSE-Sofia	Bulgarian Stock Exchange – Sofia
CDAD	Central Depository AD
DIF	Deposit Insurance Fund
FSC	Financial Supervision Commission
GSD	Government Securities Depository
GSSS	Government Securities Settlement System
LBNB	Law on the Bulgarian National Bank
LFTEPIPS	Law on funds transfers, electronic payment instruments and payment systems
LPOS	Law on the public offering of securities
RGF	Reserve Guarantee Fund
RINGS	Real-time Interbank Gross Settlement System (the national RTGS system)

## INTRODUCTION

Under the Law on the Bulgarian National Bank of 1997 (LBNB; last amended in 2005), the Bulgarian National Bank (BNB) assists in the establishment and functioning of efficient payment systems in Bulgaria and oversees those systems.

A number of significant steps have been taken over the last 15 years with a view to improving the Bulgarian payment systems. The Banking Integrated System for Electronic tRAnsfers (BISERA; the system processing customer transfers which are to be settled at a designated time) was introduced in 1992. The national card operator, the Bank Organisation for Payments Initiated by Cards (BORICA), was established in 1995 to process card payments in the Republic of Bulgaria. Two securities settlement systems have been established: the Government Securities Depository (GSD) in 1992 and Central Depository AD (CDAD) in 1996. In June 2003 the RTGS system RINGS was launched. This provides final settlement for all payments in the country. The payments netted beforehand in other systems are settled at designated times during the system day.

With the adoption of the Law on the Bulgarian National Bank in 1997, a currency board arrangement was introduced on 1 July 1997. Under the rules of this system, the aggregate amount of the Bulgarian National Bank's monetary liabilities (including all banknotes and coins in circulation) may not exceed the equivalent in Bulgarian levs of the gross foreign exchange reserves. The Bulgarian lev is pegged to the euro (BGN 1.95583 equals €1).

Cash payments are still widely used in the country. However, the share of non-cash payments is constantly increasing. The credit transfer is the predominant form of non-cash payment in terms of both value and volume. The volume of card payments has grown considerably in recent years.

## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL FRAMEWORK

The Law on funds transfers, electronic payment instruments and payment systems (LFTEPIPS) regulates payment systems in Bulgaria. Specific provisions governing securities settlement systems can be found in the Law on the public offering of securities (LPOS). The LFTEPIPS and LPOS are complemented by several ordinances completing the regulatory framework.

The LFTEPIPS states that a payment system: (1) must ensure the execution of transfers between its participants; (2) must have at least three participants, not including the settlement agent; and (3) must function on the basis of a written agreement containing general rules and standardised agreements, governed by the laws of the Republic of Bulgaria and concluded between the operator of the system and the other participants in the system, on the execution of transfers. The Bulgarian National Bank is responsible for the interoperability and integration of the Bulgarian payment systems. In addition, payment systems are serviced by system operators. The operation of systems is restricted to the Bulgarian National Bank and legal persons which hold a licence for the operation of a payment system. In accordance with the LFTEPIPS, the Bulgarian National Bank issued Ordinance No 3 on funds transfers and payment systems and Ordinance No 16 on electronic payment instruments (see Section 1.2.1).

Under the Law on the Bulgarian National Bank, the central bank is to assist in the establishment and functioning of efficient payment mechanisms and in the oversight of such mechanisms. The LBNB also provides that the Bulgarian National Bank may organise and operate payment systems and clearing offices to facilitate non-cash payments.

Commercial banks' operations are defined and regulated by the Law on banks of 1997 (last

amended in 2005). Under this legal framework, a bank is a joint stock company which accepts money from the public in the form of deposits and uses these funds to make loans and investments on its own account and at its own risk. That framework also provides that banks may handle non-cash payments and clear cheques presented by other persons, as well as containing rules governing the establishment of new banks and providing for penalties to be imposed on credit institutions in the event of the infringement of legislation. The Law also regulates the operation of foreign credit institutions through branches in the country. Bulgarian banks apply the Uniform Rules – as established by the International Chamber of Commerce in Paris – to cross-border credit transfers, as well as employing internationally acknowledged practices where issues are not covered by Bulgarian legislation.

A new Law on credit institutions was adopted by the Bulgarian parliament in July 2006 and entered into force on 1 January 2007. This Law defines banks and electronic money institutions as “credit institutions” and sets out the conditions and procedures governing licensing, the exercising of activities, and the supervision and winding up of credit institutions. The main aim of this regulation is to ensure a stable, reliable and secure banking system, as well as adequate protection of depositors. The new Law aims to bring national legislation fully into line with the regulatory provisions of Directive 2000/12/EC relating to the taking up and pursuit of the business of credit institutions (as amended, in particular by Directive 2000/28/EC amending Directive 2000/12/EC relating to the taking up and pursuit of the business of credit institutions); Directive 2000/46/EC on the taking up, pursuit of and prudential supervision of the business of electronic money institutions; Directive 2001/24/EC on the reorganisation and winding up of credit institutions; and Directive 89/117/EEC on the obligations of branches established in a Member State of credit institutions and financial institutions having their head offices outside that Member State regarding the publication of

annual accounting documents. The regulatory approach adopted by the Law on credit institutions should be regarded as a continuation and development of the existing legal regime, established through the Law on banks. One new element is the inclusion of the concept of "credit institutions", comprising, as indicated above, banks and electronic money institutions. The new Law is conducive to the efficient regulation of financial activity, since it outlines the legal regime and the basic requirements to be met with regard to the activities of e-money institutions. A complete list of transactions to be performed by the commercial banks is also included. The new Law retains the "single licence" principle, as well as setting out winding-up procedures in compliance with Directive 2001/24/EC. The Law on credit institutions contains details of the substantial risks faced by the banks in the course of their business activities that should be covered with their own funds, as well as distributing supervisory responsibilities between the authorities of the host and home countries. Thus, a framework for effective cooperation between the Bulgarian national central bank and foreign supervisory authorities is laid down.

The Law on bank deposit guarantee of 1998 (last amended in 2005) provides for the protection of bank customers. The Law protects the deposits of all customers, with the exception of those of financial institutions, the government, government agencies and municipalities. Deposits associated with money laundering are also excluded from that protection.

Bankruptcy procedures are in general laid down in the Law on commerce (last amended in 2005). A special Law on bank bankruptcy was adopted in 2002. That Law established bankruptcy proceedings for banks headquartered in the Republic of Bulgaria. The objective of bankruptcy proceedings for banks is to render, in the shortest time practicable, a bank's depositors and other creditors reasonably satisfied. Under the existing legal framework, the Bulgarian National Bank is the only institution which is entitled to request that a

court initiate bankruptcy proceedings. In the event of a bank becoming insolvent, the Bulgarian National Bank will revoke the bank's licence and request that the court initiate bankruptcy proceedings. If the BNB's request meets the legal requirements, the court is obliged to form a case on the day that request is received and must schedule a sitting no more than ten days later. The court is to rule no more than seven days after the sitting in which the consideration of the case was completed. On the date of insolvency, all unsecured credits granted by the bank become payable. In addition, the LFTEPIPS defines insolvency for a participant in a payment system as: (1) the revocation, owing to insolvency, of the licence of a commercial bank, or that of a branch of a foreign bank, for the conduct of banking activities in the country, as well as the initiation of bankruptcy proceedings against another participant in a payment system; and (2) any other legal measure provided for in the legislation and applied by an administrative or judicial authority against a participant in a payment system, which includes the compulsory restriction or suspension of a participant's payments. The moment of insolvency is the moment when the relevant judicial or administrative authority hands down its decision. No zero-hour rule is applied to payments.

The principal legal act governing the securities markets in Bulgaria is the Law on the public offering of securities, adopted by the Bulgarian parliament on 15 December 1999 (last amended in 2005). The main objective of this Law is to regulate: the public offering of and trading in securities; the operation of regulated securities markets; CDAD; investment intermediaries; investment companies; management companies; and the conditions in which such activities are carried out. The Law seeks to ensure the protection of investors and to create prerequisites for the development of a transparent and efficient capital market in the country. The LPOS defines concepts such as securities, regulated markets, transactions in securities, securities settlement systems, securities

settlement finality, investment intermediaries, investment companies and management companies, CDAD and the Financial Supervision Commission (FSC). The Law on the Financial Supervision Commission of 2003 (last amended in 2005) contains provisions on the establishment, scope of activities, structure, functions and operations of the Financial Supervision Commission. The government securities market operates under: Ordinance No 5 of the Ministry of Finance and the Bulgarian National Bank on the terms and conditions for acquisition, redemption and trade in book-entry government securities; Ordinance No 15 on control over transactions in book-entry government securities; and Ordinance No 31 on government securities settlement. The Law on the government debt, adopted in 2002, contains provisions on the procedure for issuing government debt, the types of debt, and the functions of the government debt agency.

The Law on measures against money laundering was adopted by the Bulgarian parliament in 1998 and was last amended in July 2006. The Law establishes measures to combat money laundering, as well as containing provisions on the organisation and monitoring of the enforcement of those measures. The Law seeks to prevent and detect money laundering by natural and legal persons. Money laundering is defined as preparing and executing actions – or taking receipt of the results thereof – through which cash or other property, and the yield therefrom, come into the ownership of a given person through, or in connection with, a crime and are introduced into the economic cycle. Money laundering also constitutes: the transformation or transfer of property acquired through, or in connection with, a crime; the concealment of the nature, source, location, disposal or movement of property – or the rights related thereto – where such property has been acquired through, or in connection with, a crime; and the acquisition, possession or use of property where it is known at the time of the receipt of such property that it has been acquired through, or in connection with, a crime. Money

laundering is also considered to occur in cases where the initial crime has been committed abroad and does not fall within the penal jurisdiction of the Republic of Bulgaria. Measures to prevent and detect money laundering activities involve the identification of persons and the collection, storage and disclosure of information about operations and transactions. These measures are mandatory for, among others, the Bulgarian National Bank and commercial banks, banks headquartered abroad that have been granted a licence by the Bulgarian National Bank to operate in Bulgaria through a branch, financial houses, currency exchange bureaus and providers of money transfer services from and to Bulgaria acting on their own behalf or on behalf of another. All persons covered by these requirements are expected to notify the Financial Intelligence Agency of any payment in cash with a value exceeding BGN 30,000 – or its equivalent in foreign currency – made by or to any of their clients. The Agency keeps a register of such payments. The register may be used only for the purposes of combating money laundering.

An important supplement to the framework established by the Law on measures against money laundering is the Law on measures against financing of terrorism. Adopted in 2003 and last amended in July 2006, this Law sets out measures to combat the financing of terrorism, as well as containing provisions on procedures and monitoring as regards the implementation of those measures. The Law seeks to prevent and detect actions by natural and legal persons, groups and organisations that are intended to finance terrorism. The Law provides for the blocking or freezing of funds, financial assets and other property, as well as a ban on the provision of financial services, funds, financial assets or other property.

## **1.2 THE ROLE OF THE BULGARIAN NATIONAL BANK**

### **1.2.1 GENERAL RESPONSIBILITIES**

The Bulgarian National Bank, which was established in 1879, is the national central bank

of the Republic of Bulgaria. Its primary objective is to maintain price stability by ensuring the stability of the national currency and implementing monetary policy as required by law. The BNB is required to act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources. Given Bulgaria's status as a Member State of the European Union, the BNB, without prejudice to the primary objective of price stability, supports the general economic policies in the European Community with a view to contributing to the achievement of the objectives of the European Community as laid down in Article 2 of the Treaty establishing the European Community. Without prejudice to the objectives listed, the BNB supports a policy of sustainable and non-inflationary growth.

The national central bank reports on its activities to the Bulgarian parliament, and the BNB and the government inform each other of their intentions and actions as regards the formulation of the general outlines of the BNB's monetary and credit policy. A currency board arrangement was implemented on 1 July 1997 through the new Law on the Bulgarian National Bank. Under the rules of this system, the aggregate amount of the BNB's monetary liabilities (including all banknotes and coins in circulation) may not exceed the equivalent in Bulgarian levs of the gross foreign exchange reserves (€7,370.3 million as at December 2005). The Bulgarian National Bank is obliged, on demand, to sell and purchase any amount of euro against levs within Bulgaria.

#### ***Statutory responsibilities***

In the field of payment systems, the LBNB provides that the BNB may organise and operate payment systems and clearing offices to facilitate non-cash payments, as well as issuing ordinances regarding the establishment and operation of such systems and offices.

In accordance with the LBNB, the national central bank also acts as the state's fiscal agent and depository pursuant to contracts ensuring that services are offered under market conditions

and at market prices. In its capacity as the state's fiscal agent and depository, the BNB: provides banking services for the accounts and payments included in the single account system, on behalf and on the account of the Ministry of Finance; collects and provides to the Ministry of Finance regular information on the budget entities' bank accounts in the country; acts as an agent for government debt or government guaranteed debt; and performs any other activities agreed with the Minister for Finance. In its capacity as an agent for government debt, the BNB holds government securities accounts, which are registered by debt acquirers. In addition, the BNB may act as a representative by proxy of the Council of Ministers for purposes and under conditions agreed between the Council of Ministers and the BNB.

Furthermore, the Bulgarian National Bank has the exclusive right to issue banknotes and coins in the country.

#### ***Establishment of common rules***

The Bulgarian National Bank has the right to issue by-laws in the form of ordinances, including ordinances on the regulation of payments. The two such ordinances currently in force are Ordinance No 3 on funds transfers and payment systems, and Ordinance No 16 on electronic payment instruments. Ordinance No 3 governs: the opening and holding of bank accounts and bank account reporting; the main forms of non-cash transfer, procedures for their execution by banks and the payment documents in use; the requirements for the provision of information while executing domestic and cross-border transfers; the methods for the correction of errors in the case of non-cash transfers; the requirements for payment systems and the activities of system operators; settlement execution in the Bulgarian National Bank; and the terms and procedures applicable to the granting of licences for carrying out activities as the operator of a payment system in Bulgaria. Ordinance No 16 governs: the minimum contents of contracts related to the use of electronic payment instruments; the procedure for issuing bank payment cards and executing

payments and other transactions with them; the provision of electronic payment services; the conditions applicable to the issuance of electronic money; the reporting related to electronic payment instruments; and the protection and exchange of information related to the use of electronic payment instruments.

In close cooperation with Bankservice and representatives of the commercial banks, the BNB also issues guidelines to supplement ordinances on payment activities.

#### *Supervision and audit*

One of the major tasks of the Bulgarian National Bank is to regulate and supervise banking activities in order to ensure the stability of the banking system and to protect the interests of depositors. The BNB grants banking licences and payment system operators' licences, conducts on-site inspections and collects data from banks and system operators. The legal framework for that banking supervision is provided by the Law on banks, while a separate chapter in the LFTEPIPS exhaustively regulates payment oversight activities.

#### **I.2.2 PAYMENT SYSTEMS OVERSIGHT**

The LFTEPIPS provides that payment systems oversight is carried out by the BNB. Subject to payment systems oversight are: (1) system operators (e.g. the card payments operator BORICA, and Bankservice, the operator of BISERA) and the other participants in payment systems; (2) performing institutions, intermediary institutions, issuers of electronic payment instruments and all other legal persons insofar as their activities relate to the functioning of payment systems; and (3) the payment mechanisms in the settlement systems for corporate and government securities.

When exercising payments oversight, the BNB has the right to require that all relevant parties provide all necessary documents and information on the activities of the said parties. It is also entitled to have on-site inspections conducted by officials and other persons authorised by the BNB. Persons who are subject to payments

oversight are required to ensure the provision of all necessary information and cooperation, as well as to refrain from any actions which may impede the conduct of the said oversight. Where on-site inspections are carried out, system operators and other persons subject to payments oversight are required to allow the persons charged with oversight functions to attend meetings of the governing bodies of those system operators. While exercising payments oversight, the BNB cooperates with central banks overseeing the payment systems in other countries, with institutions supervising the financial system and with independent auditors. The BNB has the right to exchange any information necessary for payments oversight with the said institutions and auditors.

#### **I.2.3 THE OPERATIONAL ROLE OF THE CENTRAL BANK**

The Bulgarian National Bank owns and operates RINGS, the Bulgarian RTGS system. The BNB is a shareholder in both Bankservice AD (the operator of BISERA) and the recently privatised BORICA AD (the card payments operator).

In the area of securities settlement systems, the BNB's Fiscal Services Department operates the Government Securities Depository. The BNB is a shareholder in Central Depository AD (the operator of the corporate securities settlement system).<sup>1</sup>

#### *Implementation of monetary policy*

Until June 1997 the BNB implemented its monetary policy through open market operations (repo and reverse repo operations), outright sales and purchases of government securities, Lombard loans, the discount window and the minimum reserve requirement. After the introduction of the currency board arrangement on 1 July 1997, the number of monetary policy instruments used by the BNB was reduced. Now only the minimum reserve requirement is employed. At present the non-interest-bearing

<sup>1</sup> As at 31 December 2005 the Bulgarian National Bank held 36.12% of shares in Bankservice AD, 36.26% of shares in BORICA AD and 20% of shares in Central Depository AD.

reserve requirement amounts to 8% of the banks' deposit base. Furthermore, the BNB has introduced additional minimum required reserves that are subject to the growth rate of all extended loans offered by commercial banks for each successive three-month period. Banks may use the funds in their current accounts on any particular day without limitation, since the minimum reserve requirement must be fulfilled on an average monthly basis. However, overdrafts on the current accounts are not allowed. The BNB also has the function of lender of last resort (see below).

#### ***Provision of credit facilities***

Under the currency board arrangement, the ability of the BNB to refinance banks is strictly limited to exceptional circumstances. No overdraft or securities lending facilities are provided.

In accordance with BNB Ordinance No 6 on extending collateralised loans denominated in Bulgarian levs to banks, the BNB may only extend credit denominated in Bulgarian levs with a maturity of up to three months to a solvent bank in the event of a liquidity risk that may affect the stability of the banking system. Such credit must be fully collateralised by government securities, gold, foreign currency or similar highly liquid assets. The interest rates applied to such credit are higher than the market rates. In normal circumstances, however, banks borrow funds on the interbank money market.

In order to provide liquidity to the banking system, the BNB has, under the currency board arrangement, established a mechanism for trading euro against Bulgarian levs during the working day of the RTGS system.

#### ***Provision of settlement accounts***

All banks are obliged to maintain settlement accounts with the BNB. These accounts service the funds transfer activities of banks in the RTGS system for all payment systems. They are used for the transfer of funds associated with interbank payments (retail and large-value),

government securities transactions, corporate securities transactions, payments initiated by the use of bank cards and the holding of minimum reserves, etc.

The BNB also provides current and deposit accounts to fiscal and other government authorities, as well as to other public sector bodies. At present all current accounts are non-interest-bearing.

Under the LBNB, the central bank may open accounts for investment intermediaries for the purpose of effecting transactions in government securities. Each primary dealer holds custody accounts for its own portfolio and for its customers' portfolios with the GSD. The accounts are divided into sub-accounts in order to distinguish between the different issues of government securities. For more details concerning primary dealers, see Section 4.3.1.

#### ***Pricing policies***

The BNB, as owner and operator of RINGS, has set tariffs for the provision of payment services by this system. These fees fall into the following broad categories: initial participant certification fee, annual fee for participation in the system, fees for extraordinary services, and transaction fees. For details of pricing policies for securities settlement services, see Sections 4.3.1.8 and 4.3.2.9.

### **1.2.4 ACTIVITIES IN THE FIELD OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

#### ***Statutory responsibilities***

In the field of securities markets, the LBNB and the Law on the government debt make the Bulgarian National Bank responsible for managing the Government Securities Depository. In this capacity, the BNB provides primary dealers of government securities with a system to hold and settle these securities. The GSD is a computerised system for the registration, safekeeping, management and servicing of book-entry government securities. It is administered by the Fiscal Services Department of the BNB. The national central

bank also provides the market with daily information on the value and volume of transactions handled by the GSD. For further details, see Section 4.3.1.

#### ***Establishment of common rules***

The BNB and the Ministry of Finance have issued Ordinance No 5, which establishes the rules to be followed by participants in the primary and secondary government securities markets, and Ordinance No 15 on control over transactions in book-entry government securities, which establishes the main objectives of the exercise of control over transactions in book-entry government securities and the procedures and manner in which such control is to be exercised. The BNB has also issued Ordinance No 31 on government securities settlement, which provides for the settlement of transactions in book-entry government securities, which is conducted in the primary and secondary markets under Ordinance No 5. Ordinance No 8 of the Financial Supervision Commission contains the basic rules for the operation of Central Depository AD (see Section 4.3.2).

#### ***Supervision and audit***

The BNB also supervises the activities of commercial banks in the fields of securities trading and settlement. The Bulgarian National Bank administers the GSD and oversees the payment mechanisms in the settlement systems for corporate and government securities (CDAD and the GSD respectively). General supervision of the Bulgarian Stock Exchange – Sofia (BSE-Sofia) and Central Depository AD is performed by the Financial Supervision Commission (see Section 1.3.3).

### **1.2.5 COOPERATION WITH OTHER INSTITUTIONS**

#### ***The National Council on Payment Systems***

The National Council on Payment Systems (NCPS) was established in 2005 as a successor to the National Committee on Payment Systems (which was established in 1999). It consists of representatives of various institutions involved in payment processes in Bulgaria. The Council's

objective is to draw up strategies for the development of payments infrastructure and to organise and coordinate Bulgaria's entry into the euro area in the field of payment systems infrastructure. In addition, the Council is responsible for the realisation of the Single Euro Payments Area (SEPA) project in Bulgaria.

In order to realise its objective, the NCPS represents the interests of participants in the Bulgarian payment systems, coordinates the actions of different public agencies, promotes innovation and determines the specifications for the integration of Bulgarian payment systems into the international payments infrastructure.

### **1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES**

#### ***1.3.1 THE ASSOCIATION OF COMMERCIAL BANKS***

The Association of Commercial Banks (ACB) is an independent representative organisation established in 1992 by the State Savings Bank and the commercial banks operating in Bulgaria. The ACB currently has 27 regular members (as at 1 April 2005) and four associate members. The ACB assists its members in their banking activities and protects their rights. To this end, it:

- coordinates the positions of banks in their activities;
- represents and protects the rights of banks in their relations with government authorities, public organisations, foreign and international organisations, and other legal and natural persons;
- promotes fair competition between banks;
- represents banks in the implementation of new banking legislation or the amendment of existing legislation;

- provides training to improve the skills and expertise of bank employees; and
- contributes to the improvement of banking technologies.

### 1.3.2 THE DEPOSIT INSURANCE FUND

The Deposit Insurance Fund (DIF) is a legal entity established under the Law on bank deposit guarantee. It covers deposits up to a certain specified amount in the event of a bank becoming insolvent. The DIF determines and collects an entry fee and annual premiums from the banks. The entry fee is equal to 1% of the registered capital of the bank (but is no less than BGN 100,000 (€51,129)). The annual premium is fixed at 0.5% of the total daily average of the previous year's deposit base. The DIF's resources are invested in government securities, short-term deposits with commercial banks, which are primary dealers of government securities, and deposits with the Bulgarian National Bank.

The DIF guarantees the full repayment of funds deposited with a bank, regardless of the number of accounts, up to a total of BGN 40,000 (€20,452).

Participation in the deposit insurance scheme is mandatory. Branches of foreign banks located in Bulgaria also participate in the scheme, where the home country of the head office of the bank has no deposit guarantee scheme or – if such a scheme does exist – the scheme in question provides for a smaller guaranteed amount or is not applicable to the bank's branches abroad. The guarantee does not apply to the deposits of financial institutions, the government or its agencies, municipalities or entities connected with the bank in question (holders of more than 5% of the bank's share capital, members of the bank's management or supervisory board, members of the bank's internal audit bodies, etc.). Deposits associated with money laundering transactions or actions are also excluded from the guarantee.

### 1.3.3 THE FINANCIAL SUPERVISION COMMISSION

The Financial Supervision Commission is a government institution which ensures the protection of investors and encourages the development of the securities market. It regulates, controls and supervises the issuance and trading of securities (excluding government securities), the regulated securities markets (i.e. both the official market, operated exclusively by the stock exchange, and the unofficial market),<sup>2</sup> Central Depository AD, investment and management companies, special-purpose investment companies, securities brokers and investment advisors, public companies and other issuers of securities, insurance companies, insurance brokers and insurance agents, health insurance companies, and supplementary social insurance companies and the funds administered by them.

The FSC grants licences to the above-mentioned institutions and is also responsible for their revocation (see Section 4.1.3). The FSC also maintains registers of stock exchanges, investment intermediaries and issuers (including public companies), as well as of investment companies offering securities for public sale.

### 1.3.4 MASS PRIVATISATION

The first wave of mass privatisation started at the end of 1996. Many people preferred to participate indirectly through specialist privatisation funds and became shareholders in those funds. Others participated directly in the auctions. The second wave started at the beginning of 1999. Participants can pay with both investment vouchers and other types of voucher, as well as in cash. Privatisation funds were transformed into investment companies.

### 1.3.5 CENTRAL DEPOSITORY AD

CDAD was established as a joint stock company in 1996. CDAD's shareholders are major commercial banks and investment intermediaries. Under current legislation, the role of CDAD is to:

<sup>2</sup> At the end of 2001 the Bulgarian Stock Exchange – Sofia was granted a licence to operate the unofficial market as well.

- maintain a reliable system for the book-entry registration of dematerialised shares;
- maintain registers of securities traded;
- maintain shareholders' registers of companies traded;
- immobilise share certificates which are subject to public trading; and
- maintain the register of pledged securities.

### 1.3.6 BULGARIAN STOCK EXCHANGE – SOFIA

The Bulgarian Stock Exchange – Sofia is the only stock exchange and regulated securities market operating in Bulgaria. Its shareholders are the government, commercial banks and other financial intermediaries. For more details regarding the operations of the BSE-Sofia, see Section 4.1.

### 1.3.7 FINANCIAL INTERMEDIARIES PROVIDING PAYMENT SERVICES

#### *Banks*

Commercial banks in Bulgaria are universal banks, i.e. they carry out the whole range of banking activities. The legislation in force does not differentiate between commercial, savings, mortgage and cooperative banks. All banks have the right to offer all types of banking service, including different types of payment service, deposits, credit, and foreign exchange and securities transactions. Each bank determines the fees and commission applicable to its own customers in accordance with its own policy, without any legal constraints. There are also no restrictions with regard to the number and location of bank branches. There were 33 banks (including branches of foreign banks) operating in Bulgaria as at December 2005.

#### *The postal system*

Bulgarian Post Office branches do not have the status of a credit institution, but they participate in payment transactions in three different ways. First, under agreements with the Post Office branches, commercial banks provide payment

services and deposit accounts via the Post Office branches. Second, the postal system is involved in the payment of pensions. Third, domestic cash transfers are made through the postal system. Every ten days a netting of cash payments takes place between the Post Office branches, and the funds due are transferred through current accounts held with the commercial banks or through BISERA.

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

The monetary unit of the Republic of Bulgaria is the lev. After the redenomination effected on 5 July 1999 (when the old lev (BGL) was replaced by the new lev (BGN) at a rate of 1,000:1) the traditional subdivision was reinstated, with 1 new lev comprising 100 stotinki. Banknotes used to be produced abroad, but in 1998 the BNB started operating its own printing works, ownership of which has been shared with the Ministry of Finance since 2004. The coins are minted in the Bulgarian Mint, a company wholly owned by the BNB. The central bank distributes and collects banknotes and coins through its head office and its branches across the country.

At the end of 2005 the banknotes in circulation in Bulgaria had the following denominations: BGN 1, BGN 2, BGN 5, BGN 10, BGN 20, BGN 50 and BGN 100. The following coins were in circulation: BGN 0.01, BGN 0.02, BGN 0.05, BGN 0.10, BGN 0.20, BGN 0.50 and BGN 1. There are also commemorative coins. In terms of value, BGN 50 banknotes account for 45.96% of total banknotes in circulation. In terms of volume, BGN 20 banknotes have the largest share, at 31.13%. In terms of value, banknotes account for 98.41% of money outside the BNB.

Cash payments are widely used in Bulgaria. At the end of 2005 banknotes and coins in circulation accounted for 47.15% of the monetary aggregate M1 and represented 13.99%

of GDP. Most salaries are still paid in cash, although the number of employers paying their employees' salaries into accounts with a debit card facility has increased in recent years.

## 2.2 NON-CASH PAYMENTS

Non-cash payments include funds transfers (credit transfers and direct debits) executed by debiting the originator's account and/or crediting the beneficiary's account, as well as payments performed through an electronic payment instrument. The only institutions authorised to execute non-cash transfers are the BNB, commercial banks and branches of foreign banks. A credit transfer is executed on the basis of a transfer order submitted by the originator, as a result of which: (1) the originator's executing institution debits the originator's account, and the beneficiary's executing institution credits the beneficiary's account or pays the beneficiary the cash available; or (2) the originator deposits the cash available with the originator's executing institution, and the beneficiary's executing institution credits the requisite amount to the beneficiary's account or pays the beneficiary the cash available. A direct debit is executed on the basis of a transfer order given by the originator – which is also the beneficiary – to debit the account of a third party which has, in advance, granted written consent to the executing institution authorising the debiting.

Any person may hold accounts in national or foreign currency without limitation. Most banks offer accounts in Bulgarian levs, US dollars, euro, pounds sterling and Swiss francs.

### 2.2.1 CREDIT TRANSFERS

This is the most widely used form of non-cash payment between entities in the corporate and public sectors. It is also used for the payment of salaries, taxes, duties, subscription fees, etc. There are two systems that process domestic credit transfers:

1. The Bulgarian RTGS system RINGS. This system processes only credit transfers. In 2006

0.69% of the volume and 72.90% of the value of payments effected by means of the various systems in the country were processed in the RTGS system. Settlement takes place in real time, and the sending and receiving banks have a maximum of one hour each for internal processing.

2. The retail payments system BISERA. 97.62% of the volume and 99.02% of the value of payments processed in BISERA are credit transfers. BISERA sends payment batches to RINGS twice a day for settlement, so payments are executed on the same day or the next day depending on the time the payment is sent to BISERA.

In order to execute cross-border credit transfers, Bulgarian banks use correspondent accounts held with foreign banks, and the payments are executed using SWIFT. These transactions normally take up to three working days, but may take longer for smaller banks with a limited number of bank correspondents abroad. The institution effecting the transfer must supply its customers with accessible information on the general conditions and procedures for executing payments, including the time needed and the applicable charges and commission fees.

### 2.2.2 CHEQUES

Cheques have never been an extensively used payment instrument in Bulgaria. They account for a negligible percentage of all payments, the main reason being the risk associated with them. They are used only between reliable counterparties.

### 2.2.3 DIRECT DEBITS

This form of non-cash payment is generally used by customers for payments to providers of electricity, water, telephone and heating services. Direct debits are processed in BISERA. In the second half of 2006 only 2.38% of the volume and 0.98% of the value of payments processed in BISERA were direct debits.

## 2.2.4 PAYMENT CARDS

### *Debit cards*

The use of this instrument is increasing from year to year. Most widely used are debit cards issued by domestic banks. By the end of 1997 eight banks were issuing bank cards. By the end of 2006 the number of issuers had reached 25. Cardholders' accounts are debited on a per-transaction basis (both for cash withdrawals and for purchases). Some banks offer an overdraft facility to selected customers.

Bulgarian banks, which are members of the international card organisations Visa and MasterCard, issue the domestic and international debit cards Visa Electron and Maestro.

In recent years more customers have been paying their utility bills through ATMs using their debit cards, with 582,477 such transactions effected in 2006.

### *Credit cards and travel, retailer and entertainment cards*

The use of credit cards is increasing. Bulgarian banks issue credit cards under agreements with the international card organisations Visa and MasterCard. The international credit cards currently issued by Bulgarian banks are: Visa (Visa Classic, Visa Business Card and Visa Gold) and MasterCard (MasterCard Standard, MasterCard Business Card and MasterCard Gold). Several banks have agreements with American Express for the distribution of Amex cards (classic, business and gold). Diners Club credit cards are issued by Diners Club Bulgaria (Diners Club Classic) and First Investment Bank (Diners Club/First Investment Bank co-brand). Travel, retailer and entertainment cards are also issued in the country.

### *Prepaid cards*

Telecommunications companies and petrol station chains issue prepaid cards. The use of these cards has increased very rapidly. The coin-operated telephone network has, to a large extent, been replaced by a large network of

telephones that can be operated using prepaid chip-cards.

### *The ATM and POS networks*

The ATM and POS networks are growing. BORICA is the sole card operator in the country. Three commercial banks with authorisation centres operate their own ATM and POS networks. All of the networks in the country are interoperable.

In 1995 there were only 32 ATM terminals in Bulgaria. In 2001 there were 642, and by the end of 2006 the number had increased to 2,360 and was still growing. There were 100 electronic POS terminals in 1997, over 1,980 in 2001 and 20,906 by the end of 2006.

## 2.2.5 MONEY REMITTANCE SERVICES

Several commercial banks offer the services of various money remittance systems, such as Western Union, MoneyGram, Xpress Money, Exact Transfer and Travelex.

## 2.3 RECENT DEVELOPMENTS

There is significant interest in Bulgaria in making payments via the internet. A system called ePay.bg was developed in 1999. It allows a cardholder to pay for services or goods via the internet after registering the card. The technology for making payments via the internet is based on a third-party trusted payment server connected to the host of the BORICA card system. This enables the authorisation of each transaction via the internet in real time. Most cardholders use this system for transferring money from their card accounts to other accounts at the same or another bank. By the end of 2006 there were 268 electronic shops and companies offering goods and services connected to ePay.bg, and 1,746,102 transactions, with a total value in excess of BGN 63,074 million, were made through this system in 2006.

### 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

#### 3.1 GENERAL OVERVIEW

The BNB is striving to develop a modern national payments infrastructure and to reduce systemic risk in the execution of payments in Bulgaria. These efforts resulted in the establishment of the national real-time interbank gross settlement system RINGS, which began operations on 2 June 2003.

Before the introduction of RINGS all non-cash payments in Bulgaria were executed through the designated-time gross settlement system BISERA.

The RTGS system has the following advantages:

- the possibility of real-time settlement during the same business day;
- the execution of payments only where the credit balance is sufficient;
- the higher level of security in the exchange of financial messages (using the SWIFT network);
- the possibility of integration with other payment infrastructures;
- information and facilities which allow optimal liquidity management by the commercial banks;
- effective risk management by the BNB; and
- liquidity savings as a result of the netting performed by the ancillary systems BISERA, BORICA and CDAD, which are direct participants in RINGS.

Before the introduction of RINGS, BISERA operated as a gross system with payment execution on the next day. Once RINGS began

operating, BISERA was transformed into a system calculating participants' positions on a multilateral net basis and became a direct participant in the RTGS system. It started processing payments up to the value of BGN 100,000. BISERA does not support queues of pending payments and submits settlement batches twice a day in line with RINGS' schedule. All of those changes reduced commercial banks' bilateral exposures and minimised the risks associated with settlement.

Following the introduction of RINGS, the card processing system BORICA started submitting settlement batches to the RTGS system twice a day. Previously BORICA used to send bilateral participants' positions to BISERA for settlement once a day.

#### 3.2 THE REAL-TIME GROSS SETTLEMENT SYSTEM

The launch of RINGS led to a decline in systemic risk, increased effectiveness and security, and speeded up the processing of payments. The system holds the settlement accounts of the BNB and 33 commercial banks, plus the accounts of three non-bank financial institutions in their capacity as primary dealers of government securities.

RINGS processes only credit transfers, with no restrictions imposed on the value of the payment. The system provides final settlement for all non-cash payments in Bulgarian levs effected in Bulgaria. The system uses the SWIFT network as a payment message transfer platform, specifically the SWIFT FIN-Y Copy service.

##### 3.2.1 OPERATING RULES

RINGS' operating rules and procedures are described in a document entitled "Operating Rules and Procedures of the Real-time Gross Settlement System (RINGS)", which is adopted and amended by the BNB Managing Board.

This document applies to all participants in the RINGS system and covers issues related to participation, the temporary suspension and exclusion of a participant in RINGS, pricing, and the mechanism for the processing and execution of payments.

The operating rules also contain a detailed description of the SWIFT message types accepted by RINGS for the various payment documents in use in Bulgaria, as well as rules describing the measures to be taken in emergency situations and governing the provision of additional liquidity to the system.

### **3.2.2 PARTICIPATION IN THE SYSTEM**

Participating in RINGS are the BNB, all 33 commercial banks and branches of foreign banks (settlement account holders), and the following systems:

- (i) BISERA – the system used for servicing customer payments to be settled at a designated time;
- (ii) BORICA – the system used for servicing payments initiated with bank cards in Bulgaria;
- (iii) the CSD – the system (operated by CDAD) used for servicing payments in book-entry securities transactions; and
- (iv) GSSS – the system (administered and operated by the BNB) used for servicing payments in government securities transactions.

Commercial banks' participation in RINGS requires: a contract with the BNB authorising participation, payment of participation fees, certification, and a contract for participation in the Reserve Guarantee Fund (RGF).

### **3.2.3 TYPES OF TRANSACTION HANDLED**

The following types of payment should always be executed via RINGS:

### **1. Payments of systemic importance:**

- all payments for which the primary initiator and the end beneficiary are settlement participants;
- payments based on settlement batches sent by the system operators; and
- payments by banks' customers with a value equal to or in excess of BGN 100,000.

### **2. Payments resulting from transactions on special accounts of investment firms that are primary dealers in the BNB which are designated for payment in government securities transactions. RINGS provides settlement finality for money transfers and payments in securities transactions.**

Payments by commercial banks' customers entered into the system at the request of those customers (regardless of the value of those payments) may also be effected via RINGS.

### **3.2.4 OPERATION OF THE TRANSFER SYSTEM**

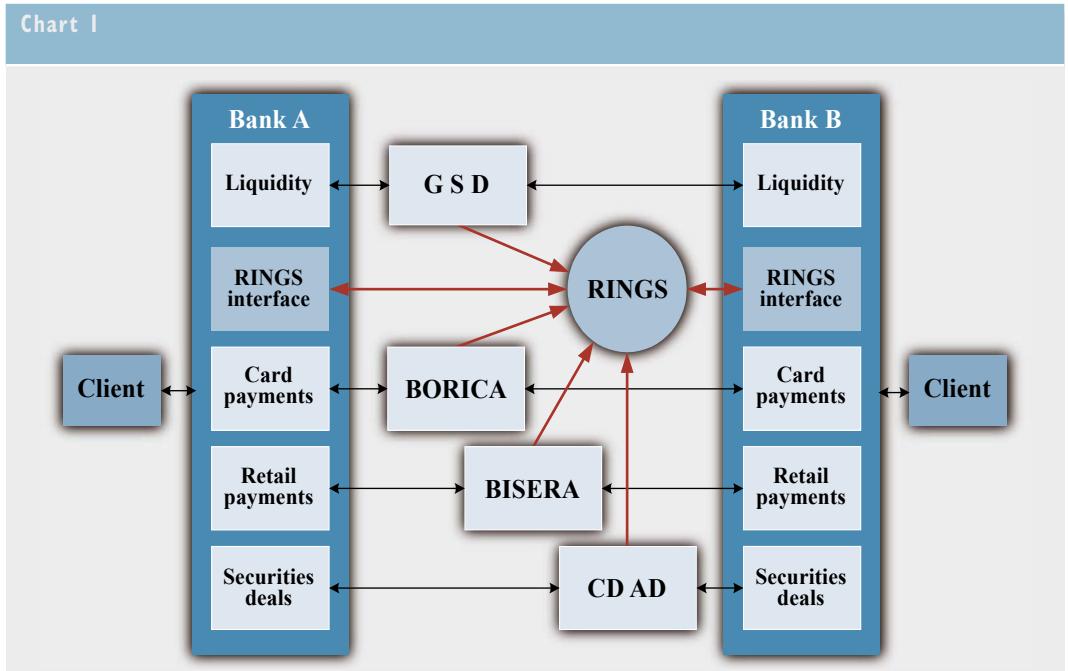
The transfer system in Bulgaria is composed of the various existing payment systems, which function on the basis of the principle of interoperability. The payment systems are operated by system operators. All of the systems settle in RINGS, which concentrates the risks associated with settlement. RINGS is monitored, operated, administered and supervised by the national central bank. The settlement accounts of all commercial banks are held in RINGS. The BNB, in its role as system operator for the RTGS system, is the settlement agent for the country.

The architecture of the payment infrastructure in Bulgaria is represented in the diagram below.

### **3.2.5 TRANSACTION PROCESSING**

RINGS performs the irrevocable and unconditional settlement of all non-cash payments in national currency in Bulgaria, using the SWIFT network as a payment message

Chart 1



transfer platform and using the SWIFT FIN-Y Copy service. The choice of this secure medium for the transfer of payment instructions ensures the compatibility of the country's RTGS system with international standards. A payment in RINGS can be settled individually in accordance with the FIFO principle within its priority level, provided that there are sufficient funds on the account of the payer's bank. Payments are placed in a queue and remain pending until sufficient funds are received to cover the outstanding payments. RINGS has no mechanism available for intraday credit, owing to restrictions imposed by the currency board arrangement in Bulgaria.

In order to secure sufficient liquidity, the commercial banks can trade on the money market during the system day, execute transactions in government securities and sell euro to the BNB with a same-day value date.

Those payments which remain unsettled at the end of the system day must be sent again to the system on the next business day.

The schedule of the RINGS system day is as follows:

#### Operating hours: 8 a.m.-5.30 p.m. CET+1

8 a.m. CET+1	Start of the system day
8 a.m. CET+1	Execution of budget payments from the Ministry of Finance's single account
9.30 a.m. CET+1	BORICA batch acceptance
10.30 a.m. CET+1	BISERA batch acceptance
2 p.m. CET+1	BORICA batch acceptance
3 p.m. CET+1	CDAD batch acceptance
3.30 p.m. CET+1	BISERA batch acceptance
3.45-5.30 p.m. CET+1	Liquidity provision period
5.30 p.m. CET+1	End of the system day

#### 3.2.6 SETTLEMENT PROCEDURES

Settlement in the BNB comprises the transfer of funds, in national currency, between the settlement accounts held with the BNB by the participants in the settlement. The Bulgarian National Bank and all commercial banks participate in settlement. All participants in settlement must open and maintain a settlement account with the BNB. The national central bank services the accounts of commercial banks as participants in settlement under a contract

signed by them. The BNB is the settlement agent and provides settlement if there are sufficient funds on the payer's settlement account. The settlement of any non-cash transfer must be carried out only on the settlement accounts held with the BNB as follows:

1. Payments initiated by settlement requests by the system operators are settled at a designated time in accordance with a schedule approved by the BNB.
2. All other payments must be settled immediately.

Settlement in the BNB is final once the beneficiary's account has been credited. Payment orders forwarded to RINGS which have not been settled by the end of the system day owing to a lack of sufficient funds on the payer's settlement account are rejected, although information related to them is retained. A bank whose payment order has been rejected by the RINGS system is obliged to forward to RINGS at the beginning of the next system day the same payment order with an updated value date.

In order to ensure a smooth settlement process, the BNB may:

1. determine and set limits on the settlement accounts on the basis of requests filed by participants in settlement, including requests filed via system operators;
2. determine payment priorities; and
3. design mechanisms to provide sufficient funds to settlement accounts with a view to finalising payments initiated by system operators, including guarantee schemes using funds raised from the settlement accounts of commercial banks as participants in settlement.

One such scheme is the Reserve Guarantee Fund, which was established as a guarantee mechanism to ensure the settlement of payments

initiated by the system operators of RINGS' ancillary systems. Every bank participates in the RGF and the size of its "participation share" is determined as a proportion of total RGF resources in accordance with methods approved by the BNB. The management and operation of the RGF are based on rules approved by the RGF's Management Board. Where additional funds are required for the settlement of the requests forwarded by the system operators, banks are allowed to use the RGF's resources as follows:

1. Resources up to the level of a bank's participation share may be used without any additional requirements and without accruing interest.
2. Resources in excess of a bank's participation share require the provision of collateral.

The resources used by the banks become payable at the beginning of the system day following the date of extension and are deemed overdue at the moment the first settlement request of the day is forwarded to RINGS by the system operator.

Settlement finality is ensured through provisions stipulating that the revocation of a participant's licence owing to insolvency does not preclude the use of cash available on the participant's settlement account on the date in question prior to the revocation of that licence to allow the participant's obligations arising from its participation in RINGS and the ancillary systems to be met. The revocation of a participant's licence owing to insolvency does not render void the rights and obligations of the participant ensuing from or related to its participation in RINGS and the ancillary systems prior to the revocation of that licence.

### **3.2.7 CREDIT AND LIQUIDITY RISK**

Systemically important payments are processed in real time. On account of the multilateral netting executed by the system operators (BISERA, BORICA and CDAD), the banks need around 6.75 times less liquidity for the

settlement of payments initiated by the system operators.

Commercial banks can trade on the money market throughout the RINGS system day. These can execute real-time monitoring and liquidity management by setting and changing bilateral limits and through queue management (i.e. the changing of priorities), following the FIFO principle. The BNB performs real-time overall monitoring and liquidity management by setting and changing limits on commercial banks' accounts as regards the minimum available funds.

In order to improve the system's liquidity, the BNB has organised and operates the Reserve Guarantee Fund. The RGF is a mechanism involving commercial banks which aims to ensure the settlement of the ancillary systems' batches. It should be activated at the end of the system day in the event of insufficient funds on the settlement account of a bank with a debit position in a batch. All commercial banks participate in the RGF. Banks' participation shares are included in their reserve assets when the BNB conducts its monthly calculations reporting on the fulfilment of banks' minimum reserve requirements. The use of RGF resources in excess of the amount of a bank's participation share is conditional on the provision of collateral. A bank can use RGF resources with a value of up to three times its participation share in the RGF.

In 2004, following the implementation of the new system, more than 69% of the value of all cashless payments was processed through RINGS. That corresponds to less than 0.5% of the total volume of payments.

### 3.2.8 PRICING

In setting the tariffs for RINGS services, the BNB was guided by the principle of the full recovery of investment costs and the coverage of maintenance and support costs. The RINGS tariff is publicly available on the BNB website.

The introduction of differentiated prices for time bands within the RINGS system day aims to encourage banks and their customers to initiate payments in the earlier hours of the system day.

#### Tariffs

Time band	Transaction price in BGN
8 a.m.-12 noon CET+1	1.25
12 noon-2.30 p.m. CET+1	2.00
2.30-3.45 p.m. CET+1	3.00
3.45-5.30 p.m. CET+1	1.25

### 3.2.9 STATISTICAL DATA

In 2006 983,273 payments were settled in RINGS. 93.53% of these were bank customers' payments. The total value of RINGS payments for that year was around BGN 230,002.6 million, with bank customers' payments accounting for 44.28% of that value. A daily average of 3,902 transactions was settled in RINGS in 2006, with a total daily average value of around BGN 912.7 million.

## 3.3 THE ANCILLARY PAYMENT SYSTEMS

### 3.3.1 BANKING INTEGRATED SYSTEM FOR ELECTRONIC TRANSFERS

BISERA is an interbank system for the processing of payments with a value below BGN 100,000. The system processes credit and debit transfers at a designated time twice a day, by calculating the positions of all the participants on a multilateral net basis and submitting a request for settlement to RINGS twice a day. The payments processed by the system are considered final after their settlement in RINGS. In 2006 BISERA processed 51,301,175 payments, with a total value of around BGN 75,505.7 million. At the end of 2006 there were 34 direct participants in BISERA.

### 3.3.2 THE CARD PAYMENTS SYSTEM BORICA

The card payments system BORICA is operated by a company with the same name. BORICA Ltd is one of the operators of ATM and POS networks in Bulgaria and acts as a

processing company for the cards of Visa International's member banks and as a third-party service provider for MasterCard member banks in Bulgaria.

The authorisation of interbank payments resulting from operations carried out with bank cards is effected by the card issuer or the servicing card operator. BORICA Ltd, as system operator, is obliged to provide a link to the RTGS system, to test and approve the technical and programming equipment of its participants, and to provide an online link between its system and the ATM and POS terminals in Bulgaria. BORICA is authorised by its members to act as an intermediary in the settlement of payments performed with bank cards. The settlement of payments initiated with bank cards is effected through BORICA in RINGS.

At the end of 2006 2,360 ATMs and 20,906 POS terminals were connected to BORICA, with a total of 3,393,309 cards being serviced by BORICA. 90,523,854 transactions were processed during that year, with a total value of around BGN 7,355.5 million. At the end of 2006 there were 22 direct participants in BORICA.

#### 3.4 RECENT DEVELOPMENTS

On 5 June 2006 the IBAN standard for account numbering was introduced in Bulgaria. The IBAN code has 22 digits and, together with the BIC code, is mandatory for all domestic and cross-border payments.

The use of IBAN codes is regarded by the BNB as a step towards the alignment of the national payment systems with European standards, allowing at the same time the further automation of payment processing in Bulgaria. Such modernisation can already be seen in the retail payment system BISERA and the payment instruments and infrastructures of commercial banks.

Since 5 June 2006 the messages sent through BISERA have also been processed in SWIFT format, thus improving the efficiency of money

transfers, as commercial banks are able to share a common interface to BISERA and the real-time gross settlement system RINGS.

As regards the processing of budgetary payments (i.e. payments to or from the state and the municipalities' budgets), the rules have been revised (with effect from 5 June 2006) to allow a modern processing mechanism for all budgetary payments, the main change in this respect being the removal of the Budget Identification Number (BIN).

In the area of securities settlement systems, the BNB is continuing the modernisation of the existing Government Securities Depository (which is owned and operated by the national central bank), in order to ensure straight-through processing (STP) and to replace batch processing with trade-by-trade processing in government securities transactions.

In the area of electronic payments, there is an increased interest in Bulgaria in making payments via the internet. The ePay.bg system (established in 1999) allows cardholders to pay for services and goods via the internet, and to transfer money from their card accounts to other accounts held with the same bank or with another bank, after first registering their cards. The technology for making payments via the internet is based on a third-party trusted payment server connected to the BORICA system (i.e. the national retail payment system for card payments), which ensures the real-time authorisation of transactions effected via the internet.

Future developments relate to changes in the payment processing infrastructure at the European level – the TARGET2 and SEPA projects. The BNB is in the process of conducting preliminary analysis concerning the necessary changes to the payment mechanisms currently in operation in the country, to the internal BNB systems and to the future business relationships with commercial banks. With regard to the SEPA project, this analysis will focus on the different possibilities for the

development of BISERA, BORICA and the two securities depositories CDAD and the GSD.

## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

#### 4.1.1 MAIN FEATURES OF THE DIFFERENT SECURITIES MARKETS

There are two main types of traded securities in the Bulgarian securities markets: debt instruments and equity. A common feature of these markets is that the traded securities are dematerialised and transferred by book entry. Bulgarian legislation allows for the existence of securities in paper form, but only dematerialised securities may be offered publicly.

Trade in government securities, i.e. bills (with a maturity of up to one year), notes (with a maturity of between one and five years) and bonds (with a maturity of over five years), represents a major part of the government securities market. The Ministry of Finance and the Bulgarian National Bank regulate both the primary and secondary markets for government securities, and the GSD settles such transactions. For further details of primary market procedures, see Section 4.3.1. The secondary market is an OTC market, with transactions confirmed by messages sent through SWIFT and/or a web interface based on VPN.

The Bulgarian legal framework (in this instance principally the LPOS) stipulates that “regulated securities markets” comprise the official market of a stock exchange and any unofficial securities market on or through which transactions for the purchase and sale of securities are regularly concluded and offers and invitations to conclude such transactions are made – whether face to face or through a uniform remote trading system – and information on concluded transactions in securities and on offers to conclude such transactions is regularly disclosed. Securities markets are either primary or secondary, depending on whether the securities are

purchased directly from their issuers or from third parties.

At present only the BSE-Sofia is authorised to organise and operate regulated securities markets (i.e. official and unofficial markets as defined in the LPOS).

The BSE-Sofia has the following markets and market segments:

- 1) Official market
  - a) Official market for shares
    - “Market A” segment
    - “Market B” segment
    - “Market C” segment (until 12 January 2007)
  - b) Official market for bonds
    - “Government securities” segment
    - “Municipal bonds” segment
    - “Corporate bonds” segment
- 2) Unofficial market
  - “Unofficial market for shares A” segment\*
  - “Unofficial market for shares B” segment\*
  - “Unofficial market for bonds” segment
  - “Compensatory instruments market” segment
  - “Unofficial market for other dematerialised securities” segment
- 3) Initial public offering (IPO) market\*\*
- 4) Privatisation market\*\*

\* From 1 December 2006. (Prior to that there was only one “Unofficial market for shares” segment.)

\*\* Not a separate market, but rather a special auction for special kinds of trade.

The BSE-Sofia has established different minimum listing requirements for each market segment of the official market. In order for securities to be admitted to the unofficial market, the issue must be registered in the FSC’s register of secondary trading. Stock exchange and OTC transactions (in dematerialised securities) are made through investment intermediaries only. Stock exchange trades are effected through an electronic system using direct access from brokers’ terminals based on the BSE-Sofia floor or through remote brokers’ terminals from the BSE-Sofia members’

offices (for more details, see Section 4.3.2.4). Clients and remote offices of the investment intermediaries can also trade on the BSE-Sofia markets through the web-based system COBOS (Client Order Book Online System; see Section 4.1.4), using client certificates and encrypted connection. Investment intermediaries can also build their own trading software and client interface, communicating with the BSE-Sofia gateway interface. Settlement in both the regulated and unregulated markets is executed by CDAD through the RTGS system.

#### 4.1.2 BASIC STATISTICAL DATA

Government securities account for the largest share of trading in debt instruments and are traded entirely on an OTC basis (although these securities are eligible for stock exchange trading, and some of them were, experimentally,

listed and traded for a short period on the BSE-Sofia). Given the declining need for budget financing through bond issuance, combined with the aggressive corporate issuance observed in recent years, corporate debt securities are becoming increasingly important both for investors and for stock exchange turnover. In 2006 the value of interbank repo operations involving government securities (first leg only) was BGN 915.3 million, and that of outright interbank deals in government securities totalled BGN 1,587.1 million (at market value, according to statistics on operations involving movements on current accounts held with the BNB in trades between commercial banks, including those of non-bank investment intermediaries licensed for primary dealership). On the stock exchange, the total value of transactions in corporate and municipal

**Table I BSE-Sofia trades in securities**

(BGN millions; 2006)

	Equity market		Bond for market						Other		Non-stock exchange	
	Official market for shares	Unofficial market	Official market for bonds			Unofficial market for bonds		Unofficial market		Public	Non-public	
	Segments A, B and C	Unofficial market for shares	Government securities	Municipal bonds	Corporate bonds	Municipal bonds	Corporate bonds	Compensatory instruments market	Unofficial market for other dematerialised securities (rights/shares) (units/funds)			
Trade in primary instruments of which:												
Regular deals	843.5	1450.4	-	0.0	42.4	3.5	251.3	137.0	38.8	4.0	-	-
Block deals	102.2	119.5	-	-	-	-	-	-	32.8	-	-	-
Repos	4.0	259.4	-	-	3.2	-	23.0	-	-	0.2	-	-
Tender purchases	-	0.3	41.3	-	-	-	-	-	-	-	-	-
Tender sales (large takes)	0.3	41.3	-	-	-	-	-	-	-	-	-	-
Auctions	-	-	-	-	-	-	-	-	3.3	-	-	-
Primary sales for listing	-	-	-	-	-	-	-	-	-	-	-	-
Redemption	-	-	-	-	-	-	-	-	-	-	-	-
Privatisation market deals (cash)	-	-	-	-	-	-	-	-	-	-	-	-
Privatisation market (compensatory)	-	0.0	-	-	-	-	-	-	-	-	0.1	-



bonds in 2006 was BGN 323.3 million (at market value, including outright purchases and both legs of repo deals between all partners). It rose by an annual rate of 16% in 2006, having doubled in the previous year. The total value of transactions in shares on the stock exchange tripled in 2004, doubled in 2005 and then rose by 34% to reach BGN 2,823.9 million in 2006 (see Table 1). Thus, the overall liquidity of the stock market has risen considerably, although it is still far from its optimal level. Many companies listed by means of an administrative procedure through the process of mass privatisation have since left the market. However, the fact that liquidity is rising with fewer companies on the market is encouraging.

Market capitalisation has also increased significantly, reaching BGN 9 billion (around €4.5 billion) at end-2005 and BGN 15.3 billion (around €7.8 billion) at end-2006.

The stock exchange IPO market is gradually gaining in importance, although private placement is still the preferred method for corporate bond issuance, with subsequent entry in the public register and admittance for stock exchange trading (see Table 2).

#### 4.1.3 FINANCIAL INTERMEDIARIES OPERATING ON THE VARIOUS SECURITIES MARKETS

Securities may be traded only by investment intermediaries licensed by the FSC. In practice, these intermediaries are stockbrokers and banks, including branches and subsidiaries of foreign banks. To be licensed by the FSC, an investment intermediary must meet certain requirements concerning, *inter alia*, the amount of its capital and the structure of its balance sheet, as specified under the LPOS. Given that global banks' licences cover all kinds of transaction involving securities, these banks do not require additional authorisation by the FSC, needing only to be registered as investment intermediaries.

Trading on the BSE-Sofia can be executed, for the official markets, only through investment intermediaries which are members of the stock exchange and, for the unofficial markets, only through investment intermediaries that are authorised to trade on them. There are a number of specific admission criteria for membership of the BSE-Sofia, as specified in the Rules of Procedure of the BSE-Sofia, which have been adopted by its Board of Directors and approved by the FSC.

Members of CDAD may be investment intermediaries, management companies, banks,

**Table 2 BSE-Sofia trades in securities**

(BGN millions; 2006)

	IPOS: shares		IPOS: bonds		IPOS: government securities		IPOS: other securities	
	Official market	Unofficial market	Official market	Unofficial market	Official market	Official market	Unofficial market	
Deals	-	12.3	-	-	-	-	10.1	

Source: BNB, based on BSE-Sofia daily reports.

Note: €1 = BGN 1.95583.

stock exchanges, persons organising unofficial securities markets, foreign depositaries or clearing institutions. No member may enjoy any privileges over any other member. Each member has full access to CDAD, enabling it to hold securities accounts and to move shares by itself or on behalf of third parties.

Participants in the government securities market are all investment intermediaries, but only those which are authorised to be primary dealers have access to the GSD. For further details of primary dealers, see Section 4.3.1.2.

#### 4.1.4 RECENT DEVELOPMENTS

The Bulgarian capital market has been developing in a very dynamic manner since 2001. Turnover, the volume of shares and the number of transactions have been increasing continuously, and the SOFIX index has reached record levels. These positive developments have, in part, been due to the active support of the government and its policy of privatising major state assets through the BSE-Sofia. A large number of state-owned companies, as well as hundreds of residual stakes, changed ownership between 2001 and 2005. The fact that all participants were treated equally, market principles were applied and transparency was guaranteed by the exchange proved the efficiency of this type of privatisation.

With the entry into force in 2002 of the Law on compensatory instruments, trading on the BSE-Sofia received a new boost. Compensatory notes and vouchers were distributed to former owners of real estate or agricultural land that was nationalised after 1944 and could not be restored to its initial status after 1989. Under that Law, these notes and vouchers, the nominal value of which was more than BGN 1 billion, started to be traded on the BSE-Sofia. They could be sold against cash or used in privatisation deals. As a result, by end-2006 notes and vouchers worth over BGN 600 million had been taken out of circulation (i.e. converted). For the remaining amount, the government will have to propose a new list of state-owned companies that can be privatised using

compensatory notes and vouchers. For a long time, this was the most liquid instrument on the BSE-Sofia.

In 2003 the BSE-Sofia launched a new system for remote access to trading, targeting mainly small Bulgarian and foreign investors. The system, called COBOS, quickly became popular, and in 2006 it routed to the main trading system around two-thirds of orders and trades.

The biggest privatisation deal took place in January 2005, with 35% of the Bulgarian Telecommunications Company (BTC) being sold to local and foreign investors in just two days. The BTC is by far the biggest listed company on the BSE-Sofia and accounted for almost a fifth of the market capitalisation of the exchange as at March 2007.

In early 2007 there were 352 companies whose issues were traded on the official and unofficial markets. The BSE-Sofia now has 80 members acting as investment intermediaries.

In 2005 the BSE-Sofia started calculating a new index, the BG40. Unlike SOFIX (the other index of the stock exchange), which is based on the market capitalisation of the companies included, the BG40 is based simply on their share prices and covers the top 40 companies in terms of the number of trades.

Chart 3 Stock market developments



Although the infrastructure of the capital market has been successfully established, the market continues to have problems, such as a relative lack of attractive securities and low levels of liquidity. In order to overcome these difficulties, the BSE-Sofia has developed a marketing strategy, which covers the pre-accession period and the period following Bulgaria's entry into the EU. Given that the privatisation process is coming to an end, it is essential that the BSE-Sofia act as a "normal" stock exchange. The stock exchange's management is focusing its attention on encouraging the leading Bulgarian private companies to go public and conduct IPOs on the BSE-Sofia. At the same time, efforts will be made to widen the exchange's investor base.

The management of the BSE-Sofia is also examining the possibility of joining one of the European stock exchange alliances, so as to be better prepared for competition in the EU. Discussions have been conducted with the Athens and Vienna Stock Exchanges, as well as with OMX and Deutsche Börse. The final decision will very much be dependent on what the potential partners propose to the participants in the Bulgarian stock market.

## 4.2 CLEARING

There is no independent clearing house in Bulgaria. For details of the settlement of securities, see Section 4.3.

## 4.3 SETTLEMENT

### 4.3.1 SECURITIES SETTLEMENT THROUGH THE GOVERNMENT SECURITIES DEPOSITORY

#### 4.3.1.1 Operating rules

Under the LBNB, the national central bank is the fiscal agent and official depository of the state. Under the Law on the government debt and the agreement between the Bulgarian National Bank and the Ministry of Finance, the BNB organises trading in government securities and maintains registers of such securities. Ordinance No 5 of the Ministry of Finance

and the Bulgarian National Bank establishes the rules and procedures for all kinds of transaction involving government securities. Ordinance No 31 of the Bulgarian National Bank on government securities settlement provides for the settlement of transactions in book-entry government securities, which is conducted in the primary and secondary markets under Ordinance No 5. The settlement of government securities transactions in the BNB is defined as a transfer of government securities, with or without a transfer of funds, on the basis of a transaction request submitted via the Electronic Book-entry System for Registration of and Trade in Government Securities.

#### 4.3.1.2 Participation in the system

The Ministry of Finance and the BNB approve the list of primary dealers authorised to participate in the system. Primary dealers may be banks or other investment intermediaries. All other legal and natural persons may participate in the primary and secondary markets only through primary dealers.

#### 4.3.1.3 Types of transaction handled

The GSD handles all kinds of government securities transaction, as well as primary and secondary outright operations, and repurchase agreements, etc.

#### 4.3.1.4 Operation of the system

The settlement of transactions is handled on a gross basis. This is a batch processing system which applies the DvP principle.

On the primary market, securities are acquired through auctions organised by the BNB. Primary dealers may participate with irrevocable competitive or non-competitive bids sent through SWIFT and/or a web interface based on VPN. On the issue date (the second working day after the auction) the BNB debits the current accounts of the primary dealers by the value of the government securities acquired by them and credits the account of the Ministry of Finance. At the same moment the system automatically enters the securities acquired by each bidder in

the registers. Only primary dealers are listed in the registers.

On the secondary market, the registration of transactions is effected on the basis of irrevocable SWIFT and/or VPN-based web interface messages sent by both the acquirer and the transferor. The BNB debits the acquirer's account and credits the transferor's account with the stated amount, and the system automatically enters the flow of securities in the registers on the value date indicated in the application.

At maturity the national central bank credits the current accounts of the primary dealers with the funds provided by the Ministry of Finance and cancels the matured issue in the registers.

The BNB maintains registers both for primary dealers and for commercial banks which are non-primary dealers pursuant to Article 2, paragraph 8 of Ordinance No 5 of the Ministry of Finance and the Bulgarian National Bank.

#### **4.3.1.5 Settlement procedures**

The settlement of government securities transactions is executed through the BNB's electronic system GSSS. Every transfer instruction is entered in the system, and the transaction is effected only if securities and funds are available. Otherwise, the transaction is not executed.

On the primary market, transactions are settled on the day of issue. For bills, notes and bonds, the day of issue is the second working day after the auction (T+2). In the event that maturity falls on the day of a new issue, the system settles first the maturity and then the new issue. This enables primary dealers to pay for the newly issued securities with the repayment for the previous issue.

On the secondary market, the procedures are different. Transactions are settled on the day of the trade (T+0) or on the forward settlement date, if this is specified in the instructions. Settlement is executed four times a day. The

forward and reverse repo transactions are settled at 9 a.m. CET+1. The outright transactions, negotiated between 9 a.m. and 11 a.m. CET+1, are settled at 11 a.m. CET+1. The transfer instructions for both securities and funds are settled on a gross basis, with final transfer of both securities and funds occurring at the end of the processing cycle (at 11 a.m. CET+1). This means that the DvP scheme employed is DvP Model 1 on a batch basis, as defined by the G10. The same procedures are repeated in the next cycles between 11 a.m. and 1 p.m. CET+1 and between 1 p.m. and 3 p.m. CET+1. The four processing cycles enable participants to trade the same securities more than once per day. For these transactions, the FIFO principle is applicable. The instructions are placed in a queue in accordance with the time of receipt of the written applications. If a transaction cannot be executed because of a lack of securities or funds in the account of a particular primary dealer, it is removed from the queue and the two parties are informed of the reason for the refusal. If the same dealer has sufficient securities or funds for the next transaction in the queue, that subsequent transaction is then executed.

#### **4.3.1.6 DvP arrangements**

Every primary dealer has its own current account in RINGS, as well as a government securities account with the BNB's GSSS. This means that the Bulgarian National Bank manages both securities and cash accounts, which makes settlement risk-free. After receiving information about a transaction, the system checks the availability of securities, blocks them, checks the availability of necessary funds, and finally effects the transfers.

#### **4.3.1.7 Credit and liquidity risk**

The DvP principle is the system's main risk prevention measure. Another is the penalty imposed on defaulting parties. If a participant fails on more than one occasion to provide the necessary funds or securities, it may lose its status as a primary dealer.

#### 4.3.1.8 Pricing

The pricing policy is the same for every participant in the system. There is no full recovery of transaction costs.

The entry fee for membership is currently BGN 1,000 (€511), paid after each new approval of the primary dealers list. The register-keeping fee for each member is BGN 500 (€256) per month. For approved primary auction bids, the participant pays a commitment fee of 0.04% of the nominal value. Depending on the amount, the transfer charges range between BGN 1 (€0.51) and BGN 10 (€5.11). On the date of maturity there is a charge of 0.02% of the nominal value of the securities.

#### 4.3.1.9 Main projects and policies being implemented

A modernisation of the current GSD system is planned, in order to allow for the implementation of STP and a move from batch processing to trade-by-trade processing for government securities transactions.

### 4.3.2 SECURITIES SETTLEMENT THROUGH CENTRAL DEPOSITORY AD

#### 4.3.2.1 Operating rules

The LPOS determines the role of CDAD. The organisation and operation of CDAD are determined by Ordinance No 8 of the Financial Supervision Commission. This Ordinance governs the structure and activities of CDAD as a joint stock company with a one-tier system of corporate governance, engaged in the registration of transactions involving securities, the safekeeping and registration of securities, and the opening and holding of accounts for book-entry securities. CDAD is obliged to present information to the FSC both regularly and on demand. Under the Law on registered pledges, all necessary information related to pledges must be recorded in CDAD.

CDAD organises its operations in four main ways. First, it has created a national register of the joint stock companies privatised in the mass privatisation process and the former privatisation

funds (now investment companies and holdings). In this regard, more than 3,500,000 accounts were opened automatically for all the shareholders that had acquired shares in the process. Second, it has created a securities settlement system for trades between the members of CDAD. Third, it has created a system for organising payments for securities traded on a DvP basis, which is connected to the RTGS system. Fourth, it has created a system which administers a common stockbrokers' back office. (The securities account of each member of CDAD which is an investment intermediary is divided into sub-accounts for each individual customer.)

#### 4.3.2.2 Participation in the system

The participants in the system are the BSE-Sofia and investment intermediaries, all of which are members of CDAD. Only they can operate directly with the register in order to serve their customers. Publicly offered securities can be traded only through the BSE-Sofia, with the exception of transactions between individuals (i.e. natural persons) and a number of other special kinds of trade (including tender offering, repo trades, grants and inheritances). Those transactions which are not effected on the BSE-Sofia must be registered in the BSE-Sofia trading system as reported trades; otherwise they cannot be settled in CDAD).

#### 4.3.2.3 Types of transaction handled

In practice, CDAD handles all types of book-entry equity transaction. Stock lending is available by means of the mechanism established by Ordinance No 16 of the Financial Supervision Commission on the conditions and procedure for execution of margin purchases, short sales and lending of securities. The CDAD also provides its members with the possibility of offering custodial services to their customers.

#### 4.3.2.4 Operation of the system

The system settles securities transactions on a gross basis for the securities leg and on a net basis for the cash leg, in a batch processing mode, applying the DvP principle. It is possible

to process a free of payment (FOP) transaction on the OTC market when both sides – i.e. the seller and the buyer – indicate this.

During the first wave of mass privatisation in 1997 the transfer of ownership was effected through registration in CDAD's registers. No payments were made, because equities were exchanged for vouchers. In the second wave the process became more complicated, because payments could be made in cash or with different kinds of voucher.

In the event of privatisation, the required information is provided by the Agency for Privatisation. If this privatisation is carried out on the stock exchange, the information is provided by the brokers and the BSE-Sofia.

As regards the settlement of trades between investment intermediaries, CDAD has implemented the standard settlement period recommended by the Group of Thirty (G30) and the World Bank, namely T+0 to T+2. When a transaction is effected, securities ownership is transferred and payment is completed within a two-day period.

The processing cycle follows the sequence outlined below, which is the same for stock exchange and OTC DvP trades.

On the trade date, T+0, the investment intermediary sends information to CDAD on the transaction and the securities or cash accounts to be debited or credited. For stock exchange trades, the information provided by the participants is checked against the information received from the BSE-Sofia.

On T+1 any errors and mistakes are identified. In the event of an error or a mistake, the transaction is kept in a queue. In the case of OTC trades, the transaction is cancelled if no correction is made within five days, whereas in the case of trades on the BSE-Sofia's floor, the transaction remains in the queue until a correction is made.

At 8 a.m. CET+1 on T+2 the relevant securities accounts are checked for securities availability for every transaction. The requisite number of shares is blocked, and before 3 p.m. CET+1 CDAD sends confirmation to the RTGS system, which processes the payments. After 3 p.m. CET+1 the results of the settlement process are received. If the payment is executed (i.e. the requisite funds are transferred to the seller's account), the securities accounts are unblocked and the securities are transferred to the account of the buyer (and to its customer's sub-account). Simultaneously, the registers of those enterprises whose shares are the subject of the trade are automatically updated.

CDAD has direct access to the RTGS system to deal as a settlement agent. CDAD initiates a direct debit transaction on behalf of the seller on the bank account of the investment intermediary buying securities in order to ensure that the payment is made.

#### 4.3.2.5 Transaction processing environment

The system is fully computerised. Data are transferred electronically between the CDAD on the one hand and the participants, the RTGS system and the BSE-Sofia on the other. Pursuant to the new regulations, electronic documents have replaced paper-based ones.

#### 4.3.2.6 Settlement procedures

The system forms a queue for all transactions to be handled on a given day. The execution priorities for processing transfer orders are as follows:

- stock exchange trades before OTC transactions; and
- trades on behalf of investment intermediaries' customers before trades on behalf of investment intermediaries themselves.

The position of each stock exchange transaction in the queue depends on the time of its conclusion on the BSE-Sofia. The position of each OTC transaction depends on the time it is reported to CDAD. There is also a queue for

transactions which cannot be settled owing to insufficient securities or cash. Every day the waiting trades from previous days are processed before any new transactions of the same type, in accordance with the above-mentioned priorities.

#### 4.3.2.7 DvP arrangements

Every member of CDAD must hold an account with a commercial bank which can be directly debited by CDAD under an agreement between CDAD and its member. The buyer cannot stop this payment. On T+2 the bank blocks the funds after receiving confirmation from CDAD, and CDAD blocks the securities. If both funds and securities are available, these are transferred during data processing after 3 p.m. on T+2. If funds (or securities) are not available, the securities or funds remain blocked until T+9 in the case of OTC trades, or until the transfer is effected in the case of BSE-Sofia trades.

#### 4.3.2.8 Credit and liquidity risk

The BSE-Sofia manages a Guarantee Fund in order to guarantee payments for transactions executed on the exchange. The Fund is created and maintained through affiliation fees and subsequent payments by members. Each member must deposit an affiliation fee of BGN 200 (€102) with the Fund. Members must deposit their monthly payment with the Fund by the tenth of each month. That payment amounts to 0.1% of the average value of transactions executed by the member during trading sessions in the previous month. Cross (one-side) and block transactions are excluded from these calculations. Within the first three working days of each calendar month the exchange informs each member, in writing or by electronic message, of the amount of its next monthly payment to the Fund. When the contents of the Fund are equal to or more than 1% of the value of the turnover of the exchange for the previous year, payments are suspended. If the value of the Fund subsequently falls below that level, payments are resumed as described above. Payments to the Guarantee Fund are payable only in cash (BGN).

The Fund's resources are held and managed in a separate account in a bank determined by the Board of the BSE-Sofia. The Board appoints a person to manage the Fund. The main principle in the maintenance and management of the Fund is the recognition and avoidance of risk. The Guarantee Fund's resources may be invested only in bank deposits and government securities. These resources are to be used to guarantee timely settlement of transactions executed on the stock exchange in the event of any member's failure to meet its liabilities resulting from a transaction. If a liability incurred in a transaction exceeds the total value of the Fund, all members must make additional payments of equal size to cover the liability. Partial settlement of a liability arising from a transaction is not allowed.

The Fund's resources must be used only in the event that a delay in payment for a transaction executed on the exchange exceeds ten days, and such use of the Fund's resources must be authorised by the Board. In the event that liabilities for more than one transaction arise, these must be repaid in accordance with the order of their execution. The repayment of a member's liabilities by the Fund constitutes a good ground for termination of membership of the exchange. The Fund does not guarantee block transactions and must not be used to cover liabilities arising from such transactions. If the amount remaining in the Fund after the repayment of a liability is less than 1% of the value of the turnover on the exchange for the previous year, the exchange must notify its members that payments are to be resumed.

#### 4.3.2.9 Pricing policies

CDAD applies full-cost pricing to the services offered. Currently the affiliation fee is BGN 1,000 (€511) for banks and BGN 500 (€256) for non-banks. The membership fee is BGN 500 (€256) per year. The transfer charge is BGN 0.35 (€0.18). The register fees depend on the type of joint stock company and the number of shareholders.

#### **4.3.2.10 Main projects and policies being implemented**

CDAD plans to offer joint stock companies different kinds of service, such as the organisation of shareholders' meetings and the distribution of dividends.



# CZECH REPUBLIC

## CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>42</b>
<b>INTRODUCTION</b>	<b>43</b>
<b>1 LEGAL AND INSTITUTIONAL ASPECTS</b>	<b>44</b>
1.1 The legal framework	44
1.2 The role of the central bank	46
1.3 The role of other private and public sector bodies	47
<b>2 TYPES OF PAYMENT INSTRUMENT</b>	<b>49</b>
2.1 Cash payments	49
2.2 Non-cash payments	50
2.3 Recent developments	51
<b>3 INTERBANK PAYMENT SYSTEMS</b>	<b>52</b>
3.1 General overview	52
3.2 The CERTIS system	52
3.3 The retail payment infrastructure	54
<b>4 SECURITIES SETTLEMENT SYSTEMS</b>	<b>55</b>
4.1 Trading	55
4.2 Clearing	58
4.3 Settlement	58

## LIST OF ABBREVIATIONS

BCA	Bank Card Association
CBA	Czech Banking Association
CERTIS	Czech Express Real-Time Interbank Gross Settlement
CERTIS-DSS	CERTIS Data Security System
CERTIS-IS	CERTIS Information System
CERTIS-MTS	CERTIS Message Transfer System
CSOB	Czechoslovak Commercial Bank – Československá obchodní banka
PSE	Prague Stock Exchange
RM-SYSTEM	Electronic OTC market, a trading platform and an SSS
SBCS	State Bank of Czechoslovakia – <i>Státní banka československá</i>
SCP	Securities Centre – <i>Středisko cenných papírů</i>
SKD	Short-term securities settlement system – <i>Systém krátkodobých dluhopisů</i> (This system was in operation under the previous name TKD from May 1995 until June 2002; the current name SKD has been used since the second half of 2002)
SPAD	System supporting trades in shares and bonds – <i>Systém na podporu obchodování akcií a dluhopisů</i>
UNIVYC	Universal Settlement Centre for Securities – <i>Univerzální vypořádací centrum</i>

## INTRODUCTION

The Czech payment system is based in general on the nationwide payment system which was introduced in the mid-1970s by the State Bank of Czechoslovakia (SBCS). This system had introduced many new features, including the unified numbering of accounts, the abolition of the physical circulation of payment documents, and standardised numerical codes, instead of text description, to define the type and nature of payments.

As a result of the political changes in the former Czechoslovakia at the beginning of the 1990s, the banking market developed very rapidly. This made it necessary to introduce a modern, secure, reliable and effective interbank payment system. Therefore, in 1992 the Czech Express Real-Time Interbank Gross Settlement (CERTIS) system, which handled all domestic currency payments between banks, went live within the Clearing and Settlement Centre at the SBCS.

Nowadays, the payment systems infrastructure in the Czech Republic is provided by Česká národní banka, commercial banks and the Czech Post Office. Payments between customers of the same bank are carried out by the bank itself using its own branches and internal information systems. The interbank payment system in the Czech Republic is predominantly managed and coordinated by Česká národní banka, which was formed from the Czech part of the federal SBCS after the division of Czechoslovakia at the beginning of 1993. Česká národní banka owns and operates the CERTIS system, which is currently the only interbank payment system in the Czech Republic. CERTIS is recognised as a payment system in both the Banks Act and the Payment System Act. The latter includes provisions allowing for the creation of other payment systems in the Czech Republic. Such systems would have to obtain a licence from Česká národní banka. International interbank payments are mainly carried out by means of correspondent banks and the SWIFT network. Payments in euro within Europe are mainly

carried out using the pan-European system STEP2.

The Czech Post Office, which is a state institution, also provides payment services, but it does not hold a banking licence. It uses the services of one of the commercial banks to transfer funds.

In the Czech Republic, the trading of stock in publicly traded companies is conducted on two public market-places, the Prague Stock Exchange (PSE) and the RM-SYSTEM. These public markets enable trading also in different kinds of bond and other investment instruments.

All securities are registered in two registration centres. The SKD is used for the registration of book-entry short-term fixed income securities with a maturity of up to one year (mainly Treasury bills and Česká národní banka bills). The Securities Centre (SCP) is used for the registration of book-entry equities and securities (debt instruments with a maturity of more than one year and shares).

There are three independent securities settlement systems (SSSs) in the Czech Republic: one for the settlement of short-term fixed income securities with a maturity of up to one year (SKD) and two for the settlement of all other securities. The UNIVYC, which is a subsidiary of the PSE, settles securities listed on the PSE. The RM-SYSTEM settles all trades in securities listed on the RM-SYSTEM market. Cash settlement is carried out in CERTIS (all three SSSs being connected to CERTIS as ancillary systems – see Section 3.2.2). In the case of the RM-SYSTEM, cash settlement is carried out through the Czechoslovak Commercial Bank (CSOB), which is a direct participant in CERTIS.

## I    LEGAL AND INSTITUTIONAL ASPECTS

### 1.1    THE LEGAL FRAMEWORK

#### *Legal aspects relating to payments*

Payments between private individuals and legal entities in the Czech Republic are considered to be a civil law relationship and are regulated by the 1964 Civil Code and the 1991 Commercial Code. These Codes also contain the basic principles on which banking contracts on account maintenance are based. In 1992 the SBCS issued the General Terms and Conditions (amended by Česká národní banka in 1994, 1997 and 1998). The General Terms and Conditions serve, on the basis of a gentleman's agreement with banks, as a model for banks when creating their own terms and conditions for maintaining accounts and providing payment services to their customers.

Payment by cheque is regulated by the 1950 Bills and Cheques Act, based on the Geneva Convention, and by interbank agreements. The use of traveller's cheques is regulated by the Commercial Code.

In 2000 the Electronic Signatures Act was adopted. According to this Act, electronic signatures, which are subject to certification procedures by special authorities, are considered equivalent in legal terms to handwritten signatures.

On 1 May 2002 the harmonisation amendment to the 1992 Banks Act entered into force, which makes this Act fully compliant with the provisions of EU legislation in this field. Contrary to the provisions in place before the amendment, banks in the Czech Republic are no longer obliged to perform interbank payments exclusively by means of the CERTIS system. The Banks Act also lays down the basic principles of "corrective settlement" (i.e. situations where a bank incorrectly executes a customer's payment order).

On 1 January 2003 the 2002 Act on transfers of funds, electronic payment instruments and

payment systems (the Payment System Act) entered into force. This Act transposed Directive 97/5/EC of the European Parliament and of the Council of 27 January 1997 on cross-border credit transfers, Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement finality in payment and securities settlement systems and Directive 2000/46/EC of the European Parliament and of the Council of 18 September 2000 on the taking up, pursuit of and prudential supervision of the business of electronic money institutions. Amendments to the Civil Code, the Commercial Code, the Bankruptcy Act and the Act on international civil law and civil procedure which related to the Payment System Act also entered into force on 1 January 2003.

The Payment System Act consists of three main parts. The first part governs transfers of funds in the Czech currency within the territory of the Czech Republic (regardless of the amount) and cross-border transfers (up to the equivalent of €50,000). The second part governs the issuing and use of electronic payment instruments. This part lays down legal definitions of an "electronic payment instrument", an "electronic money instrument" and "electronic money". The 2006 amendment also regulates the activities of domestic and foreign electronic money institutions. The third part governs the establishment and operation of payment systems in any currency and the rights and obligations of the participants in such systems where the participants agree that such payment systems are to be governed by Czech law. This part also governs certain obligations of the participants in the payment systems operated under the laws of the countries of the EU and EEA.

The terms and conditions for the principles of settlement in payment systems and the essential elements of an application for a licence to operate a payment system are stipulated in the 2002 Česká národní banka Decree, which came into force on 1 January 2003.

The manner of execution of payments between banks and settlement on accounts at banks

within the territory of the Czech Republic in the Czech currency, as well as the technical procedures to be used by banks for corrective settlement, are stipulated in the 2004 Česká národní banka Decree, which replaced the 1992 Interbank Payment System and Accounting of Banks Regulation. The 2005 amendment to the Act on the Czech National Bank broadened the scope of the Decree also to savings and credit cooperatives.

Two 2006 Česká národní banka decrees relating to the Payment System Act stipulate essential elements both of an application for a licence to act as an electronic money institution and of an application for permission to issue electronic money.

Article 10 of Directive 97/5/EC, which provides for the out-of-court settlement of consumer disputes, was transposed into Czech law by the 2002 Financial Arbiter Act, which entered into force on 1 January 2003 (last amended in 2006). The financial arbiter is competent to settle disputes between persons executing transfers of funds and their clients, provided that the disputed amount does not exceed €50,000, as well as disputes between issuers and holders of electronic payment instruments. Most of the cases settled by the financial arbiter to date have been related to payment cards.

The bankruptcy issue is governed by the 1991 Bankruptcy Act. The zero-hour rule was abolished by the 1998 amendment. The declaration of bankruptcy is effective from the moment it is announced by the respective court on its official notice board.

The anti-money laundering policy and the combating of the financing of terrorism are regulated by two main acts. The 1996 Act on some measures against the legalisation of the proceeds of crime (as last amended in 2006) stipulates the obligation for financial institutions to report suspicious transactions to a special governmental authority (the Financial Analytical Unit, which is part of the Ministry of Finance). According to the 2004 Act on the limitation of

cash payments, financial institutions must execute, with some exemptions, payments exceeding €15,000 in a non-cash manner.

#### ***Legal aspects relating to securities***

Securities markets in the Czech Republic are governed especially by the 2004 Capital Market Undertakings Act (as last amended in 2007), which regulates the provision of services on the capital market and public offerings of securities. Under the Act, particular types of investment instrument are defined. The Act also regulates markets in investment instruments (e.g. the stock exchange and the OTC market), the settlement system, the register of investment instruments (central securities depository), the protection of the capital market and investors (market participants' obligations and the securities dealers' guarantee fund), state supervision on an individual as well as on a consolidated basis, administrative offences, and rating agencies. The Act provides for a two-level register of securities.

Under the Capital Market Undertakings Act, other laws mentioned below were amended or adopted.

The 1992 Securities Act (last amended in 2006) regulates major issues relating to securities, including issuance and types of agreement.

The 2004 Bonds Act (last amended in 2006) stipulates the types of bond, issuance conditions, the rights and obligations of the issuers, and the possibilities for yield determination and bond redemption.

The 2004 Collective Investment Act (last amended in 2006) regulates the activities of investment companies and investment funds. Investment companies collect funds by selling investment certificates and setting up open-ended funds. The main activities of investment funds include the purchase of securities, real estate and other assets, and the taking of deposits. They collect funds from investors by issuing investment certificates. Investment companies and investment funds both played an

important role in the first and second waves of “voucher privatisation” (i.e. the privatisation of state-owned organisations between 1992 and 1995).

## 1.2 THE ROLE OF THE CENTRAL BANK

### 1.2.1 GENERAL RESPONSIBILITIES

Česká národní banka is the central bank of the Czech Republic and was established on the basis of the 1993 Constitution of the Czech Republic. It is independent from the government. The basic rules and the NCB's activities are explained in the 1993 Act on the Czech National Bank, as last amended in 2007. This Act forbids Česká národní banka from granting credit to the government. Česká národní banka has its headquarters in Prague and has seven branches located in major Czech regions. The branches provide services for local customers (predominantly the state budget institutions).

Under Article 98 of the Constitution, the primary objective of Česká národní banka is to maintain price stability. The obligation to regulate the payment system and to establish the framework of rules for non-cash payments derives from the Act on the Czech National Bank. Article 2(2) of the above-mentioned Act provides for Česká národní banka to “manage the circulation of currency, administer payments and clearing between banks, promote smooth and efficient operation thereof, and contribute to the safety, soundness and efficiency of payment systems and to the development thereof”. For this purpose, Česká národní banka has the authority to submit draft legislation to the government concerning these areas and to issue binding regulations by decree.

In accordance with the Constitution and the Act on the Czech National Bank, the NCB is the sole issuer of banknotes and coins. It arranges the printing of banknotes and the minting of coins. According to the 1994 Česká národní banka Decree, which lays down the procedure for accepting and handling money and providing compensation for incomplete and damaged banknotes and coins, Česká národní banka,

banks and other legal and natural entities are obliged to accept banknotes without restriction, while the maximum number of coins to be accepted is restricted.

In February 2006 a law providing for the integration of financial market supervision into the tasks of Česká národní banka was adopted. As of 1 April 2006 Česká národní banka took over the activities of the Securities Commission (e.g. issuing licences to issue securities, provide settlement services and assign ISIN codes, authorising printing works to print securities, and imposing sanctions and fines on non-compliant institutions), the Office for Supervision of Insurance and Supplementary Pension Insurance, and the Office for Supervision of Saving and Credit Cooperatives. These supervisory duties are performed by three departments of Česká národní banka. The Czech Republic has an integrated financial market supervisory authority, which has been lower costs for the state and for financial institutions, as well as increased quality supervision. Responsibility for preparing legislation in the financial market area has been delegated to the Ministry of Finance. Česká národní banka continues to participate in the preparation of legislation by providing expert assistance.

### 1.2.2 PAYMENT OVERSIGHT

Česká národní banka oversees the CERTIS system, which is the only interbank payment system in the Czech Republic. Under the Payment System Act, Česká národní banka must also oversee any newly created payment systems, which would have to be licensed by the NCB.

### 1.2.3 OPERATIONAL ROLE

Česká národní banka is “the bank of the banks” and “the bank of the government”. It owns and operates the CERTIS system, which is currently the only interbank payment system in the Czech Republic. The system processes interbank payments in Czech koruna (CZK) regardless of whether these are of high or low value and regardless of whether they are initiated directly

by a customer's order or indirectly as a result of payment card or stock exchange transactions. Transactions in foreign currencies are not processed in CERTIS. For the purposes of the interbank payment system in the Czech Republic, Česká národní banka maintains an account for each direct participant (banks, savings and credit cooperatives).

Česká národní banka also maintains accounts and provides payment system services for the state budget institutions. Furthermore, it can maintain accounts for other legal entities such as international institutions. Česká národní banka, like other banks, provides these services on a contractual basis in accordance with its terms and conditions and by means of its seven regional branches.

Česká národní banka is legally responsible for the operation of the SKD (see Section 4.3.1.1), which is used for the issuance, registration, clearing and settlement of book-entry short-term fixed income securities with a maturity of up to one year (mainly Treasury bills and Česká národní banka bills). The SKD (formerly the TKD) was developed by Česká národní banka as an in-house system and has been in use since May 1995.

#### 1.2.4 ACTIVITIES IN THE AREA OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS

The CERTIS system provides for the cash settlement of all interbank payments arising from securities trades processed in the SKD, on the Prague Stock Exchange (see Section 4.1.1) and in the RM-SYSTEM (see Section 4.1.2). All three securities settlement systems in the Czech Republic – the SKD, the UNIVYC (a subsidiary of the PSE settling securities listed on the PSE) and the RM-SYSTEM – are connected to CERTIS as ancillary systems (see Section 3.2.2).

As of 1 April 2006 Česká národní banka took over the oversight of all the securities settlement systems mentioned above.

#### 1.2.5 COOPERATION WITH OTHER INSTITUTIONS

Česká národní banka cooperates on a regular basis with banks in collecting statistical data on cash and non-cash payments in the Czech Republic. It also holds consultations on developments in payment systems and securities clearing and settlement systems, e.g. with the Bank Card Association (BCA), the Prague Stock Exchange and the Czech Banking Association (CBA).

### 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

#### *Banks*

Banks operate on the basis of the 1992 Banks Act (last amended in 2007), which lays down the conditions to be met when setting up banks, as well as the rights and obligations of banks when performing banking activities. Banks are authorised to perform their activities on the basis of a licence issued by Česká národní banka. Most banks hold a universal licence, which permits them to carry out all principal banking activities. Banks are subject to banking supervision by Česká národní banka to ensure the security of deposits and the sound functioning of the banking system.

At the beginning of 2007 there were 37 banks (including branches and subsidiaries of foreign banks) holding a banking licence for operations within the territory of the Czech Republic. All banks provide domestic payment services to their customers, but some banks (e.g. specialised or local banks) are not authorised to transfer payments abroad or to issue cheques and/or payment cards. Some banks have specialised in certain activities: for example, building societies accept deposits and provide mortgage loans to their depositors. The Czech state encourages saving at these banks by providing private account holders with a contribution related to the amount saved per year.

### **Savings and credit cooperatives**

In 1995 a special law was passed laying down the regulatory framework for savings and credit cooperatives, and in 1996 the first cooperatives started operating. These cooperatives are specialised non-bank institutions, which receive deposits, grant credit and provide payment services. As they are not authorised under the Banks Act, they are only entitled to provide services to their members. According to the 2005 amendment to the Act on the Czech National Bank, savings and credit cooperatives can participate directly in the interbank payment system. The activities of the cooperatives have been supervised by Česká národní banka since 1 April 2006.

### **The Czech Post Office**

The Czech Post Office operates on the basis of the 2000 Postal Act. It provides a primarily cash-based money transfer service which is used by most of the population, including the acceptance of cash to be transferred to accounts at banks and the paying out of cash transferred from bank accounts. The Czech Post Office does not hold a banking licence. Therefore, it is not a participant in the interbank payment system. It uses the services of one of the commercial banks to transfer funds to and from banks.

### **The Prague Stock Exchange**

The Prague Stock Exchange was established in 1992 as a joint stock company. Its activities are regulated by the Capital Market Undertakings Act. The PSE is the main securities market organiser in the Czech Republic. It works on a membership principle, which means that only licensed securities traders which are PSE members (mostly banks) have access to the PSE trading system. Through its members, the PSE organises trading in securities listed on the PSE market (stock in publicly traded companies, different kinds of bond and other investment instruments). According to the rules of the PSE, all members must contribute to the Stock Exchange Guarantee Fund. All assets of the fund are held in cash.

The activities of the PSE have been supervised by Česká národní banka since 1 April 2006.

Under the Capital Market Undertakings Act, the PSE is not allowed to provide clearing and settlement services. These services are provided by the UNIVYC.

### **The UNIVYC (Universal Settlement Centre for Securities)**

UNIVYC AS is a subsidiary of the PSE. It is an operator of the securities settlement system, the principal activities of which include settlement of the PSE and off-exchange (OTC) trades in securities and other investment instruments. The UNIVYC also provides other services and products to its participants, such as safe custody of certificated securities, registration of foreign securities, settlement of primary issues of securities, administration and management of deposits of the Stock Exchange Guarantee Fund, securities lending and borrowing, etc. The majority of the UNIVYC participants are PSE members. The UNIVYC is connected to the CERTIS system as an ancillary system (see Section 3.2.2). Cash settlement of all payments relating to processed trade transactions is carried out in CERTIS.

### **The RM-SYSTEM**

The RM-SYSTEM was established as a joint stock company, pursuant to the Securities Act, during the voucher privatisation period (between 1992 and 1995). It is both a trading platform and a securities settlement system. Nowadays the RM-SYSTEM is owned by two Czech natural persons: Mr Petr Marsa owns 50% of the shares and Mr Romuald Kopún owns the other 50%. The RM-SYSTEM has been regulated and supervised by Česká národní banka since 1 April 2006. The RM-SYSTEM also has its own internal rules and regulations, known as the Trading Rules.

The RM-SYSTEM is an electronic over-the-counter market. By contrast with the PSE, participation is not based on membership and the RM-SYSTEM is directly accessible to any market participant (retail investors, brokers,

institutional investors, etc.). The RM-SYSTEM is connected to the CERTIS system as an ancillary system (see Section 3.2.2). Cash settlement is carried out through the CSOB, which is a direct participant in CERTIS.

#### ***The Securities Centre***

The Securities Centre is used for the registration of book-entry equities and securities (debt instruments with a maturity of more than one year and shares). The SCP is a state-owned central securities depository, founded by the Czech Ministry of Finance on the basis of the Securities Act. The SCP is responsible only for the registration of securities on individual securities accounts. It is not allowed to take part in securities trading or to provide a marketplace for securities trading. Both the UNIVYC and the RM-SYSTEM are connected to the SCP, so that they can give orders to the SCP to change the ownership of securities on the basis of trades carried out.

#### ***The Czech Banking Association***

The Czech Banking Association is a voluntary association of the legal entities undertaking business in the banking sector. The objectives of the CBA are:

- to represent and to promote the common interests of its members in the parliament, the government and Česká národní banka, as well as in relations with other legal entities;
- to present the role and the interests of the banking sector to the public at home and abroad; and
- to participate in the standardisation of banking practices and to support the harmonisation of banking laws with EU legislation.

Full membership of the CBA is reserved for banks and branches of foreign banks licensed by Česká národní banka. Associate membership is open primarily to representative offices of foreign banks and to auxiliary organisations

related to the banking sector. The CBA currently represents 35 banks and branches of foreign banks with full membership status.

On 1 June 2004 the CBA acceded to the European Payments Council (EPC). The Head of the Commission for Payment Traffic of the CBA represents the Czech Republic in the EPC.

#### ***The Bank Card Association***

The Bank Card Association, founded in 1991, is an interest group comprising banks and other entities which promotes the expansion of payment cards in the Czech Republic and coordinates related activities. The BCA deals, in the interests of its members, with domestic or international card organisations.

Full membership of the BCA can be granted only to financial institutions. Other bodies can be granted the status of observer. (This type of membership can be requested also by those financial institutions which do not wish to take an active part in the entire range of the BCA's activities.) Česká národní banka's role in the BCA is that of an observer.

## **2 TYPES OF PAYMENT INSTRUMENT**

### **2.1 CASH PAYMENTS**

The most common means of payment, used in particular by individuals, is banknotes and coins. At the end of 2006 banknotes and coins in circulation amounted to CZK 321.5 billion (€11.3 billion). Banknotes and coins are accepted and distributed by banks and post offices. Banknotes are also distributed via ATMs throughout the Czech Republic.

Since 1993, when the Czech Republic was formed, banknotes and coins have been issued with advanced security features corresponding to European standards. Banknotes are issued in eight denominations (CZK 20, CZK 50, CZK 100, CZK 200, CZK 500, CZK 1,000, CZK 2,000 and CZK 5,000) and coins in seven

denominations (CZK 0.50, CZK 1, CZK 2, CZK 5, CZK 10, CZK 20 and CZK 50). In November 2003 the legal tender status of the smallest denominations CZK 0.10 and CZK 0.20 was terminated.

## 2.2 NON-CASH PAYMENTS

### 2.2.1 CREDIT TRANSFERS

Credit transfers are the main form of non-cash payment made in the Czech Republic. They are used in particular by legal entities and investors to settle their contractual financial obligations. However, credit transfers can be used for all kinds of payment. Banks also carry out recurring payments for their customers (e.g. for the payment of rent, and of water or gas bills) based on customers' standing orders.

Different types of electronic banking service are provided by the banks. Customers can present their payment orders electronically or in paper form. The majority of payment orders come to the banks in electronic form.

Time-limits for credit transfers are stipulated in the Payment System Act. If the credit transfer takes place between accounts held at the same bank, the payee's account is credited on the same day as the payer's account is debited. In the case of a payment to an account in another bank, the payee's account is credited, at the latest, on the second working day after the payer's account has been debited. Therefore, the total time taken to transfer credit from one customer to another should not exceed three working days. In practice, this takes two days.

The time between the presentation of a payment order to the bank and the debiting of the payer's account is subject to the contract between the customer and the bank. If the payment order is presented in the morning, the payer's account is usually debited on the same day.

In 2004 the total volume of credit transfers in the Czech Republic was 410.01 million, with a total value of CZK 60,265.1 billion (€1,889.7 billion).

### 2.2.2 DIRECT DEBITS

Direct debits are commonly used in the Czech Republic for certain types of payment, such as for energy and telecommunication bills, or for payments arising from some commercial contracts. With direct debits, the payer's instruction is given to its bank, specifying the account number of the payee and the maximum amount to be collected within a specified time period, usually within one month. The payer's bank does not examine the agreement – if such an agreement exists – concerning the mandate between the payer and the payee. The direct debit payment cannot be revoked by the payer.

By contrast with credit transfers, the payees present direct debits to their banks for collection. The payee's bank will send the direct debit request electronically through the interbank payment system to the payer's bank. If previously authorised by the payer, the payer's bank will settle the payment and will transfer funds to the payee's account. If prior authorisation is not given, the bank will not carry out the payment and will return the refusing information to the payee's bank.

Time-limits for direct debits are stipulated in the 2004 Česká národní banka Decree. In the case of a direct debit from an account in the same bank, the payee's account is credited on the same day as the payer's account is debited. If the direct debit request has to be processed through one or more intermediary banks, the payer's account is debited, at the latest, on the third working day after the payee has presented a direct debit to its bank for collection. The payee's account is then credited, at the latest, on the second working day after the payer's account has been debited. Therefore, the total time taken to process a direct debit should not exceed five working days.

In 2004 the total volume of direct debits in the Czech Republic was 269.72 million, with a total value of CZK 4,310.1 billion (€135.2 billion).

### 2.2.3 CHEQUES

The use of cheques in the Czech Republic has traditionally been limited. In 2005 around 0.45 million payments were made using cheques. Cheques are archived by the banks (for ten years under Czech law) either as originals or on microfilm. Some cheques are personalised using optical character recognition printing.

For further details on the settlement of cheques, see Section 3.3.3.

#### *Private cheques*

Private cheques are used for payments of larger amounts or to withdraw cash from bank accounts. Private cheques are not truncated and are physically returned to the payer's bank for approval.

#### *Bank cheques*

Bank cheques are cheques drawn by a bank on itself. The cheques are purchased by the payers and given to the payees, which present them to their banks for collection. Most bank cheques are physically returned to the issuing bank for approval. Some banks have agreed on the acceptance of bank cheques in accordance with unified rules stipulated by Česká národní banka. (These banks exchanged specimen cheques and signatures.) Such cheques are not physically returned but are truncated.

#### *Traveller's cheques*

Banks sell traveller's cheques issued by some large international companies (e.g. Citicorp and Thomas Cook).

### 2.2.4 PAYMENT CARDS

Payment cards have been used in the Czech Republic since 1990. Banks mostly issue debit cards under licence from MasterCard and Visa. American Express and Diners Club International also issue payment cards in the Czech Republic. Some non-banks issue various types of card (e.g. prepaid, credit and loyalty cards).

For further details on the settlement of payment card transactions, see Section 3.3.2.

#### *Debit cards*

Debit cards were the first bank cards in the Czech Republic, and currently these cards are the most widespread. At the end of 2005 there were 6.5 million debit cards in circulation, out of a total of 7.4 million payment cards issued by domestic banks. Banks are currently migrating to chip payment technology by issuing "hybrid cards" (i.e. cards with both technologies – a magnetic strip and a chip).

#### *Credit cards*

Credit cards have been issued in the Czech Republic since 1997. At the end of 2005 there were around 872,000 credit cards issued by banks. Some non-banks issue their own credit cards with limited consumer credit.

#### *Single-purpose prepaid cards*

Some non-banks (e.g. the telephone company and petrol companies) issue various types of single-purpose prepaid card that can be used to purchase their goods and services.

### 2.2.5 E-MONEY

36 public transport companies issue their own card-based e-money for the payment of fares in trams, buses and trains. One company issues card-based e-money to pay for services in the employees' facilities. Another company operates an internet-based e-money scheme to pay for goods online. All issuers operate with Česká národní banka's permission in accordance with the Payment System Act.

### 2.3 RECENT DEVELOPMENTS

Although cash payments are still the most widely used form of payment in the Czech Republic, non-cash payments have increased in recent years, especially direct debits. Customers are increasingly using electronic means of communication with their banks.

### 3 INTERBANK PAYMENT SYSTEMS

#### 3.1 GENERAL OVERVIEW

The only interbank payment system in the Czech Republic, which handles interbank payments in Czech koruna, is the CERTIS system (see Section 3.2) owned and operated by Česká národní banka. The system processes interbank payments regardless of whether they are of high or low value. The system also provides settlement of the summarised positions arising from card payment clearing and cash settlement of interbank payments arising from securities trades.

#### 3.2 THE CERTIS SYSTEM

CERTIS started live operations within the Clearing and Settlement Centre of the SBCS in the former Czechoslovakia on 8 March 1992. After the division of Czechoslovakia at the beginning of 1993 a new clearing centre was founded in Slovakia, while the former federal Clearing and Settlement Centre remained within Česká národní banka.

Each participant in CERTIS is identified by a unique Bank Identifier Code, which is an obligatory part of any payment transaction. Additional numerical codes (payment symbols) are used to provide more detailed information about the payments.

##### 3.2.1 OPERATING RULES

The CERTIS system is based on the following principles:

- real-time gross settlement (RTGS);
- settlement of interbank payments in Czech koruna, irrespective of their value;
- settlement in central bank money on accounts held at Česká národní banka;
- direct participation by banks and by savings and credit cooperatives;

- the irrevocability and finality of all transactions accepted by the system;
- uncovered transactions are neither settled nor rejected, but held in a queue (with two priority levels);
- no overdrafts are permitted; and
- fully collateralised intraday credit, which bears no interest, is provided by Česká národní banka to those banks that are SKD (see Section 4.3.1.1) clients, with securities registered in the SKD being accepted as collateral.

##### 3.2.2 PARTICIPATION IN THE SYSTEM

###### *Direct participants*

Banks holding a banking licence for operations within the territory of the Czech Republic, branches of foreign banks, and savings and credit cooperatives can be direct participants in CERTIS (there were 39 at the beginning of 2007). The CERTIS system, located at Česká národní banka's head office, communicates only with the head offices of the banks. Each bank has only one interbank payment account with Česká národní banka.

###### *Ancillary systems (“third parties”)*

Under bilateral agreements with Česká národní banka, certain financial institutions are allowed to participate in the system with a special status. These “third parties” are non-bank financial institutions, for example card payment clearing houses and the securities clearing and settlement institutions. They have no interbank payment account with Česká národní banka but, with the permission of the direct participants concerned, can submit payment orders to CERTIS to transfer funds between direct participants.

Details of the ancillary systems are given in Sections 3.3.2 and 4.3.1.

### 3.2.3 TYPES OF TRANSACTION HANDLED

The following types of transaction are handled in the CERTIS system:

- credit transfers;
- direct debits;
- corrective settlement transfers (credit transfer cancellations);
- ancillary system transactions; and
- information and technical transactions.

Credit transfers can be low-priority transactions or one of two types of high-priority transaction (bank-to-bank priority transfers, and clients' priority transfers). Clients' priority transfers must be credited to the payee's account on the same day.

### 3.2.4 OPERATION OF THE SYSTEM

For the operation of the interbank payment system, Česká národní banka maintains accounts (interbank payment accounts) in Czech koruna for direct participants to settle their interbank payments. Česká národní banka executes funds transfers from interbank payment accounts on the basis of instructions from the participants.

Balances on interbank payment accounts are also used to fulfil the reserve requirements. The maintenance of minimum reserves is mandatory in the Czech Republic. Minimum reserves are set at explicit percentage points of deposits (2.0% as at 31 December 2006) and can be used for interbank payments.

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

The CERTIS system has various means of safeguarding its availability and the correct execution of interbank payments. In October 1996 final acceptance tests for the new project to provide a real-time backup facility based on the technology of disk mirroring were successfully completed.

At the beginning of 1999 live operation of the new web-based sub-system of CERTIS, called the CERTIS Information System (CERTIS-IS), started. This sub-system provides participants with information about the important parameters of the processing, including current balances, individual transactions, queued payments and other operational aspects. The design is based on extranet technology using strong encryption features and authentication tokens.

Since 2001 two further sub-systems of CERTIS, called the CERTIS Data Security System (CERTIS-DSS) and the CERTIS Message Transfer System (CERTIS-MTS), have been in live operation. CERTIS-DSS ensures electronic signature and encryption of data. It is based on PKI with the certification authority operated by Česká národní banka. CERTIS-MTS enables data to be submitted and processed automatically without the operator's intervention.

### 3.2.6 SETTLEMENT PROCEDURES

A normal accounting day begins on the previous working day (D-1) at around 5 p.m. CET for acceptance of payment orders. The settlement starts at midnight CET on the working day (D). The cut-off time is on day D at 4 p.m. CET. The time between 3.30 p.m. and 4 p.m. CET on day D is used for the fine-tuning of balances on the interbank payment accounts. Funds for this purpose can be obtained on the interbank money market.

During the accounting day, participants send data to CERTIS in electronic form in accordance with fixed rules and procedures which are part of the agreement between Česká národní banka and participants. Participants deliver data using the telecommunications network. SWIFT is not used. When the control programs confirm that all data are of the required quality, a payment order is accepted by the CERTIS system and the settlement process can begin. During that process the account of the sending bank is checked to see if it contains sufficient funds to cover the transactions submitted. If the result of the check is positive, the transfers are immediately settled by debiting the sending

bank's account and crediting the receiving bank's account. (The throughput of the system is around 1 million transactions per hour.) The processed transactions are transmitted to the relevant participant in electronic form via the telecommunications network.

### 3.2.7 CREDIT AND LIQUIDITY RISK

CERTIS executes payments only if the sending bank's account has sufficient cover (with no overdrafts being allowed on the accounts). If funds are insufficient to cover a transaction, the transaction is placed in the "hold queue". Information about queued payments is accessible for the bank in question through CERTIS-IS (see Section 3.2.5). Sufficient cover for the execution of queued payments may be obtained:

- through incoming funds transfers;
- through borrowing in the money market;
- from Česká národní banka in the form of fully collateralised intraday credit (see Section 3.2.1); securities registered in the SKD are accepted as collateral;
- from Česká národní banka by means of a fully collateralised overnight credit line.

If for any reason the bank is not able to obtain the required funds by the end of the accounting day, the transfer instructions in the hold queue will be rejected by the system and returned to the sending bank.

### 3.2.8 PRICING

The pricing policy is determined by Česká národní banka with the aim of ensuring cost recovery for CERTIS. At the same time, the pricing structure is designed to encourage participants to spread the delivery of data to CERTIS optimally across the accounting day. The time schedule of the accounting day and the related charges are part of the price list, which is available at [www.cnb.cz](http://www.cnb.cz). The aim has been not only to extend the operating hours, but

also to support Česká národní banka's efforts to finish the end-of-day procedure on time.

Česká národní banka encourages the delivery of payment instructions as early as possible on the accounting day in order not to overload the system with a large transaction volume at the end of the accounting day. The current fee for participants is therefore set at a very low level at the beginning of the accounting day (CZK 0.22 (€0.008)) whereas, at the end of the day, when only high-value bank-to-bank transactions are expected, the transaction fee is considerably higher (up to CZK 100 (€3.53)).

For banks with a larger volume of transactions, the discount rates of CZK 0.04 (for monthly volumes over 250,000 transactions), CZK 0.08 (for volumes over 2.5 million transactions) and CZK 0.13 (for volumes over 5 million transactions) are granted.

### 3.2.9 STATISTICAL DATA

In 2006 the total volume of transactions processed by CERTIS was 381.7 million, with a total value of CZK 151,537 billion (€5,346.8 billion). The average daily volume of transactions was 1.52 million, with an average daily value of CZK 603.7 billion (€21.3 billion). The peak amount reached was 4.95 million transactions per day.

## 3.3 THE RETAIL PAYMENT INFRASTRUCTURE

### 3.3.1 RETAIL PAYMENT SYSTEM

The retail payment infrastructure in the Czech Republic consists of the payment system CERTIS (see Section 3.2), which processes both retail and large-value payments.

### 3.3.2 CARD PROCESSING

In the Czech Republic, four ATM and EFTPOS terminal networks are in operation. Two banks provide their own network, while other banks use the services of a private company for their ATMs and EFTPOS. There is also one ATM network where it is possible to use products of MasterCard, Visa or Diners Club International provided by a private non-bank company.

At the end of 2005 cardholders could use 3,005 ATMs for cash withdrawals and 62,661 POS terminals (52,683 EFTPOS) to pay for goods or services. Some ATMs offer additional functions (credit transfers, cash deposits, account balance information, etc.).

Domestic bank card transactions are cleared in different ways depending on the brand. These transactions are settled by CERTIS using a third-party instruction (see Section 3.2.2) or in some cases directly between banks on a bilateral basis.

### 3.3.3 CHEQUE TRANSFER SYSTEMS

There is no separate cheque clearing in the Czech Republic. If the payee and payer are customers of the same bank, cheques (see Section 2.2.3) are processed within a bank's internal network. In the case of interbank payments, cheques are settled by CERTIS. Private cheques and bank cheques that are not truncated are sent physically for collection, and the funds are then sent from the payer's to the payee's bank by credit transfer.

## 4 SECURITIES SETTLEMENT SYSTEMS

In the Czech Republic, the trading of stock in publicly traded companies is conducted through two public market-places: the Prague Stock Exchange and the RM-SYSTEM. These public markets enable trading also in different kinds of bond and other investment instruments.

All securities are registered in two registration centres. The SKD is used for the registration of book-entry short-term fixed income securities with a maturity of up to one year (mainly Treasury bills and Česká národní banka bills). The Securities Centre is used for the registration of book-entry equities and securities (debt instruments with a maturity of more than one year and shares).

There are three independent securities settlement systems in the Czech Republic: one for the settlement of short-term fixed income

securities with a maturity of up to one year (the SKD) and two for the settlement of all other securities. The UNIVYC, which is a subsidiary of the PSE, settles securities listed on the PSE. The RM-SYSTEM settles all trades in securities listed on the RM-SYSTEM market. Cash settlement is carried out in CERTIS (all three SSSs are connected to CERTIS as ancillary systems – see Section 3.2.2). In the case of the RM-SYSTEM, cash settlement is carried out through the CSOB, which is a direct participant in CERTIS.

### 4.1 TRADING

#### 4.1.1 ORGANISED TRADING ON THE PRAGUE STOCK EXCHANGE

##### 4.1.1.1 Prompt market

The following three types of trade can be conducted on the "prompt market" of the PSE:

- trades involving the participation of market-makers (via SPAD, a system for trading in shares and bonds);
- automatic trades (auction and continual); and
- block trades.

SPAD trades and automatic trades are concluded in the PSE's trading system and are guaranteed by the Stock Exchange Guarantee Fund, which secures obligations and covers risks arising from PSE trades and their settlement.

Block trades are concluded outside the PSE system, but after they have been concluded they are registered by the PSE members in the system. Guarantees do not apply to these trades.

In the PSE system, it is also possible to enter UNIVYC trades and transactions that are off-exchange (OTC) direct transactions which can be conducted by PSE or UNIVYC members.

### ***Trades involving the participation of market-makers (SPAD)***

The SPAD system relies on market-makers. A market-maker is a PSE member which has concluded an official contract with the PSE on acting as market-maker for selected issues. There are no limits on the number of market-makers per issue or the number of issues per market-maker. SPAD activity is divided into two phases: open and closed.

During the open phase, all market-makers are obliged to publish their quotations (buying and selling prices) for issues for which they act as market-makers. A market-maker is authorised to change its quotation at any time, but it can cancel its quotation only in the event of technical difficulties. On the basis of these quotations, the best quotation (i.e. the highest buying and the lowest selling price) is set for each issue. It is only possible to carry out trades within the allowable spread, currently defined as the best quotation plus or minus 0.5%.

If the arithmetic mid-point of the allowable spread deviates by more than 20% from the arithmetic mid-point fixed at the beginning of the open phase, and if it fails to return to within the allowable spread within two minutes of the breach, a 15-minute break is announced. No trades may be concluded within SPAD during this break, and the preceding quotations by market-makers are cancelled. If, during the break, at least three market-makers declare their readiness to quote for the securities issue in question, the allowable spread is expanded by an additional 10% after the break ends, and this may be repeated until the maximum limit of +/-50% is reached.

During the closed phase market-makers are not obliged to quote. Trades can be made within the allowable spread defined by the best quotation +/-5% at the moment when the open phase ends.

This is a pricing segment for all issues assigned to SPAD. The closing price is set in the course of the open phase and is always equal to the

arithmetic mid-point of the allowable spread. The last official price (set at 4 p.m. CET) becomes the official closing price for a given PSE day. No block trades can be made in securities assigned to SPAD trading, with the exception of above-limit trades which, in volume terms, exceed the limit set by the PSE (around CZK 150 million (€5.3 million)).

### ***Automatic trades***

The auction regime is based on price priority, i.e. priority is given to an order with a "better" price (higher buying price or lower selling price). If an order stating no price is input, this means the broker is willing to buy or sell the security for the market price.

The auction regime is divided into two phases. In the course of the closed phase, orders (or modifications or cancellations) are taken and no information is published. In the course of the open phase, orders are taken and information for trading participants is published in real time (theoretical prices, excesses, allocation ratios, etc.). All of these data are continuously updated after each change.

Trades under the continual regime are made on the basis of a continual input of orders for the purchase and sale of securities. Price and, subsequently, time priority principles are applied to order matching, which means that if more orders of an equal price are input, priority is given to orders input earlier. Orders valid for more than one exchange day can be input into the system.

Under the continual regime, there are orders with a minimum quantity required for the order to be satisfied and orders with partially displayed quantity (the total required quantity is not seen by the market at one time but is displayed in parts). Orders can be simultaneously input without stating a price.

### ***Block trades***

In a block trade on the PSE, at least one party is represented by a PSE member, which is registered in the PSE's trading system. The

trade is in one securities issue. The price for such a trade is neither limited nor tied to the official price of the security. A block trade must meet the minimum value requirements, which are currently set at:

- CZK 1 (€0.035) for shares and units; and
- CZK 10,000 (€353) for bonds.

There are two types of block trade: block trades where both parties are represented by PSE members; and block trades with non-members registered at the PSE (one party is represented by the PSE member and the other party by a non-member).

#### 4.1.1.2 Derivatives market

At the end of 2000 the presidium of the Securities Commission decided to prepare for and subsequently implement a series of steps leading to the creation of an organised derivatives market in the Czech Republic. Several basic principles were taken into account with regard to the establishment of trading in derivatives:

- the market organiser and the settlement company must meet the same predetermined requirements as on the advanced capital markets concerning legislation and the monitoring and reporting of transactions;
- licences to trade in derivatives will be granted by Česká národní banka to traders which demonstrate that they are sufficiently well organised and technically equipped and meet the capital adequacy requirements;
- standard accounting procedures will be implemented; and
- trading will only be permitted if assets are sufficiently liquid.

The way was opened for derivatives markets at the beginning of 2006, when amendments to important laws regulating the local capital

market came into force. However, further steps are necessary to enhance the functioning of the derivatives market.

The derivatives trading system of the PSE is a fully automated system functioning on the basis of standard principles used in international markets. The system consists of several modules (trading, settlement, surveillance and dealer) and has been integrated as a complete system into the existing trading and settlement environment of the PSE, which means that all data flows are processed in real time.

The system makes it possible to trade both futures and options contracts. Trading is based on the membership principle, with market-makers ensuring sufficient liquidity in the market, and is carried out with anonymous publication of offers and bids. Moreover, all the market participants have the entire depth of the market at their disposal via online terminals and terminals of information agencies. Standard orders, common for these types of trade, can be input into the system. Order matching and subsequent contract-making follow two criteria: price and order-input time.

On 5 October 2006 the PSE launched trading in PX index futures contracts. These financial instruments are traded on a special regulated market of the PSE. The SPAD system is used for futures trading.

#### 4.1.2 ORGANISED TRADING IN THE RM-SYSTEM

The RM-SYSTEM is a regulated securities market which organises the supply of and demand for shares and securities with a maturity of more than one year. Some of the securities listed and traded in the RM-SYSTEM are also traded on the PSE.

Czech shares and bonds listed on the RM-SYSTEM can be traded in this system (as well as on the primary market) continuously. Direct trades (where the traders are known to each other) take place in an auction. The RM-SYSTEM also enables its participants to borrow securities and to carry out share buyouts.

Any market participant can have direct access to the system. Communication between the participants and the RM-SYSTEM is based on a real-time online network. Trades are increasingly being made on the internet.

The pricing policy is determined in order to ensure cost recovery for the RM-SYSTEM. The type and level of fees are set by the Director of the RM-SYSTEM. Fees are charged mainly for using online workstations, for trading in auctions and for providing information.

As part of the preparations for integration into the European capital markets, the central computers of the RM-SYSTEM and Wiener Börse AG have been connected since June 1998. The RM-SYSTEM is technically and legally ready to provide services for derivatives trading on Wiener Börse. In April 1999 a system allowing order entry via an online internet application was implemented, and in May 2001 an order entry system was launched on the RM-SYSTEM's website.

## 4.2 CLEARING

There is no independent clearing house in the Czech Republic. Post-trade and pre-settlement clearing services performed in connection with the settlement procedures (and not in a separate clearing entity) are described in Section 4.3.

## 4.3 SETTLEMENT

All securities in the Czech Republic are settled through three independent securities settlement systems: one system for the settlement of short-term securities with a maturity of up to one year and two for the settlement of all other securities:

- the SKD (see Section 4.3.1.1) settles short-term fixed income securities with a maturity of up to one year;
- the UNIVYC (see Section 4.3.1.2) settles trades in stocks listed on the PSE, other stocks not listed on the PSE, and different

kinds of bond (regardless of whether they are listed on the PSE), and soon it should also settle other investment instruments listed on the PSE (derivatives, investment certificates and warrants); and

- the RM-SYSTEM (see Section 4.3.1.3) settles all trades in securities listed on the RM-SYSTEM (equities, bonds and mutual funds).

### 4.3.1 SECURITIES SETTLEMENT SYSTEMS

#### 4.3.1.1 The SKD

The SKD was developed by Česká národní banka as an in-house system and has been in use since May 1995. It is operated by Česká národní banka on the basis of the delivery-versus-payment principle and is used for the issuance, registration, settlement, redemption and payout of yields of short-term Treasury bills and Česká národní banka bills.

In terms of the SKD's operation, its participants have been divided, since 1 July 2005, into agents and clients – and recently also custodians. The clients and the custodians participate in the activities of the SKD through the agents. At the end of 2006 a total of 22 agents, 109 clients, 4 custodians and 152 asset accounts were registered in the SKD.

A client is a legal entity or natural person with which Česká národní banka has concluded a contract on an owner account in the SKD, in which securities owned by the client are recorded. The client may have one or more owner accounts in the SKD and has access to each of them via the agent specified in its contract.

A custodian is a legal entity with which Česká národní banka has concluded a contract on a client account in the SKD, in which securities owned by persons other than the custodian (the custodian's clients) are recorded. The custodian may have one or more client accounts in the SKD. The custodian has access to each client account through the agent mentioned in its contract.

The agent concludes with Česká národní banka an agreement on access to its communication gateway in order to have an online connection with the SKD. It must also conclude with Česká národní banka a contract on participation in the SKD. The agent must have either its own interbank payment account with Česká národní banka or an account with a bank which has an interbank payment account. Within the framework of the settlement ensured by the SKD, the payments of the custodians and the agent's clients are covered from the agent's interbank payment account, with the relevant asset account specified in the contract on participation in the SKD. On the basis of its contract on participation in the SKD, the agent is authorised to provide other participants, custodians and clients with services relating to their asset accounts and to obtain information relating to them from the SKD.

Only a client may issue securities in the SKD. A client intending to issue securities must use the services of an agent with access to the client's asset account. The clients interested in an auction submit their orders to purchase securities of a given issue (the yields at which the primary sale will be executed in the individual cases) in electronic form. Within the framework of the SKD, an option to use various auction algorithms when covering investors' orders in an auction is offered. After the end of the auction, securities from covered investors' orders are settled on the primary market on the issue day.

Česká národní banka has issued specific rules on the functioning of and participation in the SKD. These rules regulate the record-keeping method for securities and other activities of the system, with a view to ensuring the smooth and efficient operation of the SKD system.

The pricing policy is determined with the aim of ensuring cost recovery for the SKD. The Board of Česká národní banka decides on the type and level of fees. The main fees are for admission, monthly participation, opening and

maintaining a securities account, and securities transactions.

The SKD does not provide cross-border settlement and has no international links.

#### 4.3.1.2 The UNIVYC

The UNIVYC is fully owned by the PSE. Its activities are regulated by the Capital Market Undertakings Act and by its internal rules and regulations, which are mandatory for its participants.

The UNIVYC handles all bond and share issues listed on the PSE and other issues registered in the central securities database of the PSE system for settlement of OTC transactions via the UNIVYC. Around 99% of listed securities are in book-entry form and only around 1% of securities are in certificated form. This number has been decreasing as these certificated bonds have been maturing. New issues of securities are only in book-entry form.

The UNIVYC operates on the contract-based participation principle. This newly formulated principle was reflected in the new UNIVYC settlement system rules effective from 1 December 2004. These rules extended the range of persons eligible to become UNIVYC settlement system participants. Any legal entity which has been granted permission to act as a securities trader pursuant to the Capital Market Undertakings Act and which has met the conditions laid down in the UNIVYC settlement system rules is eligible for UNIVYC participation. A further condition for participation is that the entity must have paid-up share capital of at least CZK 10 million (€353,000). In addition, there are several solvency and bankruptcy-related conditions that would make an entity ineligible.

Communication between participants and the UNIVYC takes place through a real-time online network.

The pricing policy is intended to ensure cost recovery for the UNIVYC. The UNIVYC Board of Directors decides on the type and level of fees. UNIVYC fees have not been changed substantially in recent years. Most adjustments to UNIVYC fees have reflected changes in input costs.

The UNIVYC does not handle cross-border transactions. Although it is a participant in Clearstream Banking Luxembourg (CBL) and has an account there, the UNIVYC does not enable cross-border settlement with foreign securities deposited there for its participants. The foreign securities which are listed on the PSE are traded by PSE members and settled by the UNIVYC, which has a direct link with Clearstream. For the purpose of settlement, the foreign securities must be transferred to the UNIVYC account with CBL. The UNIVYC keeps its own record of those securities that are placed on the accounts of their owners. UNIVYC participants give the UNIVYC orders to receive the securities on a specific owner's account or to deliver them from the owner's account (kept in the UNIVYC) to another account with CBL or any other depository. All of these transfers between the UNIVYC account with CBL and accounts with any other depository are free of payment (FOP). When the UNIVYC receives the securities on its account with CBL, it always records them on the specific owner's account in accordance with the participant's instructions. The UNIVYC settles the trades in foreign securities among accounts in its own books only. Such settlement is delivery versus payment (DvP). Some of the foreign securities are listed also on other exchanges.

The UNIVYC became a member of the European Central Securities Depositories Association (ECSDA) in January 2006.

#### **4.3.1.3 The RM-SYSTEM**

The RM-SYSTEM settles all trades in securities listed on the RM-SYSTEM market (equities, bonds and mutual funds). The cash settlement is carried out through the CSOB by the RM-SYSTEM.

## **4.3.2 OPERATIONAL ASPECTS**

### **4.3.2.1 Settlement procedures in the SKD**

The SKD operates on the basis of the DvP principle. It continuously settles securities on a gross basis and enables settlement on the trade date (T). Finality is reached at the moment the securities are transferred to the asset accounts.

Within the SKD, securities transfers are settled for the clients and custodians on the basis of the instructions given by their agents. The settlement of securities transfers is executed by the SKD for the clients and custodians in conjunction with the CERTIS system on a DvP basis. This involves the transfer of securities from the asset account of the client which is the seller, or the asset account of the custodian in which the seller's securities are recorded, to the asset account of the client which is the buyer, or to the asset account of the custodian in which the buyer's securities will be recorded, and the payment of the agreed purchase price by the buyer to the seller.

The securities settlement process starts with the blocking of the securities in the asset account of the client or custodian. After this blocking, an order to the CERTIS system (a third-party instruction; see Section 3.2.2) is automatically created for the transfer of the relevant amount from the interbank payment account of the buyer's agent, or the bank of the buyer's agent, with details of the relevant asset account of the agent, to the asset account of the seller. The connection between the SKD and the CERTIS system is fully automated, and the order is usually executed within a couple of minutes. Once the financial transfer has been completed, the blocked securities are transferred from the asset account of the seller to the asset account of the buyer. Until the funds transfer is confirmed, the securities remain blocked on the seller's account. If the transaction is not settled in CERTIS by the end of the accounting day, the transaction is rejected, the SKD suspends the trade and the blocked securities are released.

The SKD also enables FOP transfers (i.e. transfers of securities without any transfer of funds). These transfers are enabled under specific rules of the SKD (see Section 4.3.1.1).

Česká národní banka implemented new technology with a higher level of security and better performance in the course of 2002. The modernised SKD is able to provide an intraday collateralised credit facility to banks which have their interbank accounts in CERTIS.

#### 4.3.2.2 Settlement procedures in the UNIVYC

The settlement of securities trades normally consists of two operations, namely the delivery of the securities and the funds transfer. The time, form and guarantees of settlement depend on the type of trade. The settlement of securities and cash is carried out on a gross basis.

##### 4.3.2.2.1 Securities settlement

The type of securities settlement depends on the form of the securities. The SCP, which is a state-owned CSD, registers the beneficial owners of book-entry securities. The certificated securities are deposited in the UNIVYC contractual depository. The UNIVYC records these securities on the beneficial owners' accounts and carries out securities transfers between them.

##### 4.3.2.2.2 Cash settlement

Cash settlement is carried out through the CERTIS system, to which the UNIVYC is connected as an ancillary system (see Section 3.2.2). UNIVYC bank participants have interbank payment accounts in CERTIS. Cash settlement of the trades concluded by the participants is effected via these accounts. UNIVYC non-bank participants use interbank payment accounts of bank participants to settle their trades. The relationship between UNIVYC non-bank participants and their clearing banks is subsequently modified by the contract.

#### 4.3.2.2.3 Settlement of particular kinds of trade

Settlement is performed in daily batches. Securities and cash are not netted. Settlement is final when CERTIS confirms the cash transfers corresponding to the delivered securities.

Settlement of trades involving the participation of market-makers (SPAD) is guaranteed by the Stock Exchange Guarantee Fund for SPAD. It is carried out on a T+3 basis. However, if participants agree, it is possible to settle a trade from T+1 to T+15. In the event that a party does not fulfil its obligation, it has a further three days to settle. If, after this time, the trade is not settled, the UNIVYC will cancel its settlement and will organise a substitute trade. The UNIVYC will ask all market-makers to stand in for the party that was unable to settle. If buy-in and sell-out procedures are completed, any difference between the original price and the price paid in these procedures is paid out of the Stock Exchange Guarantee Fund for SPAD.

Automatic trades are settled on the third accounting day after the conclusion of the trade (T+3). The settlement is guaranteed. If the selling party does not deliver the securities or if the buyer does not pay for the purchase, the UNIVYC will organise a buy-in or sell-out procedure where the price difference between the original trade and this one is paid out of the Stock Exchange Guarantee Fund for Automatic Trades.

Block trades are settled on the settlement day "S", which is determined by the participants and falls between 0 and 15 accounting days after the trading day. The settlement is not guaranteed by the UNIVYC. If participants are not able to fulfil their obligations, the settlement is suspended. It may be settled with an alternative term, by the day S+6 inclusive. If a participant's insolvency or its inability to supply the securities continues after this term, the block trade is cancelled. After that, participants can ask the UNIVYC for subsequent settlement.

OTC transactions may be settled on a delivery-versus-payment (DvP) or a delivery-free-of-payment (DFP) basis. The settlement is not guaranteed and is handled in a similar way to the settlement of block trades. The settlement day is chosen by the parties to the transaction and falls between T+0 and T+99.

#### **4.3.2.2.4 DvP arrangements**

The UNIVYC provides DvP settlement but not real DvP settlement, because it only has remote access to the securities depository, which means that it is possible to reverse the transfer of securities during the settlement process in the event of a participant's insolvency. It always settles either both parts of the settlement (the securities and the cash legs) or neither of them.

#### **4.3.2.2.5 Credit and liquidity risk control measures**

Credit risk is limited by using a guarantee in the form of the Stock Exchange Guarantee Fund. This fund is used in cases where a member is unable to find an alternative method to fulfil its obligations.

The Stock Exchange Guarantee Fund consists of two funds: the Guarantee Fund for SPAD and the Guarantee Fund for Automatic Trades. The financial resources are registered separately in the two funds and their use is governed by the rules of the Stock Exchange Guarantee Fund. The UNIVYC was put in charge of the administration and management of the participants' deposits under these rules.

On 31 May 2006 an extraordinary assembly of the Guarantee Fund approved a change to the rules of the Stock Exchange Guarantee Fund. A third Guarantee Fund for Derivatives will be set up. This fund will cover obligations and claims arising from stock exchange trades in futures.

The Stock Exchange Guarantee Fund is composed of the financial deposits of participants, which are based on the volume and frequency of PSE trades by individual participants. The Exchange Chamber sets a

minimum deposit amount for the individual participants.

#### **4.3.2.2.6 Recent developments**

In compliance with the 2004 Capital Market Undertakings Act, the UNIVYC adapted its new regulations. The major change incorporated in the new UNIVYC settlement system (effective from 1 December 2004) was the transition from the existing membership principle to the participation principle. In addition, analytical and software work related to the improvement of the securities registration system and the perfection of the settlement system continued with the aim of fully ensuring the DvP principle and adapting the UNIVYC settlement system in line with the new legislation. A further upgrade of the links between the UNIVYC settlement system and its participants was accomplished.

In 2006 preparations for the new CSD remained the main UNIVYC development project. The new CSD will combine registration and settlement of securities and should contribute to the increased transparency and competitiveness of the Czech capital market and to a gradual decrease in the costs of registration and settlement.

The present UNIVYC development activities are connected above all with the preparations for the CSD and with the UNIVYC's participation in the following PSE projects:

- ensuring the transfer of the existing securities registration in the SCP to the new CSD;
- two-tier securities registration within the framework of the CSD;
- ensuring settlement of trades in futures, certificates and warrants in connection with the launch of trading in these instruments on the PSE market; and
- further improvement of the functioning of the UNIVYC settlement system.

### 4.3.2.3 Settlement procedures in the RM-SYSTEM

#### 4.3.2.3.1 Securities settlement

Settlement of securities is carried out in real time. The pre-trade validation, which fully eliminates credit risk, means that, in the case of sell orders, the securities accounts in the SCP are validated before the trade and the securities are blocked. After the trade, the change in ownership of the securities is registered in the SCP on these accounts and finality is achieved within seconds of the orders being matched.

#### 4.3.2.3.2 Cash settlement

Cash settlement is carried out through the CSOB and commissioned by the RM-SYSTEM. The buyer must deposit sufficient funds in advance in a specific bank to cover the purchase. Before the order is executed, the funds on the buyer's cash account are blocked. After the trade, the amount needed to cover the securities sold is credited to the account stated by the seller.

#### 4.3.2.3.3 DvP arrangements

Settlement in the RM-SYSTEM is based on DvP arrangements.

#### 4.3.2.3.4 Credit and liquidity risk control measures

Credit and liquidity risk are eliminated by the pre-trade validation, i.e. in the case of sell orders, by the blocking of relevant securities on securities accounts in the SCP, and, in the case of buy orders, by the blocking of adequate funds on a cash account in a specific bank.





# DENMARK

## CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>66</b>
<b>USEFUL LINKS</b>	<b>66</b>
<b>USEFUL PUBLICATIONS</b>	<b>66</b>
<b>INTRODUCTION</b>	<b>67</b>
<b>1 INSTITUTIONAL ASPECTS</b>	<b>68</b>
1.1 The general institutional framework	68
1.2 The role of the central bank	69
1.3 The role of other private and public sector bodies	71
<b>2 PAYMENT MEDIA USED BY NON-BANKS</b>	<b>72</b>
2.1 Cash payments	72
2.2 Non-cash payments	73
2.3 Recent developments	77
<b>3 INTERBANK PAYMENT SYSTEMS</b>	<b>77</b>
3.1 General overview	77
3.2 The RTGS system Kronos	78
3.3 Other large-value payment systems	81
3.4 The retail payment infrastructure	81
<b>4 SECURITIES TRADING, CLEARING AND SETTLEMENT</b>	<b>85</b>
4.1 Trading	86
4.2 Clearing	88
4.3 Settlement	88

## LIST OF ABBREVIATIONS

BEC	Computer centre used by Danmarks Nationalbank – <i>Bankernes EDB Central</i>
CSE	Copenhagen Stock Exchange – <i>Københavns Fondsbørs</i>
MTS	MTS Denmark – wholesale market for trading of Danish government securities
OMX	Exchange owner and operator in the Nordic and Baltic region, and provider of financial services technology
PBS	Payment Business Services
VP	VP Securities Services – <i>Værdipapircentralen</i>

## USEFUL LINKS

Danmarks Nationalbank	<a href="http://www.nationalbanken.dk">www.nationalbanken.dk</a>
Danish Financial Supervisory Authority	<a href="http://www.ftnet.dk">www.ftnet.dk</a>
Danish Bankers Association	<a href="http://www.finansraadet.dk">www.finansraadet.dk</a>
PBS	<a href="http://www.pbs.dk">www.pbs.dk</a>
VP Securities Services	<a href="http://www.vp.dk">www.vp.dk</a>
Copenhagen Stock Exchange	<a href="http://www.cse.dk">www.cse.dk</a>
Danish Competition Authority	<a href="http://www.ks.dk">www.ks.dk</a>

## USEFUL PUBLICATIONS

“Payment Systems in Denmark”, Danmarks Nationalbank, 2005; available at [www.nationalbanken.dk](http://www.nationalbanken.dk), under “Publications”.

“Memorandum of Understanding between Danmarks Nationalbank and Finanstilsynet”, December 2006; available at [www.nationalbanken.dk](http://www.nationalbanken.dk), under “Rules”.

## INTRODUCTION

A key feature of the Danish payments infrastructure is the high degree of cooperation within the financial sector in relation to the technical infrastructure. This cooperation has resulted in unified systems handling all types of retail payment (card payments, direct debits, credit transfers and cheques). Another important result of this cooperation is the advanced and unified system for handling dematerialised securities.

Danmarks Nationalbank plays a key role in the Danish payments infrastructure, since payments between credit institutions to a large extent involve transfers between accounts held at the central bank, i.e. settlement in central bank money. Danmarks Nationalbank's operational role in the infrastructure is not subject to specific legal obligations.

Danmarks Nationalbank has an obvious interest in the smooth functioning of the payments infrastructure in Denmark. Besides developing and operating the RTGS system Kronos (which handles payments in Danish kroner and in euro), Danmarks Nationalbank also provides settlement facilities for the two privately operated systems, namely the VP Securities Services (Værdipapircentralen; VP) and the Sumclearing, through which nearly all retail payments are cleared and settled. Over and above its operational tasks Danmarks Nationalbank also has an important role in ensuring the smooth functioning of the payments infrastructure, overseeing as it does the safe and efficient operation of the country's systemically important payment and securities settlement systems.

The Danish Bankers Association is the trade organisation for the Danish banking sector, and its members include Danish commercial banks, savings banks, cooperative banks and subsidiaries and branches of foreign banks. The Danish Bankers Association coordinates any work on further development of the payments infrastructure and also the wide range of mutual

agreements behind this infrastructure. Furthermore, the Danish Bankers Association is the owner of the Sumclearing system.

The banks have established a joint centre, Payment Business Services (PBS), which operates the Sumclearing and, *inter alia*, the nationwide debit card scheme, Dankort, and other payment instruments, such as direct debits and credit transfers. PBS is jointly owned by the majority of Danish banks and Danmarks Nationalbank.

Trading in listed securities in all market segments can be performed either via the Copenhagen Stock Exchange (CSE), the MTS platform in a Danish market segment (MTS Denmark) or OTC. The settlement of securities transactions is mainly carried out by the VP, which is also responsible for the book entry of securities ownership. Unlisted Danish securities and foreign securities may also be registered with the VP.

## I INSTITUTIONAL ASPECTS

### 1.1 THE GENERAL INSTITUTIONAL FRAMEWORK

#### 1.1.1 THE GENERAL LEGAL FRAMEWORK

The Danish payments infrastructure is only to a limited extent regulated by law. However, the general principles governing the use of banknotes, coins, cheques and payment cards are stipulated in legislation.

Danish law also contains special rules on the protection of the payments infrastructure, and special legislation on means of payment.

There is specific legislation covering traditional alternatives to cash payments, such as cheques and bills of exchange. With the development of new payment instruments, such as payment cards and electronic money, legislation on these instruments has also been adopted. Today, payment cards and electronic money are governed by the Danish Act on certain means of payment and the Financial Business Act.

The issuance of payment cards, including the Dankort, is primarily governed by an extensive set of agreements between the issuing bank, the card holder, the recipient/retailer and the acquiring entity. This structure is supplemented by the Act on certain means of payment, the objective of which is to balance various interests – not least the need for consumer protection and the continued development of secure and efficient payment instruments.

In order to increase consumer protection, the Act on certain means of payment includes provisions to ensure that payment system users are provided with all necessary information, in addition to provisions relating to the division of responsibility and liability in order to provide protection against extensive losses as a result of – for example – misuse of a payment card. The Act also stipulates that issuers must report their payment systems to the Consumer Ombudsman, who is responsible for supervising compliance with the terms of the Act; some areas, however, fall under the remit of the Danish Competition

Authority. The Act also includes rules on recovery of operating costs by payment system providers. Electronic money also falls under the Act on certain means of payment, in which it is referred to as electronically registered claims. By contrast with card payments, electronic money is characterised by not being linked to a specific account from which payments are drawn. Since electronic money is typically of limited value, it is generally exempt from the rules on cost coverage and liability specified above. Company-specific requirements imposed on issuers of electronic money are found in the Financial Business Act. Pursuant to this Act, banks, together with explicitly defined electronic money issuers, have the exclusive right to issue electronic money. Electronic money issuers must be limited liability companies that engage exclusively in such issuance, or in closely related activities. Like the banks, these issuers are under the supervision of the Danish Financial Supervisory Authority (Finanstilsynet), which supervises the solvency and liquidity of the companies concerned.

Together with the Financial Business Act, the Danish Securities Trading Act constitutes the general legislative framework for financial markets. The provisions of EU directives regarding investment services and capital requirements have been transposed into these acts.

The Danish Securities Trading Act governs, *inter alia*, exchange, clearing and settlement organisations. It also covers the registration activities of CSDs, which, according to the provisions of the Act, are subject both to authorisation and supervision by the Danish Financial Supervisory Authority. The Act also provides for the special protection of the securities infrastructure through the implementation of the Settlement Finality and Collateral Directives. Furthermore, the Securities Trading Act has assigned Danmarks Nationalbank explicit authority, with effect from March 2006, to oversee payment systems

not operated by the central bank but deemed to be systemically important. The legal basis for Danmarks Nationalbank's authority to oversee securities settlement systems are the general objectives laid down in the National Bank of Denmark Act.

Directive 97/5/EC of the European Parliament and of the Council of 27 January 1997 on cross-border credit transfers was implemented into the Act on the cross-border transfer of money with effect from August 1999. The Act contains provisions regulating the rights and obligations in the relationship between a credit institution and its customer(s), both before and after the completion of a cross-border credit transfer; it also covers the relationship between credit institutions in the event that a transfer cannot be made. The Act covers transfers up to the equivalent of approximately DKK 370,000 (€50,000).

There are no specific laws governing the organisational and technical aspects of handling payments. The legal basis for settlement via the Danish payment and securities settlement systems includes an extensive set of agreements between the settlement parties. The agreements document the settlement mechanisms of the various systems that settle in central bank money via accounts held at Danmarks Nationalbank. This contractual basis for the payment infrastructure is supported by rules on contractual freedom, the binding nature of agreements and various protections (e.g. a sound legal basis for the netting arrangements) set forth in special legislation in respect of the payment infrastructure.

## 1.2 THE ROLE OF THE CENTRAL BANK

### 1.2.1 GENERAL RESPONSIBILITIES

Danmarks Nationalbank is the central bank of Denmark and is a self-governing institution. However, the Bank's profits, after allocation to the reserves, are transferred to the government. The Bank's legal framework is laid down in the National Bank of Denmark Act of 1936 and in the Bank's by-laws of 1942.

One of Danmarks Nationalbank's key tasks is the issuance of banknotes and coins. The latter's exclusive right to issue banknotes is laid down in the National Bank of Denmark Act. Under the Coinage Act, the Ministry of Economic and Business Affairs may produce and issue coins, following negotiations with Danmarks Nationalbank. Danmarks Nationalbank is in charge of the production and administration aspects of the coin issuance. Coins are legal tender up to a maximum of 25 of each denomination in circulation in connection with a single payment transaction.

The Royal Bank Commissioner, who is the Minister of Economic and Business Affairs, constitutes the formal link between Danmarks Nationalbank and the government, and monitors the Bank's compliance with its obligations under the National Bank of Denmark Act. However, the Board of Governors is in charge of formulating and implementing monetary policy. Thus, Danmarks Nationalbank is independent of the government.

Under the Act, Danmarks Nationalbank must maintain a safe and secure currency and facilitate and regulate the circulation of money and the extension of credit. Danmarks Nationalbank has implemented this requirement through one of its objectives, namely "to contribute to efficiency and stability in payment and clearing systems and in the financial market".

### 1.2.2 PAYMENT SYSTEMS OVERSIGHT

Danmarks Nationalbank oversees the safe and efficient functioning of the three systemically important payment and securities settlement systems in Denmark, namely:

- Kronos: the RTGS payment system operated by Danmarks Nationalbank;
- Sumclearing: the retail payment system operated by PBS; and
- VP Settlement: the securities settlement system operated by VP Securities Services.

The systems are assessed against the recognised international standards, namely the “Core Principles for Systemically Important Payment Systems”, released by the CPSS in January 2001, and the “Recommendations for Securities Settlement Systems”, released jointly by the CPSS and IOSCO in November 2001. The results of these assessments are published in reports available on Danmarks Nationalbank’s website. Oversight of the systems is normally carried out in cooperation with the Danish Financial Supervisory Authority in accordance with principles set out in a memorandum of understanding between the Danish Financial Supervisory Authority and Danmarks Nationalbank.

### 1.2.3 OPERATIONAL ROLE

Danmarks Nationalbank performs some of the banking functions of the central government. Since 2001 government payments have been handled by a commercial bank. However, some large-value transfers by the central government are still handled by Danmarks Nationalbank, which also handles a small number of central government payments to and from other countries.

Danmarks Nationalbank, together with the Ministry of Finance, is responsible for the management of central government debt. The Ministry of Finance is responsible for the central government’s borrowing and debt management, while Danmarks Nationalbank undertakes the associated administrative tasks.

The Danish RTGS system, Kronos, is operated by Danmarks Nationalbank, which is known as the “bank of banks”.

### 1.2.4 THE PROVISION OF PROCESSING AND SETTLEMENT FACILITIES

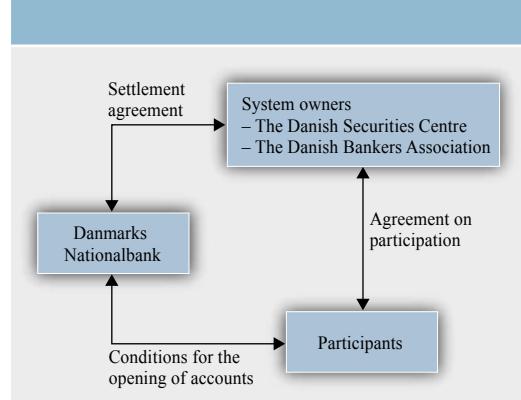
One of the key functions of Danmarks Nationalbank in the payments infrastructure is the provision of settlement facilities and funds transfer services for banks. The provisions in the National Bank of Denmark Act covering the taking of deposits on current accounts by Danmarks Nationalbank are of particular

relevance to its role in the payments infrastructure.

The contractual basis for the operation of the country’s clearing and settlement systems is formed by three sets of agreements. First, standardised participation agreements are concluded between the system owners and their participants. Second, the participants responsible for cash settlement in a given system are required to hold settlement accounts with Danmarks Nationalbank. This requirement is regulated by the terms and conditions for accounts at Danmarks Nationalbank. Third, Danmarks Nationalbank enters into settlement agreements with the individual systems covering the terms for cash settlement via the participants’ settlement accounts with Danmarks Nationalbank. Chart 1 illustrates the overall contractual basis.

These contractual arrangements cover all aspects of the services to be provided by each party, including agreements on contingency procedures and the actions to be taken in the event of the insolvency, etc. of a participant. These provisions include a netting agreement. The terms and conditions governing accounts specify that participants can reserve liquidity for settlement either by transferring this to specific settlement accounts via Danmarks Nationalbank’s payment system, Kronos, or by utilising automatic collateralisation.

Chart 1 The set of agreements



### 1.2.5 COOPERATION WITH OTHER INSTITUTIONS

The Danish Financial Supervisory Authority and Danmarks Nationalbank have signed a memorandum of understanding covering their cooperation in relation to the oversight and supervision of payment and settlement systems in Denmark. Furthermore, Danmarks Nationalbank maintains an ongoing dialogue with the Danish Bankers' Association, PBS and VP on issues and developments relating to the payment and settlement systems. Meetings with the relevant parties will be held if deemed necessary.

## 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

### 1.3.1 THE DANISH BANKERS ASSOCIATION

Most agreements concerning the payment infrastructure are entered into under the auspices of the Danish Bankers Association. The Association is the owner of the Sumclearing. All independent banks, including subsidiaries and branches of foreign banks operating in Denmark, are eligible to join the Association.

### 1.3.2 PBS

Except for home and office banking systems, nearly all electronically-based payment instruments available to Danish bank customers, i.e. direct debit and credit facilities and card systems, are operated by one company, PBS. PBS also operates the Sumclearing. PBS is jointly owned by the majority of Danish banks and Danmarks Nationalbank.

The development of PBS began in the late 1960s, when the Danish banks formed a joint company for the purpose of developing and operating a common computer-based wage payment system for their corporate customers. In the early 1970s a new jointly-owned company was established, creating an interbank transfer centre to develop direct debit systems for all bank customers. This was followed in the late 1970s and early 1980s by the formation of jointly-owned companies to develop and maintain a common debit card system, including ATMs and EFTPOS terminals. In 1986 all of

these companies were merged into one company, PBS.

### 1.3.3 POSTGIRO

In June 1991 Postgiro, an independent enterprise within the state-owned National Postal and Telegraphic Services Group, was converted into GiroBank Ltd. Today, Girobank (now named BG Bank following a merger) is a full-scale commercial bank, and for all practical purposes the Postgiro system is now part of the banking system. BG Bank still has an exclusive agreement with the Danish postal services, Post Danmark, allowing it to offer banking services through post offices all over the country. This agreement will expire in 2008.

### 1.3.4 THE DANISH FINANCIAL SUPERVISORY AUTHORITY

The Danish Financial Supervisory Authority, the responsibility for which lies with the Minister for Economic and Business Affairs, regulates the Danish financial sector. The Authority's principal aims are to facilitate the continued smooth operation of the financial sector, to maintain dialogue with relevant organisations and companies and to inform government ministers of relevant developments.

It is responsible for the authorisation and prudential supervision of market participants, such as credit institutions, investment firms and market institutions such as the CSE and the VP, and for the IT supervision of PBS.

In the field of securities settlement systems, the Financial Supervisory Authority is also responsible for the designation of clearing centres under the Settlement Finality Directive: the designation of payment systems under the Directive is the responsibility of Danmarks Nationalbank.

### 1.3.5 THE DANISH COMPETITION AUTHORITY

The Danish Competition Authority is responsible for the enforcement of competition law in Denmark, including the rules and agreements on handling payments.

### 1.3.6 THE CONSUMER OMBUDSMAN

The Consumer Ombudsman is responsible for enforcing consumer protection laws. Of particular relevance in the field of payment and settlement systems are the Act on marketing, the Act on door-to-door sales, and the Act on certain means of payment.

### 1.3.7 THE DANISH SECURITIES COUNCIL

The Danish Securities Council (Fondsrådet) was established on 1 January 1996 in accordance with the provisions of the Securities Trading Act. The Danish Securities Council has overall responsibility for the framework within which the securities market operates. It advises the Danish Financial Supervisory Authority in relation to the issuing of regulations on matters of importance for the securities market, and issues decisions on key issues falling within the scope of the Securities Trading Act – e.g. manipulation of stock exchange prices, insider dealing and supervision of clearing, settlement and payment systems.

The Danish Securities Council is composed of representatives of: securities dealers and issuers; investors; and Danmarks Nationalbank.

### 1.3.8 THE COPENHAGEN STOCK EXCHANGE

The Copenhagen Stock Exchange is Denmark's main stock exchange. Its statutory monopoly was abolished when the Securities Trading Act came into force. As a consequence, the CSE was converted into a public limited company on 1 May 1996. In 2005 the CSE became part of a company owned by the Swedish company OMX AB. This company also owns the Stockholm, Helsinki, Riga, Tallinn and Vilnius stock exchanges.

The CSE provides a market for listed securities of all kinds, e.g. shares, bonds, futures and options. All securities dealers, i.e. credit institutions and investment companies from the EU or from countries with which the EU has entered into agreements, are eligible for membership of the CSE.

In January 1998 the stock exchanges of Copenhagen and Stockholm signed an agreement on cooperation to set up a common Nordic securities market, the NOREX Alliance. Today, the NOREX Alliance comprises the stock exchanges of Copenhagen, Stockholm, Oslo, Reykjavik, Helsinki, Riga, Tallin and Vilnius. The vision of the NOREX Alliance is to create a common Nordic securities market with a joint trading system and harmonised rules.

### 1.3.9 THE DANISH SECURITIES CENTRE VP

VP is a private limited company authorised as a CSD. Virtually all securities listed on the Copenhagen Stock Exchange are held in book-entry (i.e. dematerialised) form at the VP. Unlisted securities, or securities listed on other exchanges, can also be held in book-entry form at the VP. All book entries are made on securities accounts held at the VP.

The VP's former statutory monopoly as the Danish CSD was abolished when the Securities Trading Act came into force. As a consequence, with effect from 1 January 2000, the VP was converted into a public limited company owned by its participants, including Danmarks Nationalbank. The VP is also authorised as a clearing centre, allowing it to undertake the clearing and settlement of securities trades (see Section 4.3).

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

Banknotes are printed on the premises of Danmarks Nationalbank, while coins are minted by the Royal Mint. Danish banknotes and coins are also used in Greenland. Danmarks Nationalbank also prints banknotes with the same values as Danish banknotes, but with different designs, for separate circulation in the Faeroes. In 2006 a bill proposing that Danmarks Nationalbank print banknotes for separate circulation in Greenland was introduced. The bill is still under consideration.

Banknotes and coins are circulated by Danmarks Nationalbank via the banks in accordance with public demand. In 2006 the denominations of currency in circulation were as follows:

banknotes: DKK 1,000, 500, 200, 100 and 50;

coins: DKK 20, 10, 5, 2, 1 and 50 and 25 øre.

As at the end of 2006 the total value of banknotes and coins in circulation was DKK 59.1 billion. The rate of increase in 2006 was 6.4% per annum, possibly on account of the strong growth in private consumption and GDP. Normally the rate of increase of banknotes and coins in circulation is some 5-6% per annum. The most common banknote in terms of volume is the DKK 100 note (which accounts for approximately 40% of all banknotes in circulation), while the banknote with the largest value is the DKK 1,000 note (which accounts for more than half of the total value of banknotes in circulation).

No statistics on the public's use of cash are available.

## 2.2 NON-CASH PAYMENTS

### 2.2.1 CREDIT TRANSFERS

Denmark has two types of inpayment form: the joint inpayment form and the giro inpayment form. This is because the former postal giro office was, for a lengthy period of time, the only institution to offer a manual, nationwide, paper-based payment system. When the postal giro office was converted into GiroBank, agreements were concluded between the Danish Bankers Association and Girobank in 1991 to give the same status to the two inpayment forms. These agreements were later passed on to BG Bank and, thereafter, to Danske Bank.

The Danish banks' joint inpayment form is currently the most commonly used collection method for settlement of bills. The paper-based joint inpayment form can be used at post offices and banks, as well as via online banking. The inpayment form enables a payment to be

transferred directly to the creditor's bank account.

There are different types of inpayment form: the fully automatic form, which has a code to identify the debtor (payer); the manual form, which the debtor needs to fill in with its name and, possibly, some free text; and the combined form, which has both an identification code and a free text field.

A further development within the context of the inpayment form is the electronic inpayment form, whereby the bill is sent directly to the debtor's online banking system. With this form, all the debtor need do is authorise the payment, which contains all of the payment data that appears on the paper-based form.

The inpayment form is used mainly for non-recurring payments. For recurring payments, the debtor may opt to register the payment with Betalingsservice, the system of pre-authorised direct debits.

Denmark also has systems for the electronic exchange of invoices, called e-invoicing systems. E-invoicing allows a business enterprise to receive electronic invoices from other business enterprises. The invoices are booked automatically and paid when accepted by the business enterprise via its office banking system.

#### *Direct credit*

As early as the 1960s it became common to pay wages directly into bank accounts. The development of a direct credit scheme was the rationale behind the founding in 1968 of the oldest forerunner of PBS, MultiData. This institution was the result of an agreement between banks to cooperate on the technical handling of wage payments.

PBS's direct credit system processes the vast majority of account-to-account transfers relating to recurrent credits, in particular the payment of wages and pensions. The wage and

pension recipient is free to choose the bank account to be credited.

In the direct credit system, PBS receives electronically readable information from the debtor (either a public or private sector employer) on the wage and pension transfers to be made. If the employer so desires, PBS also offers services for calculating the net wages to be paid after deduction of tax, etc.

Furthermore, some banks offer direct credit services in their own name to employers for use in office banking systems.

Besides wages, private persons and companies can effect direct credit transfers through office and home banking systems, which are offered by nearly all banks. Credit transfers can take the form of person-to-person transfers, customer-to-business transfers or business-to-business transfers. Customer-to-business payments are used mainly for e-commerce.

## 2.2.2 CHEQUES

As the cheque was, until the mid-1980s, the main means of payment readily available to bank customers, it has traditionally been the most important non-cash means of payment in Denmark. During most of the 1980s, the number of cheques issued was stable, at around 210 million, which is equivalent to approximately 40 cheques per capita per year. Since 1986, the use of cheques has fallen year by year (to 19.4 million in 2006), reflecting the rapid development of other electronic payment media – e.g. card-based payments, such as the Dankort, and direct credit and debit transfers. In 2006, the value of cheques issued was DKK 368.3 billion.

A landmark in the intensive cooperation between banks on technological development was the implementation of complete cheque truncation in Denmark in the early 1980s. Since then all cheques have been retained by the bank that collected them, with clearing and bookkeeping being carried out electronically.

Prior to that, all cheques were physically exchanged between banks.

The cheque system is regulated by several agreements within the banking sector, such as agreements on: the opening of accounts with cheques and/or the Dankort; the cashing of cheques; and clearing.

Sight deposit accounts generally bear near-zero rates of interest. A fee is generally charged to the customer each time a cheque is used.

Provided that there is no reason to believe that it is forged, the drawee bank must always honour a cheque if it is for an amount below DKK 1,000 (approximately €134), whether or not there are funds in the customer's account. Cheques above DKK 1,000 in value are accepted by retailers or banks at the recipient's own risk if they prove to be uncovered.

## 2.2.3 DIRECT DEBIT

Since 1974 the banks have operated the Betalingsservice system of pre-authorised direct debits. The system is now operated by PBS. The system is designed for private customers who make frequent and recurring payments. A creditor joins the scheme by instructing PBS to arrange for automated payments. PBS then links up with the creditor and allocates a creditor's code. The creditor then advises its debtors that it is possible for them to have all payments automatically transferred from their respective bank accounts if they wish to join the scheme. When debtors join the scheme, they must issue payment authorisation to their bank to allow the completion of the transfer, and the bank concerned will register them as a debtor in the system.

Each month debtors receive a list of payments to be made during the subsequent month, together with a list of creditors, payment dates and amounts. The debtor is entitled to cancel the payment at any time before the seventh banking day of the month in which the payment

is due. This makes it possible to withdraw payments made at the beginning of the month.

The provision of regular information to debtors and creditors as well as data on account transfers to the banks is handled by PBS.

The direct debit scheme is free of charge to debtors, whereas creditors are charged according to the number of transactions. There are no formal rules limiting the types of payment which can be handled in the scheme.

The direct debit scheme has become the most widely used means of paying bills in Denmark, and most Danish households are connected to the scheme.

PBS operates a very similar system of pre-authorised direct debits for corporate customers under the name Supplier Service (LeverandørService). The account of the recipient is automatically debited when goods are received, subject to permission from the debtor. Unlike the monthly notification in the case of private customers, notifications are circulated prior to each payment. Notification is given by the creditor or, on its behalf, by PBS.

175 million direct debit transactions with a total value of just over DKK 522.5 billion were effected in 2006.

#### 2.2.4 PAYMENT CARDS

##### *Debit cards, ATMs and EFTPOS networks*

Despite the highly developed system for truncation, cheques were expensive for banks to handle. Therefore, as part of their technological cooperation, banks founded a company (the Banks' Payment and Credit Card Company) in 1979 in order to develop and market a debit card system. This led to the introduction in 1983 of the common debit card, the Dankort. At first, it was only possible to use the card on a paper docket basis, but in late 1984 the first transaction was made via the EFTPOS network.

It took some years for the Dankort to become widely accepted and to obtain critical mass, in particular on account of some disagreement between retailers and banks over the sharing of costs, etc. Since 1987, the year considered to be the turning point for the Dankort, annual use of the card has grown significantly, resulting in the aforementioned reduction in the use of cheques.

The Dankort is issued by individual banks, as it is always linked to the cardholder's bank account. The banks are free to fix the charges and terms applicable to the account to which the card is linked.

While the card is standardised in terms of the magnetic strip and the Dankort logo on the reverse, the drawee bank is identifiable by its logo on the front of the card. Furthermore, in the course of 2004 all magnetic strip-based Dankort and Visa/Dankort cards were replaced by new chip cards. For the time being, the new chip cards retain the magnetic strip. The laser-engraved photo and signature previously borne by the cards were removed with the introduction of the new chip Dankort.

When an imprinter is used, the retailer is responsible for checking the cardholder's ID and whether or not the card is blocked. When the card is used at ATMs and EFTPOS terminals, identification is based on PIN codes. There is no online check of the availability of funds, but the amount is debited from the cardholder's account on the morning of the next banking day. Imprinter vouchers are sent to PBS by retailers and are truncated in the same way as cheques.

The rules applicable to the Dankort are somewhat more attractive to retailers (or the bank providing cash) than those for cheques. For example, the maximum guarantee provided by the drawee bank is DKK 3,000 for a magnetic strip payment. This means that for a magnetic strip payment of DKK 4,000 at an EFTPOS terminal, the retailer's maximum risk is DKK 1,000, since the maximum guarantee is

DKK 3,000. If the payment is made using a cheque, the retailer's risk is the whole amount, i.e. DKK 4,000 if there is no cover on the customer's account.

The maximum guarantee provided by the drawee bank is DKK 2,000 for withdrawals at banks or ATMs. For EFTPOS terminals, the maximum guarantee is DKK 3,000 for magnetic strip payments, DKK 1,000 for magnetic strip payments with signature, DKK 4,000 for chip-based payments with a pin code and DKK 1,500 for chip-based payments with signature. For manual imprinters, i.e. paper-based payment terminals, the maximum guarantee of DKK 1,000 ceased to exist with effect from 1 January 2007.

Usually there is no limit on the number of payment transactions which can be made free of charge with a Dankort. However, cash withdrawals at ATMs managed by banks other than the cardholder's, or cash withdrawals at the issuing bank outside bank opening hours, are usually subject to a small fee. As in the case of cheques, any overdraft facility is subject to negotiation between the cardholder and the bank.

By the end of 2006 3.68 million Dankort cards had been issued for use at 3,145 ATMs and 80,313 EFTPOS terminals. All ATMs are owned and managed by the banks.

Use of the Dankort has developed very rapidly. Since 1992 the use of the Dankort has overtaken the use of cheques. In 1986 only 3 million payment transactions were made with the Dankort. In 2006 this number had grown to 676 million, of which 99 % were effected at EFTPOS terminals or via internet trades. There has been a rapid growth in the use of the Dankort for internet trades. At the end of 2006 7,742 internet businesses were able to accept payments by Dankort.

As is the case with cheques, the Dankort system is regulated by several agreements, including agreements on maximum guarantee (see above),

clearing and settlement, interbank fees and the use of the Dankort for cash withdrawals at other banks. The latter agreement ensures that the Dankort can be used to withdraw cash from any bank or cash dispenser up to a maximum of DKK 2,000 per day.

As at the end of 2006 485,603 other debit cards were in circulation. Visa Electron (392,513 issued as at end-2006) and Maestro (93,090 issued as at end-2006) are examples of international debit cards issued in Denmark by Danish banks. By contrast with the Dankort, Visa Electron and Maestro both have real-time balance control.

#### ***Credit cards, travel and entertainment cards and retailer cards***

Through PBS the banks offer customers the possibility of attaching a co-branded Visa facility to the Dankort, thus making it possible to use the card as a debit card abroad. Of the 3.68 million Dankort cards in circulation at the end of 2006, 2.55 million were combined Visa/Dankort cards. Foreign Visa cards, Eurocards/MasterCards and several other foreign debit or credit cards can be used at ATMs and EFTPOS terminals. As at the end of 2006 161,623 Eurocards and 657,468 MasterCards were in circulation in Denmark.

All cards mentioned above are issued by Danish commercial banks. In addition, Danish department stores and oil companies, etc. operate their own retailer card systems.

#### ***Prepaid cards***

The most widely used prepaid cards are telephone cards for mobile phone calls, international calls or use in payphones. There are few prepaid cards in Denmark other than telephone cards. There are several limited-purpose prepaid card schemes for use in closed systems – e.g. phone cards, cards for public transport and cards for use in launderettes.

A general Danish prepaid card, the Danmønt card, was introduced in 1991. The Danmønt

card did not prove successful and ceased to exist at the end of 2005.

#### 2.2.5 POSTAL INSTRUMENTS

No specific postal instruments exist in Denmark.

#### 2.2.6 OTHER PAYMENT INSTRUMENTS

No other payment instruments play an important role in the Danish payment system infrastructure.

### 2.3 RECENT DEVELOPMENTS

#### 2.3.1 E- AND M-PAYMENTS

Consumers often use debit or credit cards for internet purchases. The consumer orders goods on the internet and chooses which payment card to use for the transaction. In non-physical trading, the recipient has no way of knowing whether the card used actually belongs to the consumer or whether it is genuine. Thus, efforts are under way to develop new security elements for non-physical trading.

As an alternative to the use of payment cards in non-physical trading, several providers offer a solution based on an e-account. For the e-account solution, the consumer sets up an e-account on a central server. The consumer can then transfer money to the e-account from his/her debit or credit card via the existing payments infrastructure. In Denmark, the e-payment systems, Valus and ewire, operate in accordance with the e-account principle.

Several mobile phone companies offer their customers various m-payment solutions for non-physical trading purchases:

- The customer pre-registers its payment card and subsequently need only authorise the payment. This means that the customer does not have to key in the card information for each payment.
- The customer purchases products via mobile phone and the purchases are charged to its next phone bill.

- The customer purchases prepaid airtime, which can be used for purchases of other goods from a third party. The telephone company then pays and deducts the purchase amount from the remaining prepayment.

In Denmark it is possible to make parking-meter payments by mobile phone. Customers can receive a warning text message ten minutes before their parking time expires, and the message enables them to extend the parking time. Another Danish m-payment solution, M-pay, has been established, but is currently suspended. M-pay enables consumers to use their mobile phones to place orders with, and pay for goods from, retail enterprises.

## 3 INTERBANK PAYMENT SYSTEMS

### 3.1 GENERAL OVERVIEW

All transfers of funds between credit institutions in Denmark take place via their accounts with Danmarks Nationalbank. The interbank exchange and settlement landscape in Denmark is characterised by a high degree of centralisation. All payments are handled by the RTGS system, Kronos, and the Sumclearing.

All credit institutions have the option of linking up to the RTGS system, through which they can make real-time funds transfers from their current account with Danmarks Nationalbank to that of any other credit institution via a terminal at their own premises. The RTGS system is used for most large-value intraday funds transfers between credit institutions, including the settlement of the netting systems (the Sumclearing and the Danish Securities Centre), which settle through accounts with Danmarks Nationalbank. Some large-value transfers are initiated via the SWIFT network. Danmarks Nationalbank does not distinguish between these and ordinary RTGS transfers, as they are all settled in real time. Transfers on the basis of SWIFT instructions are therefore not described separately. Kronos is described in Section 3.2.1 below.

Kronos is also the Danish link to TARGET. Participants in TARGET from non-euro area countries participate on terms that differ from those for participants within the euro area. Kronos is used for most large-value funds transfers in euro between credit institutions within Denmark and across the EU, including the settlement of the Sumclearing and the Danish Securities Centre in euro.

All retail payments in Denmark, including those described in Section 2.2, are cleared and settled through the Sumclearing and its two underlying clearing systems, the PBS clearing system and the electronic clearing and truncation system (dokumentløse clearing – clearing without documents). In the PBS clearing system all PBS products are cleared (Dankort transactions at EFTPOS terminals, direct debits, etc.). In the electronic clearing and truncation system transactions initiated by the banks themselves (e.g. cheques drawn on other banks or cash withdrawals at other banks) are cleared. The Sumclearing is the final clearing and settlement system of the net positions from the two aforementioned clearing systems.

The Sumclearing is owned by the Danish Bankers Association and operated by PBS. The Sumclearing is a multilateral netting system. The calculation of the net amounts (i.e. the final net credit or debit position for each direct participant) is handled by PBS. The final settlement takes place through accounts at Danmarks Nationalbank. The Sumclearing is described in Section 3.4.1.

### 3.2 THE RTGS SYSTEM KRONOS

Kronos is Danmarks Nationalbank's RTGS system for Danish kroner and euro and is thus a core element of the Danish payment system infrastructure. Kronos was commissioned on 19 November 2001. Prior to that date, krone payments were settled via another RTGS system, the DN Inquiry and Transfer System. Euro payments were settled via DEBES, which was implemented on 1 January 1999 when the central banks of the EU Member States,

including Danmarks Nationalbank, introduced the TARGET payment system.

#### 3.2.1 OPERATING RULES

Kronos is owned and managed by Danmarks Nationalbank and is operated by BEC (Bankernes EDB Central). BEC is also the computer centre which Danmarks Nationalbank uses.

There is no specific legal framework governing the RTGS system. Before being linked up to the system, a participant has to sign an agreement with Danmarks Nationalbank. Guidelines for the use of the system are described in the document "General information on Kronos". Danmarks Nationalbank is responsible for defining the rules and guidelines for the participants, but traditionally this is done only after the participants have been consulted. There has never been a zero-hour rule in Denmark, and the settlement and payments systems are now protected by the Settlement Finality Directive.

#### 3.2.2 PARTICIPATION IN THE SYSTEM

All holders of current accounts at Danmarks Nationalbank must participate in Kronos. Account holders with current accounts in euro must also subscribe to the TARGET module in Kronos. If they wish to use the TARGET module, they must also be connected to the international financial network, SWIFT. Connection to SWIFT is not a requirement for participants wishing only to remit and receive payments in Danish kroner in Kronos.

Kronos allows a participant that does not itself wish to use the system on a daily basis to authorise another participant to execute transactions in Kronos. This option is typically preferred by small participants with very few payments.

At the end of 2006 Kronos had 128 participants in Danish kroner, of which 32 also participated in euro.

### 3.2.3 TYPES OF TRANSACTION HANDLED

Kronos is not used exclusively for specific types of payment. In practice, almost all large-value transactions (and other urgent transactions) are handled by the system, because using the system is the only way to achieve same-day value. It is only possible to make credit transfers within the system. There are no limitations with regard to the transactions handled. Money market transactions, the DKK leg of foreign exchange transactions, and large payments on behalf of corporate customers are examples of the transactions handled by the system.

Kronos is also used for settling transactions in euro. The system may be used for large-value interbank payments as well as for customer payments in euro within Denmark, or to TARGET participants in other countries. There are no limits on transaction types or sizes.

### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

Kronos offers participants a choice of two different networks for remitting payments. They can remit manually via the Kronos terminal, which uses its own closed (IP-based) network, or via the SWIFT network. All participants must have a direct line to BEC, normally via their own computer centre.

By offering two options for remitting payments, Kronos meets the requirements of different types of participant. The Kronos terminal is typically used by small participants, while the large participants prefer SWIFT.

Kronos is developed and operated by BEC, which is a privately owned company. However, Danmarks Nationalbank is the owner and manager of the system.

Kronos is open for krone payments on all Danish banking days between 7 a.m. and 3.30 p.m. CET. In addition, it is open between 4 p.m. and 4.30 p.m. CET for transfers from current accounts to settlement accounts for overnight Sumclearing and VP settlements. For euro payments, Kronos observes the TARGET

opening days specified by the ECB, on which days the system is open between 7 a.m. and 6 p.m. CET.

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

Kronos comprises several modules that can be selected as required. All participants must have a basic module that gives access to remit payments in kroner. Participants using SWIFT can also opt for the Poseidon module, which supports fully automated payment processing. Finally, participants using SWIFT can select the TARGET module, which enables them to remit and receive domestic and cross-border euro payments in TARGET.

The Kronos terminal offers participants a wide range of functions, including the option to transfer liquidity to settlement accounts (manually or as standing orders), view entries, follow settlement cycles, and monitor and manage large queued payments. In addition, participants may use the Kronos terminal to receive news, view historical entries and administer the use of collateral.

Participants using SWIFT typically have their own automated systems for remitting and receiving payments to and from other participants via SWIFT. The systems are designed to facilitate straight-through processing (STP), i.e. the processing of payments without manual intervention, whenever possible.

Participants with SWIFT typically use SWIFT for as many payments as possible, while participants without SWIFT remit all their payments via the Kronos terminal. To ensure that participants with and without SWIFT can remit payments to each other, Kronos includes the Poseidon module, which “translates” payment messages between the Kronos terminal and SWIFT. This allows participants with SWIFT to remit and receive all payments via SWIFT, irrespective of whether the other party uses SWIFT or the Kronos terminal only. Poseidon can be used for payments in kroner only.

### 3.2.6 SETTLEMENT PROCEDURES

All transfers between accounts are final and irrevocable when settled. Domestic payments are final when credited to the recipient's account. Cross-border payments are final when debited from the sender's account by the sending central bank and credited to the recipient central bank account.

Under normal circumstances, no more than a few minutes are expected to elapse between the debiting of the account of the sending bank and the crediting of the account of the recipient bank.

Kronos contains a queuing function which is activated automatically when payments are executed without sufficient cover. If there is insufficient cover for a transfer order, the transfer order (and any subsequent transfer orders) is (are) automatically placed in the payment queue. Each participant can monitor its own queue and may also change the content of the queue, the order of payments, etc.

Participants in TARGET from non-euro area Member States participate in the system on more restrictive terms than those from the euro area countries. Whereas the euro area participants have access to unlimited intraday liquidity against collateral, Danmarks Nationalbank may only make liquidity available to the Danish participants in TARGET on the basis of a deposit by Danmarks Nationalbank with a central bank in the euro area. The Danish participants pay for the share of the intraday liquidity they require. The current price is 0.06 percentage point per annum. The demand for intraday liquidity is around €585 million. If the banks' total liquidity requirement exceeds the size of the deposit, Danmarks Nationalbank distributes the liquidity to the participants according to the same distribution key as is used for the connection fee and the monthly charges.

After 5 p.m. CET, participants from non-euro area Member States may only transact payments on the basis of a positive balance. If an overdraft is not covered by 5 p.m. CET, the participant

must pay an interest premium to Danmarks Nationalbank. If the overdraft is not covered by 6 p.m. CET, the participant must pay a further interest premium to Danmarks Nationalbank.

### 3.2.7 CREDIT AND LIQUIDITY RISK

As a main rule, payments in Kronos are settled immediately after they have been sent to and accepted by the system. This means that Kronos participants do not incur any credit risk on account of other participants during settlement of a payment transaction. Since settlement takes place via accounts at Danmarks Nationalbank, participants do not incur any credit risk on account of the settlement bank either.

Kronos does not allow participants to view incoming payments in the liquidity and value date queues. Therefore, a participant cannot credit an incoming payment to a customer before it has been finally settled. Consequently, the participant does not incur a credit risk on account of the participant remitting the payment.

Individual settlement of payments in RTGS systems such as Kronos involves a high liquidity requirement and thus a certain liquidity risk. Access to intraday credit at Danmarks Nationalbank helps to reduce this risk. The same applies to Kronos' queuing functions, which reduce the risk that payments are not effected on the agreed settlement date.

### 3.2.8 PRICING

Kronos is user-financed in accordance with international practice. The pricing structure comprises three components:

- a connection fee to cover development costs;
- a monthly fee to cover fixed operating costs, broken down for the different modules, namely Basic, Poseidon and TARGET; and
- a variable monthly consumption charge to cover the individual participants' actual use of the system.

The connection fee and the fixed monthly fee are distributed among the participants in the individual modules in accordance with a distribution key based on working capital<sup>2</sup> as an expression of the system's expected utility to participants. A similar distribution key is used by PBS for distribution of infrastructure costs.

For mortgage credit institutes, branches of foreign banks, and others that do not calculate their working capital, an estimated value is applied, based on the participants' use of their current accounts. In practice, participants with no working capital are assigned a value corresponding to that of a participating bank with an equivalent volume of transactions.

To promote the use of Kronos, quantity discounts are given for domestic payments. The maximum charge for a payment transaction is DKK 1, while the minimum charge is DKK 0.10. Quantity discounts are also given for cross-border payments in euro, where the prices are fixed by the ECB. This means that the prices for cross-border payments are identical for all TARGET participants.

### 3.2.9 STATISTICAL DATA

In 2006 approximately 680,000 payments were processed via Kronos, with a total value of DKK 66 trillion (€8.85 trillion). This corresponds to an average daily volume of approximately 2,700 payments, with an average transaction value of DKK 262 billion (€35 billion).

In 2006 approximately 116,000 payments in euro were processed via Kronos, with a total value of €3,157 billion. This corresponds to the processing of some 460 payments per day, with an average transaction value of €12.5 billion.

### 3.2.10 MISCELLANEOUS (MAIN PROJECTS, NEW DEVELOPMENTS, TREASURY MODULE, ETC.)

Kronos will be linked to TARGET2. After the implementation of TARGET2, settlement of transactions in DKK will be handled in Kronos only.

## 3.3 OTHER LARGE-VALUE PAYMENT SYSTEMS

There are no other large-value payment systems operating in Denmark.

## 3.4 THE RETAIL PAYMENT INFRASTRUCTURE

### 3.4.1 THE SUMCLEARING

The Sumclearing is the Danish system for clearing and settlement of retail payments. Originally, the Sumclearing was a system for manual cheque clearing, but today virtually all retail payments – e.g. Dankort (debit card) transactions and Betalingsservice (direct debit) transfers – are cleared in this system. Since the early 1980s, the Sumclearing has been fully automated. In May 1999 the Sumclearing was expanded to include a separate clearing and settlement procedure in euro.

The Sumclearing is owned by the Danish Bankers Association, a trade organisation for banks in Denmark. Its membership includes banks, savings banks, cooperative banks and Danish branches of foreign banks. The tasks of the Danish Bankers Association in relation to payment systems include coordinating the banks' positions in the context of further development work both on the existing payments infrastructure and on the set of agreements on which the payments infrastructure, including the Sumclearing, is based.

PBS operates the Sumclearing on behalf of the Danish Bankers Association. PBS is owned by Danish banks and Danmarks Nationalbank. The objective of PBS is, *inter alia*, to operate payment systems and support the development and use of the banks' payments infrastructure.

### Operating rules

There is no legislation covering the clearing and settlement processes. The basis for Sumclearing operations are agreements between the Danish Bankers Association and Danmarks

<sup>2</sup> Working capital comprises deposits, issued bonds, subordinated capital contributions and equity capital. Working capital is calculated by the Danish Financial Supervisory Authority.

Nationalbank concerning the latter's settlement facilities, as well as bilateral connection agreements between the direct participants and the Danish Bankers Association. In addition, the Danish Bankers Association (system owner) has concluded an agreement with PBS (system operator) on delivery of IT and other services.

Access to the system requires that participants either sign an agreement on participation in the electronic clearing and truncation system or have access to the PBS clearing system. All direct participants must furthermore enter into an agreement on participation in the Sumclearing and on the settlement of this system, which is a bilateral agreement between the individual participants and the Danish Bankers Association. All direct participants must hold current and settlement accounts with Danmarks Nationalbank in the relevant currency (Danish kroner or euro) and participate in the RTGS system Kronos. The Danish Bankers Association formulates the criteria for access to the Sumclearing.

#### ***Participation in the system***

The Sumclearing has a dual participant structure with both direct and indirect participation. Direct participation requires, *inter alia*, a current account and a settlement account at Danmarks Nationalbank in kroner and – if relevant – in euro. Indirect participants settle their payments via settlement accounts held by direct participants. At the end of 2006 the DKK Sumclearing had 68 direct and 90 indirect participants.

#### ***Types of transaction handled***

As the Sumclearing is the only Danish system for handling retail payments, it includes all types of non-cash retail transaction (see Section 2.2).

Participants are themselves responsible for setting limits on the individual amounts that can be drawn on them by other participants. All of the systems that PBS operates also have maximum limits on individual transactions.

As regards transactions in euro, only credit transfers are currently possible.

#### ***Operation of the transfer system***

PBS operates the Sumclearing. The system processes payments from different sources. Some payments are entered into the system by individual participants through the electronic clearing and truncation system, and others are entered by PBS through the PBS clearing system on the basis of standardised agreements.

The clearing and settlement procedures involve only PBS, the computer centres of the participants and Danmarks Nationalbank.

#### ***Transaction processing environment***

There are essentially two different channels through which retail payments are processed, both of which result in final settlement on the participant's settlement account with Danmarks Nationalbank, PBS clearing and the electronic clearing and truncation system.

PBS clearing is a central clearing system that processes transactions originating from PBS's payment services (Payment Service, card transactions at EFTPOS terminals and direct debits). PBS provides participants' computer centres with detailed information on the transactions, calculates net positions and reports these to the Sumclearing (see Chart 2).

The electronic clearing and truncation system is a bilateral clearing system in which each participant reports transactions involving account holders of other participants (e.g. through the cashing of cheques drawn on other banks or cash withdrawals by account holders of other banks) to its computer centre. Every evening, data are collected in each computer centre and are subsequently exchanged bilaterally with other computer centres. At the same time, the total claims of each participant on each of the other participants (the net positions) are transmitted to the Sumclearing (see Chart 3).

Chart 2 The PBS clearing system

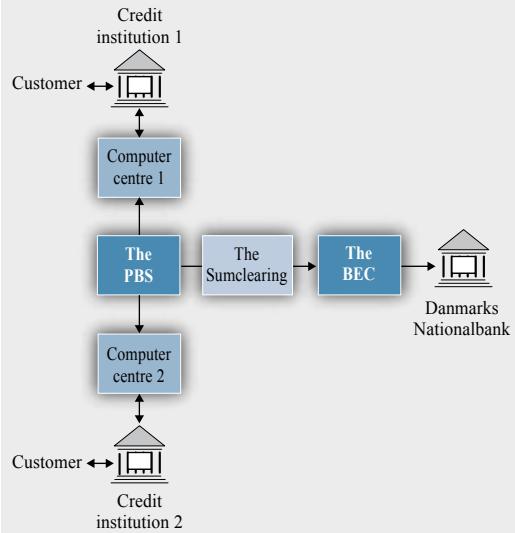
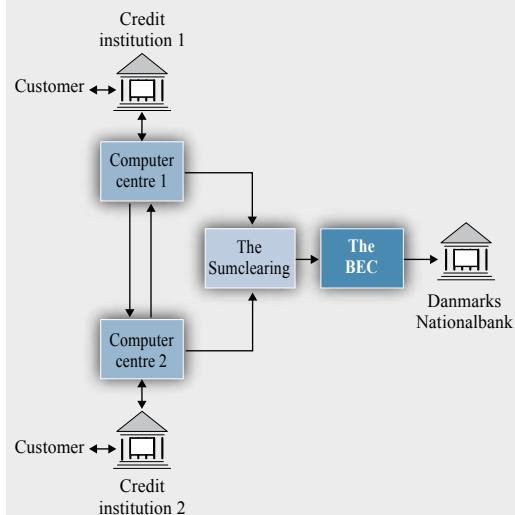


Chart 3 The electronic clearing and truncation system



The net positions of both clearing systems are added up and finally settled in the Sumclearing through accounts at Danmarks Nationalbank (see below).

As regards transactions in euro, only the electronic clearing and truncation system had been implemented at the time of writing. At the end of 2006, the Sumclearing Euro had 28 direct clearing participants and 130 indirect participants.

#### Settlement procedures

The settlement of the Sumclearing takes place on accounts with Danmarks Nationalbank. The settlement procedure for the Danish Securities Centre is identical (see Section 4.3).

The settlement of the Sumclearing DKK takes place during the night preceding the day of value in order to ensure, among other things, that funds are settled between participants before their customers are given value. Furthermore, the data centres have more computing capacity available during the night.

During the day, participants must transfer funds from their current account to their settlement

account (see Chart 4). This transfer is for next-day value. In the early evening, Danmarks Nationalbank informs the Sumclearing of the credit line for each participant. Thus, the Sumclearing is aware of each participant's maximum drawing rights in the clearing system before the clearing procedure starts. It is only possible for participants to transfer funds to – and not from – their settlement accounts, since Danmarks Nationalbank guarantees to the Sumclearing that the participant has the funds available. Settlement account balances are transferred into participants' current accounts just before the opening of Kronos.

The Sumclearing compares each participant's credit line with their respective net positions. If the net positions can be handled within the credit line, the settlement is concluded. Danmarks Nationalbank subsequently receives information on the net position of each participant, which is booked on the settlement account. If a participant does not have the required funds, the settlement of that participant's net position is postponed to one of the following settlement blocks.

The Sumclearing operates on the basis of one normal settlement block and several extraordinary settlement blocks. Most payments are settled in the first settlement block, but the later blocks are used for late transactions or for participants without sufficient funds in earlier blocks.

The last settlement block runs in the morning after the opening of Kronos. In this way, participants that have not transferred sufficient funds to complete settlement during the night have the opportunity to transfer additional funds for this block in order to ensure finalisation of Sumclearing settlement.

The settlement of the Sumclearing Euro follows the same procedure. Since Danmarks Nationalbank cannot provide participants with credit during the night, the Sumclearing Euro is settled on the morning of the value date.

#### *Credit and liquidity risk*

Since customers are only credited after the final settlement of the Sumclearing, banks do not expose themselves to credit risks as regards customer payments. Since Danmarks Nationalbank only allows each participant a drawing right equal to the amount the participant has transferred to its settlement account, Danmarks Nationalbank is not exposed to any credit risk either.

However, indirect participants use a direct clearing participant as settlement bank. This involves a potential credit risk pertaining to the

outstanding accounts between the direct and indirect participants.

Participants in the Sumclearing incur a certain liquidity risk, since they do not know the size of their net positions prior to overnight settlement. However, flexible access to intraday credit at Danmarks Nationalbank, including the credit option under the automatic collateralisation arrangement, enables reservation of sufficient liquidity for settlement, so that postponement of settlement by clearing participants can, to a large extent, be avoided.

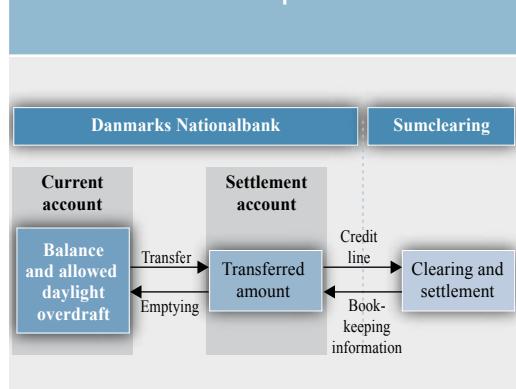
The liquidity risk is further limited by the opportunity to set limits on the size of individual transactions. In electronic clearing and truncation, each clearing participant may determine an upper limit of up to DKK 100 million for each transaction that can be debited to that participant in the Sumclearing. PBS clearing operates with an upper limit of DKK 1 million for each Dankort transaction. Payments exceeding the maximum limits must be settled via Kronos.

In order to minimise the number of postponements, the Danish Bankers Association can impose fines on clearing participants that cause delay in settlement because their reserved liquidity is inadequate to cover their net positions in the Sumclearing.

#### *Pricing*

The fee for participation in the Sumclearing consists of several components and will vary depending on how much of the common infrastructure a participant chooses to subscribe to. No distinction is made below between fees for participation in the payment instruments that are cleared and settled in the Sumclearing and fees for participation in the Sumclearing per se.

**Chart 4 The settlement procedure**



#### 4 SECURITIES TRADING, CLEARING AND SETTLEMENT

The Danish domestic system for the registration, trading, clearing and settlement of securities is characterised by a high degree of centralisation. The present infrastructure comprises three institutions: the Copenhagen Stock Exchange, MTS Denmark and the VP. Derivatives trades in Danish securities are conducted through the Stockholm Stock Exchange Ltd (SSE), with cash settlement in Danmarks Nationalbank.

The acquisition of the CSE by OMX AB in 2005 resulted in the new Swedish company OMX Group, which owns the Copenhagen, Stockholm, Helsinki, Tallinn, Riga and Vilnius stock exchanges. The Copenhagen Stock Exchange is still domiciled in Denmark and subject to Danish regulation and supervision.

Securities listed on the CSE are normally held in book-entry form and registered on accounts with the VP. All listed Danish bonds were dematerialised in 1983, while Danish equities and mutual fund papers, etc. were dematerialised in 1988.

Trades in listed securities may be executed either through the trading systems of the CSE, the MTS platform in a Danish market segment (MTS Denmark), or OTC. Thus there is no obligation to execute trades in the trading systems, but all trades in listed securities entered into by professional investors must be reported to the CSE.

The settlement of securities transactions is effected by, and ownership rights registered on, accounts held with the VP. Trades executed in the trading systems on the CSE and MTS Denmark, as well as OTC trades, are passed on for clearing and settlement in the VP by the trading systems or by the back office of both parties to the trade.

In addition, Danish government securities are traded on a number of international electronic

trading platforms. The wholesale market for the trading of Danish government securities is MTS Denmark. The market segment is linked to three clearing and settlement institutions: the VP, Euroclear Bank (Euroclear) and Clearstream International (Clearstream).

There are no statutory monopolies regarding CSD and stock exchange business. Any limited liability company (A/S) that meets the capital and business requirements of the Securities Trading Act can be authorised as a clearing house, stock exchange or CSD in Denmark.

##### *Basic quantitative aspects*

The Danish securities markets encompass bonds, equities and derivatives. In terms of both outstanding volume and turnover, the bond market is by far the dominant market segment. The different types of bond are government debt instruments such as Treasury bills, government bonds and mortgage credit bonds.

As at the end of 2006 3.2 million investor accounts had been opened in the VP.

As at the end of 2006 the market value of bonds in circulation amounted to DKK 3,013 billion (€404.1 billion). The turnover for the year as a whole was DKK 24,572 billion (€3,294.2 billion). The average daily turnover on MTS Denmark was close to DKK 1.4 billion (€187.7 million) in 2006.

At the end of 2006 the shares and mutual fund certificates in circulation amounted to DKK 1,976 billion (€265 billion). The market value turnover for the year as a whole was DKK 4,198 billion (€562.8 billion).

The size of the derivatives market in Denmark has so far been relatively small (as at mid-2005 around 700,000 contracts were outstanding, with an average daily settlement of DKK 1.5 million (€200,000)).

## 4.1 TRADING

### 4.1.1 SAXESS

SAXESS is the joint trading system of NOREX Alliance, the strategic cooperation between the Nordic and the Baltic exchanges. In 1997 the Copenhagen and Stockholm exchanges signed a cooperation agreement on the establishment of a common Nordic securities market. In 2000 Oslo Børs and the Iceland Stock Exchange joined the alliance, followed in 2004 by the HEX Integrated Markets, with the result that the Helsinki, Tallin, Riga and Vilnius exchanges also became partners. SAXESS was introduced on the CSE in June 1999 as a cross-border trading platform with harmonised trading and reporting rules. The CSE has traded the listed equities on SAXESS since then, and in October 2000 bond trading was also transferred to the SAXESS system.

The activities of the CSE are governed by the Danish Securities Trading Act. The Danish Financial Supervisory Authority is responsible for the supervision of the solvency and business practices of the CSE. The Securities Council, as part of the Danish Financial Supervisory Authority, supervises the markets on the CSE. Executive orders issued by the Danish Financial Supervisory Authority ensure that participants receive fair and equal treatment and that investors are provided with adequate protection. Rules for issuing and trading, etc. published by the CSE are reported to the Danish Financial Supervisory Authority, which may order the rules to be amended and/or lay down supplementary rules.

As at the end of 2006, there were 56 members of the CSE equity market, of which 28 were remote members, i.e. members that participate in the market without being domiciled in Denmark. As at the end of 2006, there were 25 members of the CSE bond market.

#### *General operational aspects*

SAXESS offers a wide range of functions. The system supports several different market structures by using different combinations of

continuous/call market trading on the one hand and order/price-driven trading on the other.

#### *Stock trading in SAXESS*

CSE operates markets on which a range of different securities are traded: listed shares, listed investment funds, unlisted investment funds, bonus and subscription rights, medium-sized companies and small companies. Transactions concluded outside the trading system are reported to the CSE.

In December 2005 CSE introduced First North, an alternative market place for non-exchange listed companies, via the same trading system used for trading in shares listed on OMX exchanges. In Denmark there is also another alternative market place named Dansk Autoriseret Markedsplads A/S.

Continuous order-driven trading predominates. During continuous trading, orders in the order book are automatically matched as soon as the bid matches the offer. When an order is placed in the trading system, a distinction is made between round lot orders and odd lot orders. An order must be of at least one round lot in order to create the spread. The value of a round lot for shares is approximately DKK 20,000 for OMXC20 shares (the blue-chip index) and approximately DKK 10,000 for non-OMXC20 instruments (shares and investment funds). For First North instruments, the corresponding amount is 1000 DKK. It is possible to trade orders down to one single share in the trading system. However, odd lot orders cannot per se be traded at prices different from the "last price paid", which is defined as the price of the latest executed trade equal to or above one round lot.

SAXESS has an automatic order routing facility, which makes it possible for investors to send orders to the trading system electronically via an exchange member's system. SAXESS also contains a small order facility, which makes it possible to trade as little as one single share directly in the SAXESS system. However, orders for less than one trading lot are ranked

lower in the order book than orders for trading lots.

#### ***Bond trading in SAXESS***

The Danish bond market is divided into four sub-markets:

1. the ordinary market;
2. the sub-market for issues;
3. the sub-market for bulletin board posting; and
4. the electronic broker sub-market.

All members have access to trade in the ordinary market. Here, all bonds are traded by acceptance matching, and all bond transactions concluded outside the trading system are reported to this sub-market. The small order facility, as described above, is available in the ordinary market. All members have access to pre-trade information from the ordinary market, including information on the identification of the participant placing the order. The participants are anonymous in the post-trade information.

Only market-makers in mortgage bonds have access to trade in the electronic broker sub-market and can receive pre-trade information. In the electronic broker market, trading is anonymous and carried out by acceptance matching. Transactions must have a minimum nominal value of DKK 25 million.

All members have access to post bids/offers on the bulletin board sub-market. Trades are concluded off-exchange by telephone and are reported afterwards to the CSE. All members have access to all posted bulletin board items.

The sub-market for issues is an auction market, where auctions of mortgage bonds are held. In this market, the issuers/mortgage credit institutes initiate the auction, and bidders submit their bids, from which a demand curve is formed. On the basis thereof, the issuer, by entering a sell/buy order, fixes an equilibrium

price, at which all bids at or above the equilibrium price are settled at the equilibrium price. There is no continuous trading in the sub-market for issues, but all members have access to enter bids. Only the issuer has access to pre-trade information, but without being able to identify the other party to the transaction. Anonymity is preserved post-trade.

#### **4.1.2 TRADING OF GOVERNMENT SECURITIES**

In general, Danish government securities are traded on a number of platforms. In cooperation with market participants, Danmarks Nationalbank has established the wholesale market MTS Denmark. A primary dealer system has been established which, *inter alia*, comprises a market-making obligation. Danish government securities are issued to primary dealers on MTS Denmark either by auction or by tap sale in the secondary market. Market participants are given the choice of the VP, Euroclear and Clearstream as their preferred clearing house for the STP of transactions concluded on MTS Denmark.

In addition, Danmarks Nationalbank has established a price-quoting system on the CSE. A number of banks are committed to quoting current bid and ask prices for Danish government bonds.

Danish government securities can also be traded on international electronic dealer-to-customer trading platforms, such as BondVision and TradeWeb, where securities dealers electronically distribute government bonds to major investors connected to the electronic trading platforms. Thus, banks and securities dealers can distribute government bonds from the wholesale market, and institutional investors have electronic access to trading in Danish government securities. The market structure differs from MTS Denmark and the market for government bonds on the CSE in that it comprises quote-on-request systems.

#### **4.1.3 DERIVATIVES TRADING**

In the second half of 2005 trading, clearing and settlement of Danish futures and options

gradually migrated to the Stockholm Stock Exchange. This is a consequence of the CSE's merger with the OMX Group.

#### 4.2 CLEARING

There is no independent clearing house offering the clearing of securities or derivatives transactions in Denmark.

##### 4.2.1 SECURITIES CLEARING

The VP offers in-house clearing as part of its normal pre-settlement service.

##### 4.2.2 DERIVATIVES CLEARING

When OMX clears derivatives transactions, it acts as the central counterparty for all derivatives trades conducted in this market.

The calculated margin is settled on margin accounts at Danmarks Nationalbank opened by the SSE for each participant.

#### 4.3 SETTLEMENT

##### 4.3.1 INSTITUTIONAL AND LEGAL ASPECTS OF SECURITIES SETTLEMENT

The main providers of the Danish financial infrastructure for securities are the VP and the CSE (see Section 1.3). Funds transfers relating to trades in securities are settled on accounts held with Danmarks Nationalbank.

The VP settlement system is the Danish system for settlement of securities transactions and periodic payments (interest, repayments and dividend). The system is managed by VP Securities Services, which is the central securities depository for all Danish listed securities and certain other securities. In addition to settling transactions and periodic payments, the VP handles issuance, custodian services and administration of securities.

Danmarks Nationalbank participates in the formulation of overall policy guidelines in respect of securities clearing and settlement through its representation on the Executive Board of the VP. Danmarks Nationalbank has

no operational functions with regard to the VP, except as regards the provision of cash settlement accounts to participants in the VP settlement system.

Danmarks Nationalbank provides account holders with unlimited intraday credit facilities against collateral. Securities accounts are not available at Danmarks Nationalbank.

The VP is currently the only market institution in the Danish market that undertakes the clearing and settlement of securities transactions.

The legal basis for the issue of securities and the clearing and settlement of securities transactions in Denmark is provided in the Danish Securities Trading Act. The Act regulates the business of the CSD and the clearing house and thus provides the legal framework for the VP. The Danish Financial Supervisory Authority is responsible for the supervision of the VP.

In order to safeguard holders of dematerialised securities, the provisions governing the VP stipulate that it shall be liable, within certain limits, for damages in the event of any loss resulting from errors in connection with the registration of securities, even if the errors are accidental. A similar provision applies to errors caused by authorised institutions – e.g. institutions holding accounts with the VP on behalf of customers with an entitlement to make registrations on securities accounts with the VP.

All rights to dematerialised securities are transferred by book entry to the VP. The institutions entitled to effect book entry on securities accounts held with the VP are mainly investment companies, credit institutions, bond issuers, Danmarks Nationalbank and clearing centres, including the VP itself.

Investors can have their securities holdings registered either on individual accounts with the VP or under a nominee registration on a

nominee account held by an authorised nominee.

#### ***Accession and operating rules***

The VP's Clearing Rules and participation agreements are standard agreements containing access and exit criteria. These rules are publicly available. Clearing membership of the VP is open to institutions authorised to trade in securities under the Danish Securities Trading Act or to similar foreign institutions.

According to the VP's standard agreements, clearing participants can be linked to the VP clearing and settlement system as settlement administrators and/or as primary cash providers (see below).

A settlement administrator can report trades for clearing and settlement at the VP on the participant's own behalf, and may also be entitled to report trades on behalf of third parties. A settlement administrator must also be a primary cash provider or enter into an agreement with such an entity in order to have access to payment settlement.

A primary cash provider settles the payment leg of cleared trades on behalf of settlement administrators and participates in the transfer of payments between issuers and investors.

Participation as a primary cash provider requires a cash settlement account with Danmarks Nationalbank. The settlement of the various forms of payment is executed via the cash accounts, which the respective primary cash providers have made available to the individual settlement administrators. In addition to any credit facility that a primary cash provider may have given to a settlement administrator, the parties may conclude a bilateral agreement on the use of automatic collateral (see below).

As at the end of 2006 VP had 196 account controllers and 157 clearing participants. The clearing participants include 39 foreign-market participants who participate in clearing and

settlement through VP without being established in Denmark.

#### **4.3.2 OPERATIONAL ASPECTS OF SECURITIES SETTLEMENT**

The VP settles and registers transactions in government bonds, treasury bills, mortgage credit bonds, commercial bonds, equities and mutual fund papers, including securities denominated in foreign currencies.

The VP operates its own securities transfer system. Trade verification (matching) of securities transactions is performed on the basis of information received directly from participants or trading platforms. Securities transfers together with payments are processed in real time or in one of six daily settlement cycles. Transfers of funds are effected on settlement accounts with Danmarks Nationalbank on the basis of cash balances calculated by the VP.

The VP operates on the basis of a fully automated system. VP permits transfers on a continuous basis throughout most of the 24-hour settlement day, i.e. 7 hours for RTGS transactions and almost 21 hours for FOP transactions. FOP orders can be submitted, and will be executed, from 5 a.m to 1.45 a.m. CET on the following night, with value date changing at 6 p.m. CET in accordance with the 24-hour settlement period of VP.

#### ***Pre-settlement procedures***

With regard to trade verification, in cases where the settlement instructions do not come from a trading platform, both the seller and buyer must report the trade for settlement in the VP. Reporting can be effected via direct data communication from the back office system of the relevant investment company. In addition to using SWIFT communication, the participants may also be connected to VP via the VP cryptonet, which is structured as a closed internet with Cisco routers, or otherwise via the internet through a virtual private network, the configuration of which is controlled and monitored by VP.

Trades can be reported up to 12 months prior to their scheduled settlement. Reporting is carried out in the form of a preliminary notice (pre-advice) and subsequent confirmation (instruction). Immediately upon receipt, the VP will attempt to match reported pre-advice notices with a view to ensuring that the parties agree upon the details of the trade. Only matched trades (which have been instructed) will be forwarded for clearing and settlement. Matching is executed online throughout the VP's opening hours. Pre-advice notices and instructions can be reported in the same transaction.

Trades can be reported for settlement in one of several settlement blocks (net settlement) or for immediate settlement (RTGS).

The VP's clearing and settlement system facilitates final, irrevocable and unconditional settlement of all trades on a DvP basis, and the payment of trades in both DKK and foreign currencies.

Securities traded via the SAXESS trading system can be transferred automatically from SAXESS via NOREX STP for clearing and settlement at VP (see Section 4.1.1). This facility is used primarily by the remote members, since VP's single-investor registration means that the settlement administrators must add further information before reporting to VP.

Trading in the wholesale market takes place electronically on the trading platform MTS (see Section 4.1.2). MTS is based on central clearing instructions and straight-through processing (STP). When a trade has been executed between two market participants on the trading platform, the MTS system sends direct (SWIFT) messages to VP, Euroclear and Clearstream.

VP does not offer central counterparty clearing.

#### ***Clearing and settlement procedures***

Trades in securities can be settled via the VP by means of either DvP or FOP. All funds transfers relating to trades in securities are settled on accounts held with Danmarks Nationalbank.

DvP settlement is only effected if securities are available during the settlement block and sufficient funds are available on the cash settlement accounts of participants held with Danmarks Nationalbank.

Access to direct participation in the settlement of cash balances at Danmarks Nationalbank is restricted to licensed investment companies and credit institutions.

The daytime settlement cycle is divided into three independent settlement blocks and a real-time gross settlement facility, which enables the VP to handle same-day and real-time trades in securities with intraday finality on a DvP basis.

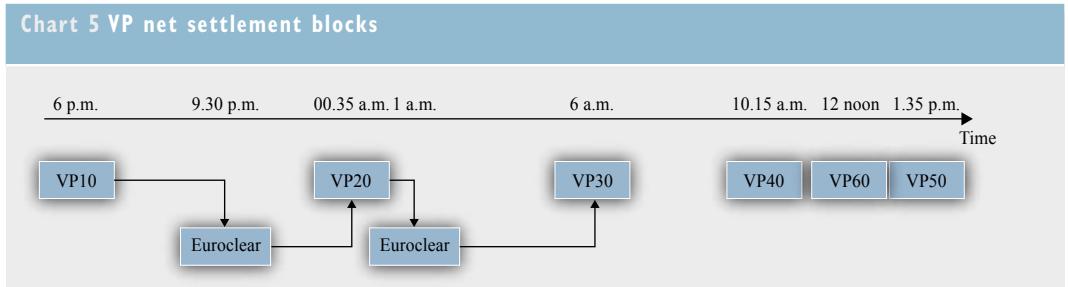
The overnight processing cycle is divided into three independent settlement blocks, all of which are processed during the night leading up to the settlement day with finality in each block. This facilitates the settlement of cross-border trades through a link between the VP and Euroclear, and enables settlement of back-to-back trades between the two systems in same-day funds.

The positioning of the settlement blocks within the 24-hour settlement period is illustrated in the time line below (Chart 5).

The VP's 24-hour settlement period starts at 6 p.m. CET.

Trades in securities are usually settled three days after the trading day (T+3), whereas money market trades based on securities, such as repurchase agreements, are settled one and two days after the trading day (T+1 and T+2).

Chart 5 VP net settlement blocks



Trades can be reported for net settlement with a specified settlement day and settlement block at any time within the next 12 months.

The pre-settlement process comprises a check to see whether both the buyer and seller in each individual trade have instructed (confirmed) their respective sides of that trade. If not, the trade in question will be postponed for processing in the subsequent settlement block.

Trades that are ready for settlement will thereafter be checked for cover in terms of both securities and cash. Both checks are executed on a net basis.

Trades that cannot be settled owing to a lack of securities are postponed for renewed clearing in the subsequent settlement block. The VP does not offer securities lending.

Trades that are cleared in a settlement block are updated on the affected VP accounts and cash accounts during the course of that settlement block.

Trades can also be settled in euro in settlement blocks 10, 20 and 30, as well as in the special euro settlement block (50). In blocks 10, 20 and 30, payment settlement at Danmarks Nationalbank is based on maximum cash drawing facilities in Danish kroner. Trade amounts relating to trades for settlement in euro in blocks 10, 20 and 30 are included in a subsequent block 33, in which Danish kroner are exchanged for euro and vice versa. The payment transfer basis is generated directly in the requested settlement currency.

Trades attain legal effect as of the time of legal effect of the settlement block in which the trade is settled. The settlement of securities transactions in night batches thus becomes final and irrevocable during the night before the settlement day.

#### *DvP arrangements*

The VP's real-time gross settlement of securities transactions is operated in accordance with DvP Model 1 of the 1992 BIS (Parkinson) Report. Trades may be reported for real-time gross settlement on all settlement days between 8 a.m. and 3 p.m. CET.

Trades for real-time gross settlement are reported in the form of RTGS notices. The matching process is commenced immediately upon receipt of such notices. Once the trade has been matched, a check will be made to see whether cover exists for the securities sold. If the outcome of this securities check is positive, the relevant securities will be reserved on the seller's VP account.

A check will subsequently be made to see whether the buyer has sufficient funds on its cash settlement account with Danmarks Nationalbank. If so, the trade will be settled immediately after the completion of the cash check. Cleared trades for real-time gross settlement are updated individually on the affected VP accounts and cash accounts immediately after completion of the clearing process.

Both the securities and cash check are carried out on a gross basis, i.e. on the basis of actual holdings of securities and cash.

The VP's net settlement system is operated in accordance with DvP Model 3 of the 1992 BIS (Parkinson) Report – for example, positions in both securities and cash balances are netted before settlement.

Danmarks Nationalbank reports a credit maximum for each participant prior to the three night settlement blocks and prior to each daylight settlement block. The participants have access to their liquidity between the different daylight blocks. Following the initial netting of securities positions, the resulting net cash balances of each individual participant are matched against the availability of funds on cash settlement accounts. Funds may consist of cash deposited and credit against collateral.

If the clearing and settlement process results in net debit positions which exceed participants' available funds with Danmarks Nationalbank, the VP will, prior to settlement, exclude transactions to the extent necessary to bring the participants' resulting cash balances within the predetermined credit limits.

#### ***Control measures and risk management***

Principal risks are eliminated by means of DvP combined with settlement in cash balances held with Danmarks Nationalbank. On the day preceding the settlement day, the VP provides each individual participant with an updated statement containing information on securities and cash positions. This gives the participants the opportunity to cover possible shortages. In addition, intraday credit is extended by Danmarks Nationalbank; this must be fully collateralised.

The Danish Securities Trading Act allows a customer in the VP clearing and settlement system to conclude a liquidity-saving automatic collateralisation agreement. Such an agreement enables the customer to provide collateral for a net purchase in the traded securities, or in the customer's securities holding in conjunction with a settlement block. The collateral is provided vis-à-vis Danmarks Nationalbank or another primary cash provider. The security is

calculated as a collateral value, which enables securities to be traded out of the relevant VP account, provided that the remaining securities comprise a sufficient collateral value.

The automatic collateralisation agreement may be concluded as a supplement to any maximum cash drawing facility given to the customer either by Danmarks Nationalbank or by another primary cash provider for use in the settlement of trades. If a customer fails to pay its debt to the lender, the latter can assert its rights and immediately realise the collateral value of the holding that has been provided as collateral.

Securities lending is permitted by Danish law, but the VP does not offer a securities lending facility.

#### ***Links with other SSSs***

Euroclear and Clearstream both have DvP links to VP. Securities issued at VP can be registered at the respective units and can be transferred and retransferred with concurrent cash settlement. The Euroclear link, which is illustrated in Chart 5, is the most frequently used link. It is also the most efficient link, with Euroclear holding a securities account at VP and a cash settlement account at Danmarks Nationalbank.

The Clearstream link is also a direct link in the sense that Clearstream holds a securities account at VP in its own name, but this VP account is serviced by Danske Bank as settlement administrator, just as Danske Bank undertakes cash settlement via its account at Danmarks Nationalbank.

In addition, VP has bilateral direct FOP links with the Swedish CSD VPC and with the Icelandic CSD VS. Thus, these CSDs register securities issued at VP, and VP registers Icelandic and Swedish securities.

#### ***4.3.3 DERIVATIVES SETTLEMENT***

OMX Derivatives Markets, as a part of the SSE, offers the registration, clearing and settlement of transactions in futures and options, in

addition to acting as a CCP (see Section 4.1.3). These clearing and settlement activities are governed by Swedish law. Cash settlement still takes place via Danmarks Nationalbank.

The cash settlement of net positions takes place via current accounts at Danmarks Nationalbank. Members with net debit positions for current settlement of their contracts credit SSE's current account by 11a.m. CET, and SSE then credits members by 11.30 a.m. CET with net credit positions for current settlement of their contracts. Delivery of the underlying asset upon expiry of the contract is settled via VP.

Securities to be delivered are settled by way of DvP and follow normal securities settlement procedures.





# ESTONIA

## CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>96</b>
<b>I INSTITUTIONAL ASPECTS</b>	<b>97</b>
1.1 The general institutional framework	97
1.2 The role of the central bank	98
1.3 The role of other private and public sector bodies	101
<b>2 PAYMENT MEDIA USED BY NON-BANKS</b>	<b>101</b>
2.1 Cash payments	101
2.2 Non-cash payments	102
2.3 Recent developments	106
<b>3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS</b>	<b>106</b>
3.1 General overview	106
3.2 The real-time gross settlement system	107
3.3 The retail payment systems	111
3.4 Future developments	115
<b>4 SECURITIES SETTLEMENT SYSTEMS</b>	<b>115</b>
4.1 General aspects	115
4.2 Trading	116
4.3 Clearing	118
4.4 Settlement	118
4.5 The use of the securities infrastructure by the central bank	122

## LIST OF ABBREVIATIONS

APK	Finnish CSD
CPSE	Council of Payment System Experts
DNS	Designated Time Net Settlement System (operational from 2002 until October 2005)
EBA	Estonian Banking Association
ECR	Estonian Central Register of Securities
ECSD	Estonian Central Securities Depository – <i>AS Eesti Väärtpaperikeskus</i>
EFSA	Estonian Financial Supervisory Authority
EPNAS	Former interbank payment system (operational from 1992 until 2002)
ESTA	Settlement System of Ordinary Payments (operational since 3 October 2005)
HEX	Helsinki Exchange
OMX	Exchange owner and operator in the Nordic and Baltic region and provider of financial services technology
OTCNS	Net settlement system for OTC transactions
PKK	Banks' card centre – <i>Pankade Kaardikeskus</i>
RTGS	Real-time gross settlement system in Estonia
SAXESS	Electronic trading system used by the TSE
SENS	Net settlement system for stock exchange transactions
TSE	Tallinn Stock Exchange

## I INSTITUTIONAL ASPECTS

### 1.1 THE GENERAL INSTITUTIONAL FRAMEWORK

Estonia implemented the currency board principle at the time of the introduction of the national currency, the Estonian kroon (EEK), in June 1992, and that principle constitutes the basis for the whole Estonian monetary system. The cornerstones of the arrangement comprise a fixed exchange rate vis-à-vis the Deutsche Mark (DEM 1 = EEK 8), the restriction that central bank liabilities must not exceed reserves held in highly rated foreign assets or gold, and unlimited current and capital account convertibility.

Since 1 January 1999, following the introduction of the euro, the exchange rate of the Estonian kroon has been unchanged vis-à-vis the euro (€1 = EEK 15.6466) in line with the fixed exchange rate of the Deutsche Mark against the euro.

Payment and settlement activities are regulated by the Eesti Pank Act of 18 May 1993 (last amended on 29 January 2003), the Law of Obligations Act of 26 September 2001 (last amended on 19 October 2005), the Credit Institutions Act of 9 February 1999 (last amended on 19 October 2005) and relevant Eesti Pank Governor's Decrees.

Pursuant to Article 3 of the Eesti Pank Act, Eesti Pank (the central bank of Estonia) operates independently of other state agencies and reports on its activities to the Riigikogu (the Estonian parliament). Eesti Pank is not subordinated to the government or any other executive state body or any third person. Eesti Pank is not held legally responsible for the state's proprietary obligations, and the state, in turn, is not held legally responsible for any proprietary obligations of Eesti Pank. As part of the European System of Central Banks, Eesti Pank and members of its governing bodies may request and receive instructions only from the European Central Bank. The Eesti Pank Act states that the primary objective of Eesti Pank

is to ensure price stability. Eesti Pank regulates currency circulation both in Estonia and with other countries and seeks to uphold the stability of the national currency. Eesti Pank conducts banking transactions in Estonian and foreign currency, as well as transactions in securities and in other monetary instruments in accordance with the Statute of Eesti Pank.

The Credit Institutions Act regulates the foundation, activities, dissolution, liabilities and supervision of credit institutions. It states that a credit institution is allowed to operate as a public limited company or association. In addition, the Act sets the minimum level of own funds at EEK 75 million (€5 million). Payments of credit institutions are to be settled through a payment system pursuant to the procedure established by Eesti Pank. The credit institutions must settle payments in accordance with regulations established by Eesti Pank.

A single banking licence allows an authorised credit institution to carry out all activities listed in the Annex to the Second Banking Co-ordination Directive. Only credit institutions are allowed to accept deposits and other repayable funds from the public. The competent authority to grant licences to credit institutions and to supervise their activities is the Estonian Financial Supervisory Authority (EFSA), an independent institution administratively affiliated with Eesti Pank.

The Estonian Bankruptcy Act of March 1997 (last amended on 26 January 2006) contains the rules for registering the exact time of bankruptcy and for protecting rights arising from financial collateral agreements (a zero-hour rule). The enactment time of the court order is the date on which it is issued, which means that the court order takes effect from the first minute of the day on which the order is issued. The concept of irrevocability and finality is further regulated by a new version of the Credit Institutions Act and the payment system rules, under which the zero-hour clause ceased to apply to payment systems on 9 February 1999.

The legal relations between a credit institution and a customer are based on the Law of Obligations Act and Eesti Pank Governor's Decree No 2 of 14 May 2001 on instructions for settlement of payment. Previously, there was no special legislation governing different payment instruments. At the end of 2001 the Act on contractual and extra-contractual liabilities was passed by parliament. It regulates credit transfers, settlement contracts, money transfers, electronic means of payment, settlement of letters of credit and encashment. Payment practices are determined by agreements between banks, credit institutions, service providers and customers.

The Securities Market Act of 17 October 2001 (last amended on 19 October 2005) and the Estonian Central Register of Securities Act of 14 June 2000 (last amended on 9 February 2005) govern the Estonian securities market. The details of certain activities governed by these Acts are regulated by decrees of the Minister for Finance.

The Securities Market Act regulates the activities of participants (e.g. issuers and investors) in primary and secondary securities markets and governs the general principles of SSSs.

The Estonian Central Register of Securities Act regulates the provision of registry services. The procedure for the maintenance of the Estonian Central Register of Securities (ECRS) dated 28 December 2000 is regulated by a decree of the Minister for Finance. The data processing rules of the Estonian Central Register of Securities dated 22 November 2001 (and last amended on 22 December 2005) are established by the Supervisory Board of the Estonian Central Register of Securities.

The legislation governing payment and settlement systems generally complies with Directive 98/26/EC on settlement finality in payment and securities settlement systems and Directive 97/5/EC on cross-border credit transfers. The Act on contractual and extra-

contractual liabilities represented a major breakthrough in this area. Harmonisation with Directive 98/26/EC has been achieved with the adoption of the Securities Market Act, which entered into force on 1 January 2002. There remain some minor shortcomings which will be eliminated with further legislative amendments. The Money Laundering and Terrorist Financing Prevention Act<sup>1</sup> was adopted in 2004 and regulates the prevention of money laundering and the combating of terrorist financing. This Act applies to credit and other financial institutions. Specific internal procedures to prevent money laundering and terrorist financing are established by a decree of the Minister for Finance.

## 1.2 THE ROLE OF THE CENTRAL BANK

### 1.2.1 GENERAL RESPONSIBILITIES

The objectives and tasks of Eesti Pank are defined by the Constitution of the Republic of Estonia and the Eesti Pank Act. The main objective of Eesti Pank is to ensure price stability, to regulate currency circulation both in Estonia and with other countries, and to ensure the ability of national currency to fulfil all functions as a means of payment. In addition, Eesti Pank must contribute to the stability of the banking sector and the financial system as a whole, maintain the integrity and efficiency of payment systems, and promote the development of financial markets.

Pursuant to Article 87 of the Credit Institutions Act, Eesti Pank has the right to establish a legal framework for the settlement of payments. Several decrees issued by Eesti Pank establish instructions for the settlement of payments, the terms and conditions of settlement systems managed by Eesti Pank, and rules governing account management for credit institutions' accounts held with Eesti Pank.

Eesti Pank is participating in an Estonian Banking Association (EBA) working group

<sup>1</sup> Between 1999 and 2003 prevention of money laundering was covered by the Money Laundering Prevention Act. Before 1999 it was covered by the Credit Institutions Act.

which seeks to create and implement common standards in the banking industry. Common standards for account numbers, reference numbers, payment order templates and electronic account statements for bank customers have been designed and implemented since 1996. Furthermore, the International Bank Account Number (IBAN) has been implemented since 2004. In addition, a recommendation for a common account statement has been issued by the Estonian Banking Association.

#### 1.2.2 PAYMENT SYSTEMS OVERSIGHT

Eesti Pank oversees two types of settlement system in Estonia: systemically important settlement systems and important settlement systems. Currently, the RTGS (Real-Time Gross Settlement) and ESTA (Settlement System of Ordinary Payments) settlement systems are classified as systemically important settlement systems, and the securities settlement system and the card payment settlement system are classified as important settlement systems.

As an overseer of payment systems, it is the task of Eesti Pank to monitor the use of these systems, which was and their correspondence to market needs, to direct and monitor the development of the systems, and to determine the important and systemically important settlement systems on the basis of certain criteria. Where a settlement system has been classified as systemically important, Eesti Pank must also see to it that such a system has clearly understandable written rules, which are observed in reality. The central bank must also ensure the existence of an action plan for possible failures in the system (continuity plan) and assess the system's compliance with international standards and best practices (including risk evaluation).

In Eesti Pank, there is a clear separation of operational and oversight roles, which are assumed by different Deputy Governors of the central bank, i.e. the Clearing and Settlement Department is responsible for running and managing the interbank payment and settlement system, while the oversight function is carried

out by the Financial Stability Department. The Monetary Policy Committee established by the Statute of Eesti Pank, which consists of all members of the Executive Board plus some other members determined by the Governor of Eesti Pank, makes decisions regarding policy, regulation, operations and governance related to the interbank payment and settlement system. Decisions of the Monetary Policy Committee are based on the quarterly overviews provided by the Clearing and Settlement Department as regards the operation of the interbank payment and settlement system, as well as on the oversight analysis and assessment overviews provided by the Financial Stability Department once a year. The decisions of Eesti Pank and summaries of regular oversight assessments for payment and settlement systems are disclosed on the website of Eesti Pank, as well as in Eesti Pank publications, for example the Financial Stability Review and the Annual Report.

In order to ensure adequate preparation for changes made to the interbank payment and settlement system, Eesti Pank seeks comments and suggestions from system participants through the Council of Payment System Experts (CPSE), which was established by an Eesti Pank Governor's decree. This high-level committee established for strategic questions regarding payment and settlement systems is led by Eesti Pank and composed entirely of representatives of system participants, including credit institutions and net settlement system operators. All major decisions about changes to the system are made after consultation with all relevant users, including the system overseer.

#### 1.2.3 THE OPERATIONAL ROLE OF EESTI PANK

The central bank has traditionally played an important role in Estonia, as its interbank payment and settlement system ensures the efficient, fast and secure settlement of payments in Estonian kroons and central bank money, providing a controlled systemic risk environment.

The Eesti Pank Act sets out the roles and responsibilities for the provision of domestic interbank payment facilities and the management

of the interbank payment and settlement system, which consists of two systems: RTGS and ESTA. The operational role of Eesti Pank in the payment and settlement system consists of issuing banknotes, managing the RTGS and ESTA systems, and offering settlement of net positions arising from Estonian Central Securities Depository (ECSD) and Tallinn Stock Exchange (TSE) transactions.

Eesti Pank owns, manages and operates both systems, as well as being responsible for maintaining and developing the systems' hardware, software and organisation. More specifically, the Clearing and Settlement Department is responsible for running, managing and monitoring both systems.

Participation in and the operations of the interbank payment and settlement system are subject to rules set by Eesti Pank. The consideration of applications to participate in RTGS and ESTA is carried out separately.

Owing to the currency board arrangement in Estonia, Eesti Pank provides credit institutions with the possibility of buying or selling foreign currency to adjust their kroon liquidity. All transactions are initiated by credit institutions, and Eesti Pank is obliged to exchange unlimited amounts of euro, US dollars, Japanese yen, pounds sterling and Swedish kronor against Estonian kroons. The predominant currency sold to Eesti Pank is the euro because there is no spread between the buying and selling rates of the Estonian kroon against the euro.

Eesti Pank's reserve requirement is the most important instrument for providing immediate domestic liquidity and settlement buffers. Credit institutions are required to meet the requirement on a monthly average basis. The reserve requirement currently amounts to 13% of credit institutions' reserve requirement calculation base. As of 1 March 2004, assets eligible for meeting the reserve requirement are: deposits with Eesti Pank and high-quality foreign securities (which can be used to meet up to 50% of the reserve requirement).

The amounts held by credit institutions on their settlement accounts with Eesti Pank are remunerated. Eesti Pank pays credit institutions interest on the average monthly balance exceeding the minimum reserve requirement in the settlement account with Eesti Pank (standing deposit facility at Eesti Pank). The interest paid is the ECB deposit interest rate.

#### **1.2.4 ACTIVITIES IN THE AREA OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

Eesti Pank has no statutory responsibilities with regard to SSSs and is not legally empowered to issue any binding regulations in this field. Nevertheless, Eesti Pank is a shareholder in the TSE and is represented on its Board and, as such, participates in the establishment of common rules for securities trading. In addition, Eesti Pank plays the role of a settlement bank with regard to the netted cash positions of the participants in the SSSs. Eesti Pank is generally informed about the operations and operating principles of the ECSD to the extent necessary in order for the central bank to guarantee the stability of the Estonian financial sector. Under the general oversight framework, Eesti Pank monitors securities market infrastructures and publishes the results of oversight in the Financial Stability Review once a year.

#### **1.2.5 COOPERATION WITH OTHER INSTITUTIONS**

The EFSA is responsible for the financial supervision of credit institutions, insurance companies and investment and pension funds. It is an independent institution administratively affiliated with Eesti Pank. On behalf of the EFSA, Eesti Pank collects prudential reports from credit institutions on a regular basis, which are made available to the EFSA for supervision purposes. The EFSA monitors and analyses the level of compliance both with requirements for financial soundness and own funds, and with other obligations prescribed by laws and regulations, and makes on-site inspections. Based on these findings, the EFSA has the right to issue recommendations and rulings. The range of sanctions includes the imposition of stricter prudential requirements, the limitation or suspension of the entitlement

to grant loans, the limitation of dividend payments and the withdrawal of licences.

According to the Eesti Pank Act, Eesti Pank cooperates with the EFSA, including with regard to obtaining information, in order to ensure financial stability. In addition, the memorandum of understanding (MoU) between Eesti Pank, the Ministry of Finance and the EFSA was signed in order to establish a basis for joint action in the fields of exchange of information, development of legislation, provision of a safety net, etc.

Internationally, the most significant partner for Eesti Pank as a member of the European System of Central Banks (ESCB) in the field of payment systems is the European Central Bank. Under the aegis of the ESCB, Eesti Pank signed an MoU on cooperation between payment systems overseers and banking supervisors in Stage Three of EMU when the Republic of Estonia joined the EU in 2004.

### 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

The Estonian Banking Association was established in 1992 by the commercial banks. The objectives of the EBA are: to represent the interests of its members, to participate in the drafting of legislation concerning banking activity and to support the development of interbank payment and settlement systems.

In order to ensure adequate preparation for changes made to interbank payment and settlement systems, prior to making final decisions Eesti Pank seeks comments and suggestions from the participants in the systems through the Council of Payment System Experts, which was established by an Eesti Pank Governor's decree. This high-level committee established for strategic questions regarding payment and settlement systems is led by the Deputy Governor of Eesti Pank and composed entirely of representatives of system participants, including credit institutions and net settlement system operators. Under the

auspices of the CPSE, Eesti Pank also has working groups at various levels for regular information-sharing and discussions about current issues with regard to the interbank payment and settlement system. After the launch of the new interbank payment system, the National Payment Council was restructured to become the CPSE, a working group consisting of payment system experts with the right to present recommendations to improve the operation of payment systems. The CPSE members include three representatives from Eesti Pank and one representative from each participant in the interbank payment systems (with eight non-Eesti Pank CPSE members in total at the end of April 2002).

The informal consultation and discussions take place mainly in the CPSE sub-groups, while the more formal discussions are held and final decisions are made at the Council level. CPSE meetings take place at least once a quarter, while the sub-group meetings are held as frequently as necessary.

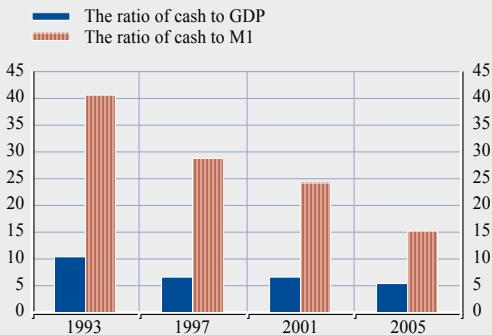
In addition, within the framework of the CPSE, the Court of Arbitration of the CPSE has been set up as an independent body to settle out-of-court disputes between the managers of a payment system and its participants. Since 2003 the same independent body has also settled out-of-court disputes between credit institutions and their customers.

## 2 PAYMENT MEDIA USED BY NON-BANKS

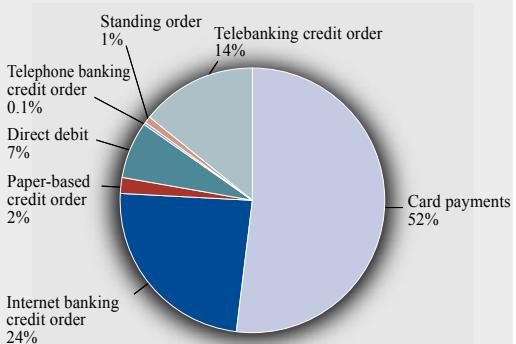
### 2.1 CASH PAYMENTS

Eesti Pank has the exclusive right to issue banknotes and coins. In Estonia, there are eight banknote denominations (EEK 1, EEK 2, EEK 5, EEK 10, EEK 25, EEK 50, EEK 100 and EEK 500) and six coin denominations (5, 10, 20 and 50 sent, and EEK 1 and EEK 5). The issuance of EEK 1 banknotes ceased in 1998, and 5 sent coins have not been minted since the end of 1996. At the end of 2005 the EEK 500 banknote (equivalent to €32) accounted for the

**Chart 1 The ratio of cash to GDP and narrow money supply (M1) at the end of 1993, 1997, 2001 and 2005**



**Chart 2**



majority of banknotes and coins in circulation (85% in terms of value).

Cash is losing its status as the dominant form of payment in Estonia. According to the study of payment habits and preferences carried out by TNS Emor in 2005, the share of households paying only in cash fell from 88% in 1998 to 39% in 2005. In addition, regular payments are mainly made through banks, and particularly by using electronic means of payment.<sup>2</sup> A breakthrough for payments made via banks compared with other payment options<sup>3</sup> occurred in 2002, when, for the first time, more than half of regular payments were made through banks.

However, the increase in cash in circulation has slowed from year to year, and the structure of cash circulation has stabilised because of the rapid development of non-cash payment instruments and people's payment habits. Although exact data on the value or volume of cash payments are not available, the share of cash in M1 and GDP has been declining for a number of years in Estonia (see Chart 1). The decline in the share of cash in M1 was particularly noticeable between 1993 and 2005.

## 2.2 NON-CASH PAYMENTS

The use of non-cash payment instruments increased considerably between 1997 and 2005 by comparison with cash payments. Non-cash payment methods include credit transfers,

direct debits, cheques and payment cards. The development of non-cash payment instruments has been supported by the rapid increase in the use of payment cards and the expansion of internet banking since 1997.

### 2.2.1 CREDIT TRANSFERS

The credit transfer is the predominant non-cash payment instrument in Estonia. In 2005 credit transfers accounted for approximately 41% of the total volume of non-cash payments and 99% of their total value. The total value of credit transfers was €209 billion in 2005. For companies, the most popular forms of credit transfer were internet banking and telebanking<sup>4</sup> (which accounted for 55% and 43% of the volume of payments respectively). The forms of credit transfer most frequently used by private individuals were internet banking and paper-based credit transfer orders (which accounted for 86% and 7% of the volume of payments respectively). The structure of non-cash payments has not changed considerably. However, fewer payments were made through telebanking. One of the reasons behind the decline in the number of telebanking credit transfer orders is the higher price by comparison with internet banking services, which is why small companies that used to be telebanking

2 Payments made regularly (at least once a month) for electricity, gas, phone, satellite and cable TV, and insurance, as well as loan repayments, etc.

3 Payment in cash directly to service providers or via the post office, or withheld from salary.

4 Telebanking includes special telebanking software.

customers have switched to internet banking. In 2001 96% of credit transfers were made electronically. Electronic banking credit transfer facilities include: standing orders, internet banking, telebanking and mobile payments. The main reason for the popularity of electronic banking is its convenience and the relatively low cost compared with the traditional services offered by banks.

The most efficient payment methods are non-cash payments, which allow faster (electronic) money transfers and involve less risk. In the long run, the overall increase in non-cash payments is expected to result in a decrease in the share of credit transfers, owing to the growing popularity of other payment instruments, in particular payment cards and internet banking.

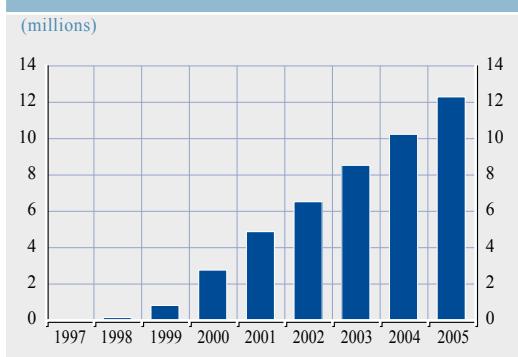
### 2.2.2 CHEQUES

Cheques have never played an important role as a payment instrument in Estonia. They have only ever been used for withdrawing cash from banks. The total turnover of cheques was €14 million in 2005. Cheques accounted for only 0.01% of non-cash payments in terms of volume.

### 2.2.3 DIRECT DEBITS

The direct debit was introduced in Estonia in 1996. Both parties must agree on the use and limitations of the direct debit beforehand. At present the use of direct debits is restricted by the fact that both parties must have their accounts at the same credit institution. The use of direct debits has increased robustly since 1997, but since 2002 the growth in their use in volume terms has stabilised (see Chart 3). The largest increase took place during the years following the introduction of direct debits. In 2005 direct debits were used to settle more than 12 million payments and accounted for 7.4% of the total number of payments. For private individuals, direct debits are a convenient instrument for paying for public utilities (telephone and electricity) and certain other bills on a regular basis. Direct debits had a total value of €370 million in 2005.

**Chart 3 The volume of direct debits in the period 1997-2005**



### 2.2.4 PAYMENT CARDS

Payment cards were introduced in Estonia in 1993, when, at the initiative of the commercial banks, the banks' card centre (PKK) was established.

In recent years payment cards have become widespread payment instruments. By the end of 2001 credit institutions operating in Estonia had issued 1.4 million bank cards in total, 81% of which were debit cards. Payments made by payment card had a total value of €1.5 billion in 2005. By the end of 2005 22% of all the bank cards were "passive", i.e. no payments were made during the quarter. At the end of 2005 there was one bank card for every Estonian resident, an average of 86% of people had a debit card, and every fifth person on average had a credit card.

#### *Debit cards*

When payment cards were first introduced in Estonia, credit institutions issued cash cards only. Debit cards were introduced in 1994, and two different strategies were followed. One group of banks began to issue its own debit cards, but changed its strategy in 1997 and has since issued only Cirrus/Maestro debit cards. Another group of banks started to issue Visa Electron as a debit card from the outset. Most debit cards now carry either the Visa Electron or the Cirrus/Maestro logo. By the end of 2001 credit institutions operating in Estonia had

issued 1.2 million debit cards, of which 18% were passive and 1% were for local use only.

#### ***Credit cards and travel and entertainment cards***

With regard to the major international credit cards, Visa and MasterCard are both in use in Estonia. Prior to the second half of 2000 credit cards were not widely used in Estonia because of their high annual fees. In the second half of 2000 the number of credit cards more than doubled, mainly on account of the development of new banking products, such as revolving credit cards and instalment cards. Since 2002 the growth in the number of credit cards has slowed, with an average annual increase of 25% in the number of credit cards in circulation. By the end of 2005 banks had issued over 265,000 credit cards, of which 42% were passive.

#### ***Retailer cards***

In Estonia there is no institution collecting information about retailer cards. Petrol companies and larger supermarket chains issue prepaid retailer cards and co-branded bank customer cards for purchases in order to enhance customer loyalty.

In 1998 one of the largest supermarkets in Estonia started to issue retailer cards with a credit line. The holder of the card is granted a line of credit and can also earn bonus points (as in the case, for example, of the Stockmann credit card).

#### ***Prepaid cards***

At present, no credit institution or other operator in Estonia provides multi-purpose prepaid cards. However, Estonian credit institutions are monitoring Visa and MasterCard projects in this field, with a view to issuing multi-purpose prepaid Visa or MasterCard cards in the future.

#### ***ATM and EFTPOS networks***

The payment environment in Estonia is mainly electronic, and the number of less efficient channels, such as bank offices and post offices, remained at the same level (or even dropped slightly) between 1997 and 2003. It is safe to conclude that the network of bank offices and electronic payment channels (i.e. internet banking, ATMs and points of sale) has developed to a point at which it satisfactorily meets the needs of bank customers and market demand. In 1994 the first five ATMs were installed and 20 POS were established. More devices have since been installed, with the result that 841 ATMs and 12,730 POS were available by the end of 2005. The growth in the number of ATMs and POS accepting card payments in 2004 and 2005 is related to the opening of new shopping and service centres in Estonia.

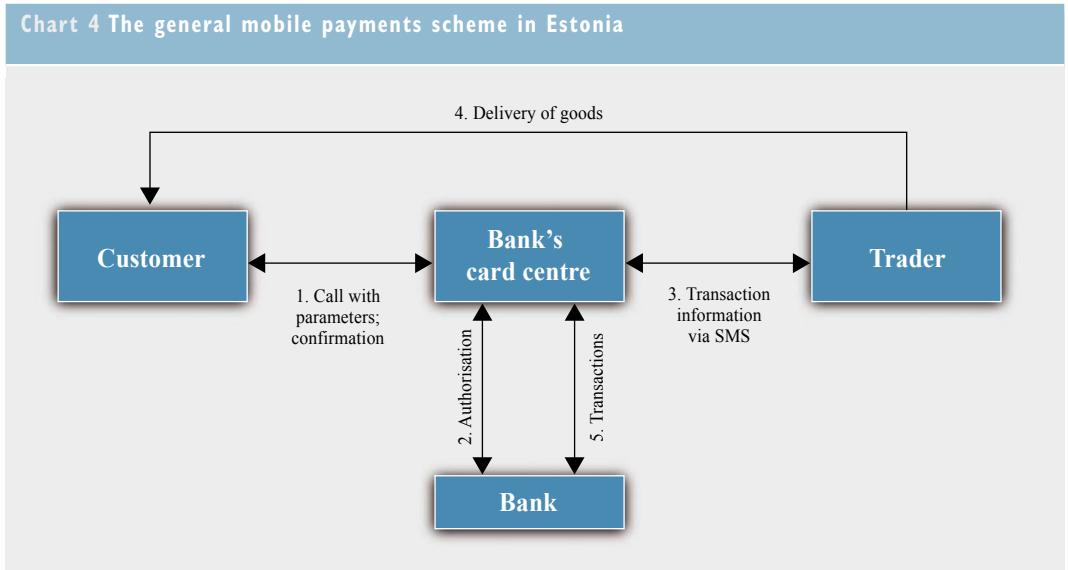
The credit institutions have two main ATM strategies. The large banks are extending their own ATM networks, while the smaller ones are offering their customers the possibility of using the ATM networks of large banks free of charge.

Retailers are increasingly equipped with EFTPOS terminals, and in 2001 the number of POS accepting payment cards grew by 15%.

#### ***2.2.5 MOBILE PAYMENTS***

Mobile payment is a payment method in which mobile telephones are used to initiate payment instructions. In Estonia, the PKK, in cooperation with credit institutions, has offered such a service since autumn 2002. Initially the mobile payment facility was only offered at points of sale (i.e. for money transfers to traders), but since mid-March 2004 credit institutions' customers have also been able to make payments among themselves. The mobile payment service offered by the PKK is available to all customers of the mobile phone operators represented in Estonia and can be used by all credit institutions. In addition, cross-usage is possible, where the payer is a customer of one bank and the payee a customer of another.

Chart 4 The general mobile payments scheme in Estonia



A customer initiates a mobile payment transaction with a call from his/her mobile phone to the payment system service number managed by the card centre. The parameters forwarded include the trader's code or the beneficiary's telephone number and the amount of the transaction. The trader is informed of the concluded transaction through an SMS to his/her mobile phone. If the beneficiary is a private individual, the receipt is shown on his/her bank statement. Similarly to card payments, the payer's available resources are checked with the customer's bank. In order to make such payments, the parties – both the payer and the payee – must conclude a relevant contract with the credit institution.

Besides traditional money transfers, the mobile payment facility can be used, for example, to pay for services that are based on the recording of the time, for transactions conducted via self-service vending machines, for tickets and for bookings. For customers, mobile payments are free of charge; they only pay the mobile phone company for the call.

Mobile payments accounted for 0.1% of the total volume of non-cash payments in 2005, and

approximately 91,000 mobile payments, with a total value of nearly €1.3 million, were made in that year. The average payment amount was around €14.

## 2.2.6 POSTAL INSTRUMENTS

The state-owned company Eesti Post (the Estonian Post Office) provides retail payment services and is not considered to be a part of the interbank payment system. The payment services offered are not subject to interbank payment system regulations, and Eesti Post is not subject to supervision by any other authority. The value of payments made via Post Office branches is unknown, and the Eesti Post payment service is mainly used for paying monthly social benefits and pensions to private individuals who do not have a bank account.

## 2.2.7 OTHER PAYMENT INSTRUMENTS

Letters of credit issued by credit institutions play a relatively small role in the payment instruments market. They are only used in international trade between trading partners that are not known to one another.

### 2.3 RECENT DEVELOPMENTS

Over the past decade the Estonian payment system has evolved from the cash-oriented system it once was. Following a phase of active use of paper-based payment instruments, Estonia is now moving towards a more automated electronic payment system. Conventional paper-based payment orders are increasingly giving way to internet banking and card payments.

In 2000 the major banks developed two new electronic product groups: an e-money-type payment instrument called “Mobile Account”, and internet-based WAP banking. However, these new payment instruments are not yet widely used.

In order to offer companies more flexible payment services, the commercial banks have started to introduce internet-based telebanking products. The advantage of this kind of product is that companies do not need special telebanking software to make their payments. The first internet-based telebanking product was adopted at the end of 2001.

used for settlement of both high-value and retail payments. In 2002 Eesti Pank reformed the interbank payment and settlement system and it was split into two systems: RTGS and the Designated Time Net Settlement System (DNS). RTGS was needed in order to ensure efficient, fast and secure settlement of payments in Estonian kroons and central bank money, providing a controlled systemic risk environment. In addition, RTGS was needed in order to be in conformity with the payment systems of euro area countries and for the connection with TARGET.

The current interbank payment and settlement system, which is owned and operated by Eesti Pank, also consists of two systems: RTGS and ESTA. On 20 November 2006 Eesti Pank was connected to the TARGET system via the Banca d’Italia. This enables banks and other financial institutions in Estonia, having an “out country” status, to settle payments in euro. ESTA is the gross settlement system for settling ordinary payments on a continuous basis and is a modified version of the former DNS which has been operational since 3 October 2005. ESTA settles only payments in national currency, the Estonian kroon.

## 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

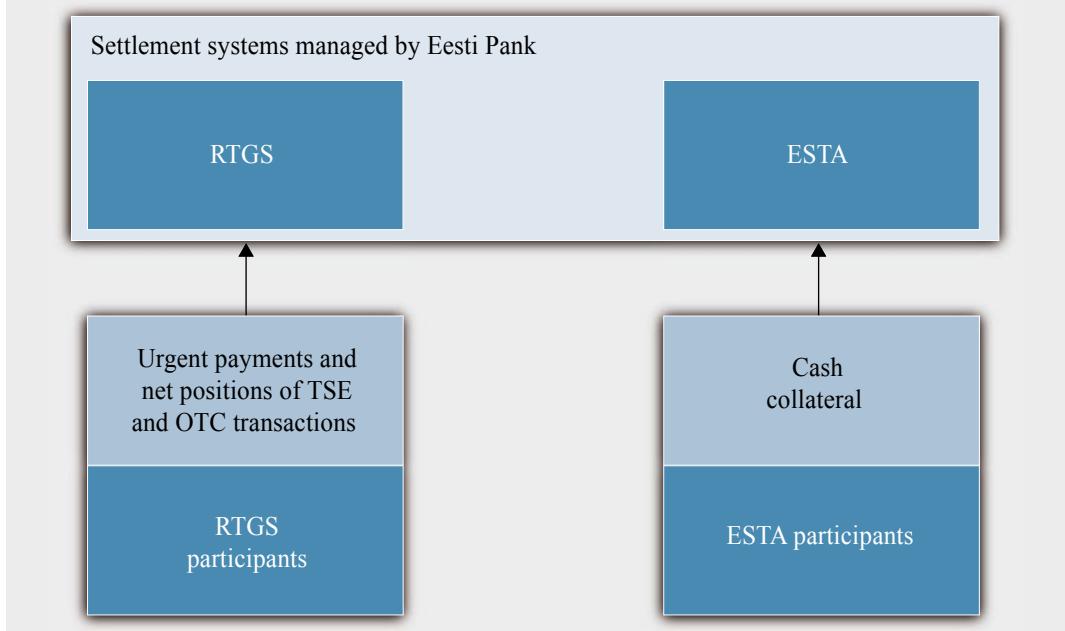
### 3.1 GENERAL OVERVIEW

In 2005 more than 76% of all interbank payments were made by two major banks, which means that the banking sector in Estonia is fairly consolidated. Around 11% of payments by volume (and 25% of payments by value) are made through Eesti Pank’s interbank payment system.

The first interbank payment system in Estonia, EPNAS, which was owned and managed by Eesti Pank, was operational from 1992 until 2002. At that time EPNAS was the only interbank payment system in Estonia and was

Both systems are governed by a separate set of rules, enacted by Eesti Pank. The rules cover the legal and business details of the systems which are not regulated by law or by the agreements between system participants and Eesti Pank (system infrastructure, prerequisites for participation, accession procedures, communication channels, types of payment, settlement conditions, payment priorities and queues, etc.). The actual conditions for accession and participation in the systems for an individual participant are laid out in an accession agreement concluded between each participant and Eesti Pank. The systems’ technical parameters and procedures are determined in accordance with the technical specifications determined by Eesti Pank.

Chart 5 The structure of the interbank payment and settlement systems managed by Eesti Pank



### 3.2 THE REAL-TIME GROSS SETTLEMENT SYSTEM

The Estonian RTGS system is used for processing high-value and urgent interbank payments on a gross basis on the participants' settlement accounts held at Eesti Pank. (All transactions above €1 million must be settled in the RTGS system.) The RTGS system accepts and processes only credit orders issued by participants and net balances sent by the managers of the net settlement systems for final settlement.

#### 3.2.1 OPERATING RULES

Eesti Pank determines the operating rules of the system pursuant to the Eesti Pank Act and the Credit Institutions Act.

In order to accede to RTGS, it is necessary to have an account with Eesti Pank, to meet the criteria for access to RTGS established by Eesti Pank in the relevant terms and conditions, and to sign an accession contract with Eesti Pank. The accession contract stipulates the rights and obligations of the parties. The accession

contract also obligates the participant to undertake to comply with the general terms and conditions and technical specifications of the RTGS system.

#### 3.2.2 PARTICIPATION IN THE SYSTEM

The following entities may participate in RTGS:

- all credit institutions licensed by the EFSA;
- central banks established in the European Economic Area (EEA);
- supervised credit and financial institutions established in the EEA, or branches thereof;
- investment firms established in the EEA which are subject to prudential supervision and in compliance with Article 1(2) of Directive 93/22/EEC; and
- managers of the payment systems operating between Estonian or EEA credit institutions.

In order to accede to RTGS, it is necessary to have an account with Eesti Pank, to meet the criteria for access to RTGS established by Eesti Pank in the terms and conditions for participating in RTGS, and to conclude an accession contract with Eesti Pank.

At the end of May 2006 there were 13 direct participants in RTGS, comprising six credit institutions, five branches of foreign banks, the ECSD and Eesti Pank. The ECSD is the manager of the following two net settlement systems: SENS, for stock exchange transactions; and OTCNS, for OTC transactions. Eesti Pank is the manager of the following two payment and settlement systems: RTGS and ESTA.

### 3.2.3 TYPES OF TRANSACTION HANDLED

The RTGS system accepts and processes only credit-type payment orders issued by participants, as well as the following types of transaction:

- interbank payments and customer payments;

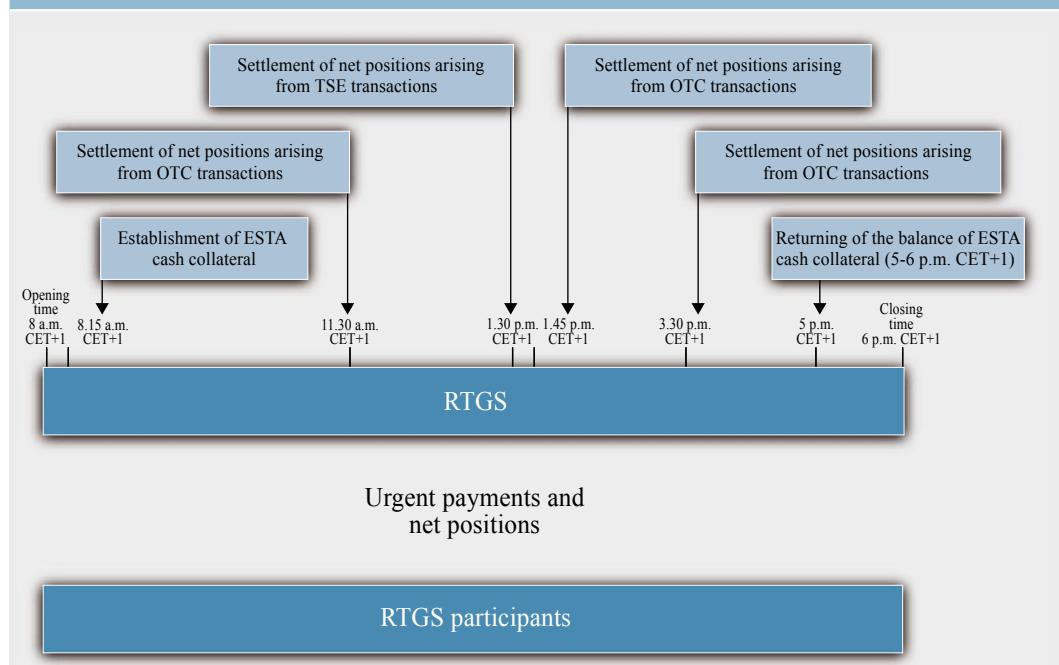
- payments involving Eesti Pank, e.g. cash payments (delivery to and from banks), foreign currency payments and intraday liquidity credit payments;
- net balances for final settlement sent by the net system, e.g. the system manager (ECSD); and
- ESTA collateral account payments.

The RTGS system accepts the following SWIFT message types: MT 103 and MT 103+ (customer payment orders); and MT 202 (interbank payment order). The RTGS system allows payments to be sent to the system ten days before final settlement, and there are no restrictions concerning the size of payments.

### 3.2.4 OPERATION OF THE SYSTEM

RTGS is open every banking day from 8 a.m. to 6 p.m. (CET+1). Within this period, all participants' payments, as well as payments carrying this value date, sent to the RTGS system are subject to immediate settlement if there are enough funds in the payer's account.

**Chart 6 An operating day of the RTGS system**



The net positions between participants sent to RTGS by the ECSD are processed as follows:

- the settlement of net positions between participants arising from TSE transactions takes place at 1.30 p.m. CET+1; and,
- the settlement of net positions between participants arising from OTC transactions takes place at 1.45 p.m. CET+1 and additional settlement takes place at 3.30 p.m. CET+1.

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

The RTGS system is based on the V-shape topology, e.g. the message linked to each payment is transmitted by the sending participant to RTGS at the central bank, and then sent from the latter to the receiving participant. Credit institutions use the SWIFT network and the ECSD uses the local network.

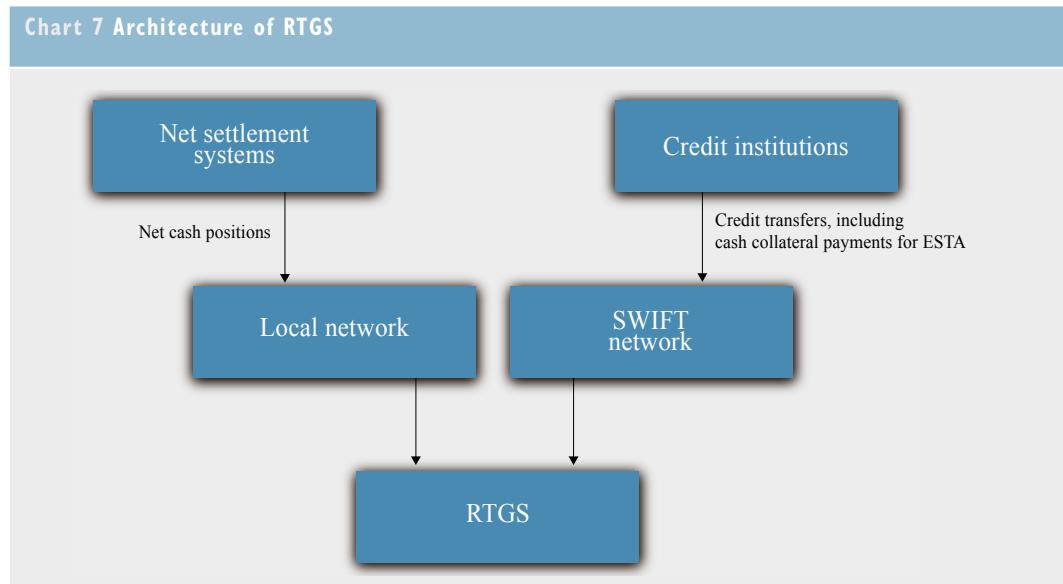
RTGS processes payment orders one by one. Payment orders are processed on the basis of the value date of the payment order, the priority assigned to the payment order by the sender of the payment, and the date and time of receipt of the payment order. Payment orders may be submitted in five priority categories, with 1 being the most urgent and 5 the least urgent.

The assignment of priorities to payment orders is based on the following principles:

- payment orders of net settlement systems initiated by the ECSD have the top priority (1);
- payment orders initiated by Eesti Pank or orders to debit accounts issued by competent bodies have the second level of priority (2); and
- all other payment orders based on participants' decisions rank from third to fifth in terms of priority. If a participant has not indicated a priority on the payment order, the payment is regarded as having been submitted with the fifth level of priority.

If an account of a sending participant lacks the amount needed to effect a payment, the payment order will be placed in a payment queue. If an amount adequate for effecting the payment has not been received by the end of the settlement day at 6 p.m. CET+1, the payment order will be rejected. When a payment has been credited to the account of the receiving participant, Eesti Pank notifies both the participant that initiated the payment and the receiving participant.

Chart 7 Architecture of RTGS



### 3.2.6 SETTLEMENT PROCEDURES

After the RTGS system has received a message with the participant's payment order, the system executes a technical validation (checking the format, fields, etc.). If the payment order is technically incorrect, meaning that some of the essential information is missing or incorrectly presented, etc., RTGS will reject it and will notify the participant.

If the payment order passes the technical validation, it will undergo financial validation. During financial validation, the RTGS system compares the payment order with other payment orders in the queue with the same or a higher level of priority. If there are no payment orders in the queue with the same or a higher level of priority and the participant has enough funds to settle the payment, the system settles that payment immediately (by debiting and crediting the respective accounts) and both the payer and the payee are notified. The point in time at which the payment orders in RTGS become both irrevocable and final is the point of settlement.

If there are other payment orders with the same or a higher level of priority in the queue or the participant does not have enough funds to settle the payment, the system puts the payment into the queue. Queued payments are settled in accordance with the FIFO principle. The RTGS system automatically rejects the queued payment orders if there are still not enough funds for settlement by the end of the settlement day at 6 p.m. CET+1.

The settlement of net balances sent by the net settlement system manager is described in Section 4.4.

### 3.2.7 CREDIT AND LIQUIDITY RISK

The RTGS system does not involve any credit risk for the participants, because the funds transfers in the payment system are only executed if there is sufficient cover for each payment on the payer's settlement account. The payee is notified only of the settled payments.

All funds on the payer's settlement account can be used to settle an interbank payment, meaning that the funds held at Eesti Pank to meet the minimum reserve requirement can be used for daily settlement purposes. The account balance at the end of the day should not be less than 40% of the required level of the kroon reserve. The minimum reserve requirement currently stands at 13% of credit institutions' reserve requirement calculation base. Credit institutions are required to hold at least 50% of the minimum reserve requirement on the account with Eesti Pank. The second half of the reserve requirement can be met with high-quality foreign securities (debt securities with at least a double A credit rating).

Against this background, funds deposited by the RTGS participants with Eesti Pank are around 3.5 times larger than the turnover of RTGS, and the likelihood of liquidity risk being incurred in the settlement of daily transactions is very low. In addition to using funds deposited as minimum reserves with Eesti Pank, an RTGS participant can do the following to satisfy its intraday liquidity needs:

- borrow funds from the interbank money market;
- owing to the currency board arrangement, sell foreign currency to Eesti Pank at T+0;
- acquire intraday credit based on eligible foreign securities accepted by Eesti Pank as collateral; and
- sell securities to Eesti Pank. (In order to be eligible, securities must be at least double A-rated euro-denominated debt securities.)

Eesti Pank does not act as the lender of last resort because of the currency board arrangement. Eesti Pank can provide emergency liquidity to credit institutions only under a special agreement and in exceptional circumstances.

### 3.2.8 PRICING

Eesti Pank's pricing policy aims to cover the cost of services offered, meaning that the operational and overhead costs of both systems (RTGS and ESTA) must be covered. The fee for domestic payments denominated in Estonian kroons and euro is €0.60. The monthly fees for euro-denominated cross-border payments are differentiated as follows: for each of the first 100 settled payments per month, €1.75; for each of the next 900 settled payments (i.e. 101-1,000), €1.00; and for each subsequent settled payment in excess of 1,000 payments, €0.80. Accession to RTGS is free of charge, but opening a current account with Eesti Pank costs €6,391.15. There is no annual fee for participants in the RTGS system.

### 3.2.9 STATISTICAL DATA

In 2005 the average daily number of transactions was 187, while the average daily value was €172 million. The peak daily volume was 1,029 payments, and the highest daily value was €649 million. These occurred as a result of unusual stock trading in the Estonian securities market in March and April 2005, when there was a takeover of the Estonian commercial bank with the highest level of stock market capitalisation.

## 3.3 THE RETAIL PAYMENT SYSTEMS

### 3.3.1 THE SETTLEMENT SYSTEM OF ORDINARY PAYMENTS – ESTA

The ESTA system is the gross settlement system for settling ordinary payments on a continuous basis and sending reports about received payments based on a deferred mode according to a fixed time schedule. ESTA is used for processing batches of ordinary credit-type payment orders of the participants. In order to settle the batch payments, ESTA uses cash collateral deposited by each participant (with the cash collateral of the payer reduced and the cash collateral of the payee increased).

#### 3.3.1.1 Operating rules

Eesti Pank determines the operating rules of the system pursuant to the Eesti Pank Act and the Credit Institutions Act.

In order to participate in ESTA, an applicant must meet the criteria for access to the system established by Eesti Pank in the terms and conditions for participating in ESTA and must sign an accession contract with Eesti Pank. The accession contract stipulates the rights and obligations of the parties. The accession contract also obligates the participant to undertake to comply with the general terms and conditions and technical specifications of the ESTA system.

#### 3.3.1.2 Participation in the system

Participation in ESTA is based on the principle that any entity holding an account with Eesti Pank, meeting the terms and conditions of participation in ESTA, and having a corresponding contract concluded with Eesti Pank, may accede to ESTA. Participation in the system is voluntary.

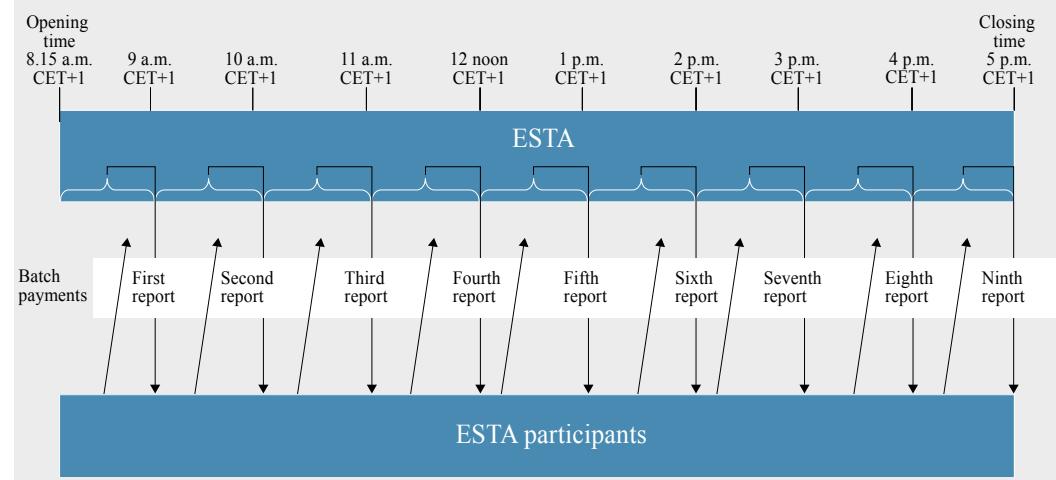
Eesti Pank, as the system manager, has the right to decide on the suitability of an entity to accede to ESTA. The system manager decides whether to admit an applicant and determines the terms and conditions applicable to the accession of entities other than supervised credit institutions. The decision is made on the basis of the objectives of ESTA and the avoidance of systemic risk, on the organisational and economic credibility of the applicant, and on the system manager's assessment of the technical readiness of the applicant.

At the end of May 2006 there were 12 direct participants in ESTA, comprising six credit institutions, four branches of foreign banks, the ECSD and Eesti Pank.

#### 3.3.1.3 Types of transaction handled

ESTA accepts and processes batches of credit orders issued by participants. In 2007 the system will also be able to handle direct debits.

**Chart 8 An ESTA operating day**



#### 3.3.1.4 Operation of the system

ESTA is open every banking day from 8.15 a.m. to 5 p.m. CET+1. This means that each banking day, from 8.15 a.m. to 5 p.m. CET+1, the system immediately processes payments based on batches of payment orders sent by participants. Settlement is effected using their cash collateral, and only if the payer has sufficient funds.

In order to participate in the operation of ESTA on a specific banking day, each ESTA participant must pay in cash collateral in the morning, by 8.15 a.m. CET+1, by transferring the necessary amount from its account with Eesti Pank to the account of the ESTA manager. The cash collateral should be at least equal to the minimum cash collateral determined by the manager of ESTA. At the end of the day, after 5 p.m. CET+1, the ESTA manager returns the balance of the cash collateral to each participant.

The aim of the minimum cash collateral is to ensure the smooth start of operations in ESTA on the morning of each banking day. Eesti Pank determines the minimum cash collateral on the basis of the value of each participant's gross obligations for the first settlement periods<sup>5</sup> in the course of the preceding six months. The minimum cash collateral is revised every month and may be adjusted if the new calculated cap

differs from the last minimum cash collateral by more than 5%.

System participants are notified of the incoming payment orders nine times a day, on the hour every hour from 9 a.m. to 5 p.m. CET+1. Such notifications only cover payment orders sent to the participant in question (i.e. incoming payments) during the preceding settlement period.

#### 3.3.1.5 Transaction processing environment

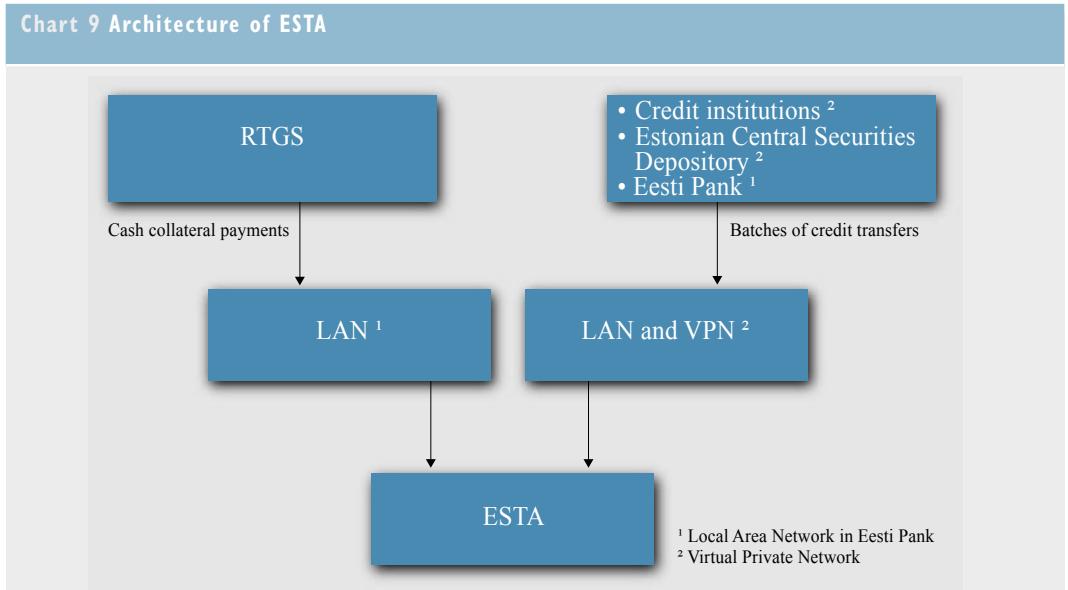
The ESTA system is based on the V-shape topology, using the local area network (LAN) and the virtual private network (VPN). The system is based on batch processing, i.e. participants send credit orders to ESTA in a "batch" mode.

#### 3.3.1.6 Settlement procedures

During the operating day, each ESTA participant may send several batches of credit orders to the system. A batch of payment orders sent by a participant undergoes technical validation, during which the format, correctness, etc. of each separate payment order is checked. As a result, the batch may be either validated,

<sup>5</sup> A period of a banking day, after which system participants will be forwarded the payment orders, which comprise only settled payments. A banking day may include several settlement periods.

Chart 9 Architecture of ESTA



partially validated or rejected. The entire batch is validated if all the payment orders in the batch have been entered correctly. If the number of incorrect payment orders in the batch is below the predefined threshold, the batch is partially validated. This means that all of the correct payment orders are accepted and the faulty ones are rejected. The system rejects the whole batch if it contains more incorrect payment orders than specified in the predefined threshold.

After technical validation, the system carries out financial validation of the payment orders accepted during technical validation. During financial validation, the system checks to see whether the predefined cash collateral of the participant is sufficient to accept the technically validated payment orders in the batch. In other words, it checks to see whether the participant has enough funds to settle the payments. If the funds are sufficient, the received and technically and financially validated payments will be settled. If the participant lacks the funds to settle its payments, the entire batch of payment orders will be rejected and returned to the participant.

Settlement of the payments takes place as follows: the cash collateral of the payer is

reduced and cash collateral of the payee is increased, and participants sending a batch of payment orders are notified of the results of the validations (i.e. which payment orders in the batch were accepted and which – if any – were rejected and why). Upon issuance of this notification, all accepted payment orders contained in the batch are considered finally settled.

### 3.3.1.7 Credit and liquidity risk

The settlement process in ESTA does not give rise to credit risk, as the system settles payments continuously on a gross basis and only if the participant has enough cash collateral to settle the payment. In other words, the system is a fully protected settlement system. The ESTA system is well designed and the credit risk is hedged by notifying the payee only after the payment has been settled, meaning that participants are notified of incoming payments only, nine times a day on the hour from 9 a.m. to 5 p.m. CET+1.

A participant may manage its intraday liquidity in ESTA by increasing, reducing or even totally withdrawing its cash collateral, starting from the following hourly notification time.

Liquidity risk can only arise when a participant has insufficient collateral for the settlement of payments. This risk is mitigated by the possibility of paying in additional cash collateral in real time during the ESTA operating day. The additional cash collateral can be obtained from the ESTA participant's RTGS account where funds are deposited to meet the reserve requirement. In RTGS, an ESTA participant can:

- borrow funds from the interbank money market;
- owing to the currency board arrangement, sell foreign currency to Eesti Pank at T+0;
- acquire intraday credit based on eligible foreign securities accepted by Eesti Pank as collateral; and
- sell securities to Eesti Pank. (In order to be eligible, securities must be at least double A-rated euro-denominated debt securities.)

Eesti Pank does not act as the lender of last resort because of the currency board arrangement. Eesti Pank can provide emergency liquidity to credit institutions only under a special agreement and in exceptional circumstances.

Owing to the high minimum reserve requirement<sup>6</sup>, i.e. the considerable funds deposited by ESTA participants with Eesti Pank, the possibility of liquidity risk arising is negligible. In fact, average annual deposits in 2005 were around 11 times larger than ESTA's turnover. For example, on an aggregated basis, the funds deposited by RTGS and ESTA participants were more than 2.5 times larger than the turnover of both of these systems.

### 3.3.1.8 Pricing

Eesti Pank's pricing policy aims to cover the cost of services offered, meaning that the operational and overhead costs of both systems (RTGS and ESTA) must be covered. To ensure equal treatment of participants with both a

small and a large quantity of payments, Eesti Pank, as the system manager, has imposed an entrance fee of €6,391.00 and a fixed fee for payment settlement of €0.03. Opening a current account with Eesti Pank costs €6,391.15. There is no annual fee for the participants in the ESTA system.

### 3.3.1.9 Statistical data

In 2005 the system processed a daily average of 69,500 payments, while the average daily value was €55 million. The maximum number of payments processed in one day was over 144,000, and the highest daily value was €91 million.

### 3.3.2 E-MONEY SCHEMES

At the end of 2005 there were no e-money schemes operating in Estonia.

### 3.3.3 CARD-BASED SCHEMES

In Estonia, six credit institutions issue payment cards (credit and debit cards), while the ATM networks are operated by the three largest credit institutions (Hansapank, SEB Eesti Ühispank and Sampo Pank). One of these, Hansapank, operates EFTPOS networks together with Pankade Kaardikeskus (PKK). All card-issuing credit institutions are linked with each other through the PKK, such that all customers can use all ATMs/EFTPOS.

#### Organisational set-up

The PKK was established by the Estonian credit institutions in 1993 as an independent public limited company. It is owned by the three major credit institutions in Estonia (Hansapank, SEB Eesti Ühispank and Sampo Pank).

#### Services provided

The primary mission of the PKK is to offer card-related services to credit institutions and to make the EFTPOS and ATM networks

<sup>6</sup> Estonian credit institutions are obliged to keep a certain amount of their incorporated assets liquid in assets determined by Eesti Pank. The monthly minimum reserve requirement is 13% of the calculation base. Assets eligible for meeting the reserve requirement are: (a) deposits with Eesti Pank; and (b) high-quality foreign securities (which may be used to meet up to 50% of the reserve requirement).

interoperable. The PKK is also maintaining the Estonian interoperability standard; all credit institutions are using the same standard, which is based on ISO 8583. After changing the Estonian internal standard to make it compatible with EMV, the PKK is now responsible for EFTPOS equipment certification. The PKK operates as an ACH, authorising card transactions, collecting card transaction data and calculating the gross position of each credit institution. The gross positions calculated and other card transaction data are sent back to the credit institutions. Other services provided to credit institutions include the cross-usage of ATMs, the administration of credit cards and the monitoring of card abuse.

#### ***Data transmission***

A credit institution must have a VPN connection to the PKK in order to exchange data with the PKK. Credit institutions' VPN networks are maintained by the PKK.

#### ***Authorisation and transaction processing***

In 2005 the PKK processed 10.5% of ATM transactions by volume and 5.5% of ATM transactions by value, while it processed 62% of EFTPOS transactions by volume and 31% of EFTPOS transactions by value.

#### ***Clearing and settlement procedures***

The clearing procedure of the PKK is based on the calculation of the bilateral gross position of each credit institution. The positions of credit institutions are established at 11.30 a.m. CET+1 on each banking day. After establishing the positions, the PKK sends them to the credit institutions. The settlement of gross positions takes place through the payment and settlement systems managed by Eesti Pank (RTGS or ESTA) as a standard credit transfer between credit institutions initiated by those institutions.

#### ***Future developments***

At the initiative of the PKK, nearly all POS terminals in Estonia have been brought into line with the EMV standard. By the end of 2005 almost all cash registers had been brought into

line with the EMV standard in order to enhance the security of the card transactions environment. 98% of ATMs in Estonia accept EMV cards. The changeover of payment cards to the EMV standard is progressing smoothly. The PKK aims to complete this work in the coming years.

#### ***Statistical data***

In 2005 the PKK processed around 61 million card operations, with a total value of €1.5 billion.

### **3.4 FUTURE DEVELOPMENTS**

In respect of the RTGS system, the challenge is to connect to the TARGET2 system during the third wave on 19 May 2008.

## **4 SECURITIES SETTLEMENT SYSTEMS**

### **4.1 GENERAL ASPECTS**

#### **4.1.1 INSTITUTIONAL FRAMEWORK**

In Estonia there is one SSS, which settles stock exchange and OTC trades.

The Estonian Central Securities Depository is the body responsible for securities settlement in Estonia. The ECSD was founded as a private company in March 1994 on the initiative of certain commercial banks, along with Eesti Pank and the Ministry of Finance. The main tasks of the ECSD are: to operate the securities depository and settlement system for publicly and privately issued securities that are registered in the Estonian Central Register of Securities (ECR), and to maintain the government-mandated register of securities. According to the Estonian Central Register of Securities Act, all government and private sector bonds, shares, units of investment funds traded on a regulated securities market, units of pension funds, and subscription rights for shares and for securities subject to entry in the register which are publicly issued or publicly tendered must be registered in the register of the ECSD. In addition, the ECSD executes clearing and

settlement for securities transactions concluded in the Tallinn Stock Exchange (TSE) and OTC market, as well as providing market information services.

In April 1995 Eesti Pank, the Ministry of Finance and 21 other financial organisations founded the TSE as a private company, and it became operational in June 1996. Since its launch the TSE has been an electronic market in which a combination of the electronic dealer market and the order book market is used.

Since a restructuring of ownership in the second half of 2000, the TSE has been the parent company of the ECSD. In April 2001 the Finnish HEX Group acquired majority ownership of the TSE and the TSE was incorporated into the HEX Group under the name HEX Tallinn. As a consequence of the merger of the Swedish OMX and the Finnish HEX in 2003, the TSE is a part of the owner and the operator of the Nordic-Baltic market-place, OMX Exchanges. Since 1 January 2006 the TSE, including the ECSD and other infrastructures of Baltic securities markets, has belonged to the Information Services & New Markets Division of OMX. In 2004 the TSE became a member of the alliance between the Nordic and Baltic stock exchanges, NOREX, and adopted a common trading environment, SAXESS, which is also used by the other NOREX members.

#### 4.1.2 ORGANISATIONAL STRUCTURE

The ECSD, which is wholly owned by the TSE, is the operator of the Estonian SSS. It provides, on a centralised basis, an environment for the carrying out of securities transactions, the clearing and settlement of securities transactions, and the listing of securities, as well as maintaining a central securities register and a funded pension fund register in Estonia. The strategic owner of the TSE and the ECSD is OMX, which has a 62% ownership share in the TSE. The rest of the TSE is owned by different local market participants.

The TSE operates as a joint stock company. The general meeting of the TSE's shareholders

elects a Supervisory Council, which plans the activities, organises the management, elects the members and carries out the supervision of the activities of the Management Board. The Management Board is the management body, which represents and manages the company by organising its daily activities.

### 4.2 TRADING

Securities can be traded via the SAXESS trading system as TSE trades or directly between buyer and seller as OTC trades.

#### 4.2.1 INSTITUTIONAL ASPECTS

##### *The general institutional framework*

The TSE is the only regulated secondary market in Estonia. It enables investors, via the TSE members and the electronic trading system, to engage in securities transactions and gives listed companies access to a host of capital resources.

##### *Organisational structure*

The TSE has two independent bodies to perform the stock exchange functions:

- The Listing and Surveillance Committee is responsible for decisions pertaining to listed companies and exchange members: listing, delisting, supervision of market participants and sanctioning. The Supervisory Council of the TSE elects the members of the Committee.
- The Court of Arbitration is a permanently operating, independent intermediary court with the aim of resolving disputes between the Exchange, listed companies, exchange members and their clients. The EFSA and the TSE elect the members of the Court's Council.

The meetings of these bodies are held according to need.

#### 4.2.2 OPERATIONAL ASPECTS

##### *Trading system*

As a consequence of the OMX strategy to create a common trading environment for all Nordic and Baltic securities markets, the TSE switched over to the trading system SAXESS in September 2004. By 2006 SAXESS was being used at the stock exchanges in Copenhagen, Stockholm, Helsinki, Riga, Vilnius and Tallinn (all exchanges owned by OMX), as well as the stock exchanges in Oslo and Iceland. The official trading currency of the TSE trading system is the euro. Investors in TSE instruments can place transaction orders and pay for transactions also in Estonian kroons without extra charge; stock exchange members use the official exchange rate of Eesti Pank (€1 = EEK 15.6466) for the calculations needed to execute customer orders.

All member firms can, in their own name and on their own account or on their customers' accounts, enter transaction orders in the trading system for securities traded in the public order book. Orders entered in the order book are displayed to all market participants and can be executed immediately if there are matching orders.

Most deals are made via automatic matching. Alternatively, brokers can negotiate deals over the telephone before they are entered in the trading system. In addition to the data on closed deals, the system also distributes bid or offer quotations, transaction orders, issuers' announcements and other securities-related information necessary for trading.

##### *Membership requirements*

Investors use the TSE only through its members, which have the exclusive right to use the trading system. Membership of the TSE can be granted to a legal entity meeting the following requirements:

- it has the status of a legal entity registered in Estonia or a foreign investment firm that is authorised to open a branch or

representative office providing investment services or a foreign investment firm that has a right to provide cross-border investment services in Estonia;

- it holds a valid activity licence as a professional securities market participant;
- it has the minimum share capital in line with the requirements of the Securities Market Act. The minimum share capital is either €125,000 or €730,000, depending on the range of investment services offered by the member; and
- it contributes to the Guarantee Fund of the TSE as determined by the TSE management.

With effect from January 2000, the TSE established remote membership status, which allows foreign securities intermediaries to trade on the TSE. Remote membership status can be granted to foreign companies, which have the right to provide cross-border investment services in Estonia in accordance with the provisions of the Securities Market Act.

Member companies are obliged to disclose to the TSE their audited annual reports and interim reports on their biannual and quarterly financial results. In addition, TSE member firms must also inform the TSE immediately of any change in their business activities or financial position that might have an impact on their financial health.

In order to promote financial stability and protect the interests of investors, the Securities Market Act and the rules and regulations of the TSE impose additional prudential and financial requirements on non-credit institution members, including requirements regarding minimum capital, capital adequacy, liquidity, compulsory reserves, risk concentration and investment exposure. Furthermore, the listed company must publish all information that might be relevant and necessary to investors in making investment decisions. Supervision of the

companies is exercised by the EFSA and the TSE.

Credit institutions applying for membership, as well as those that are already members of the TSE, must hold a valid credit institution activity licence issued by the EFSA. Both member and applicant credit institutions must therefore comply with the requirements for credit institutions stipulated by the Credit Institutions Act of 9 February 1999 (last amended on 14 December 2006) and other regulations issued by Eesti Pank.

#### ***OMX Tallinn index***

With effect from 3 October 2005, OMX harmonised the index name structure for OMX exchanges in Nordic and Baltic markets. The former TSE index TALSE was replaced with the OMX Tallinn (OMXT) index. The OMXT index shows changes in the prices of shares listed in the Main and Investor Lists of the TSE. For the calculation of the value of the OMXT index, only transactions in shares included in the index and reported through the TSE trading system and matched by the TSE are used. The base value of the OMXT index is 100 points, and the base date is 3 June 1996.

In addition to the OMXT index, the BALTIX index reflects the price developments of shares listed on the Baltic List, i.e. the main lists of the Tallinn, Riga and Vilnius exchanges. BALTIX is a capitalisation-weighted chain-linked total-return index, where each company's weight is limited on a quarterly basis to 10%. Daily calculation of the BALTIX index started on 27 September 2004. Historical data for the index is calculated back to 1 January 2000, and the base value of the index is 100 points.

#### ***Listing structure***

The securities listed on the TSE are divided between the following lists: Tallinn Main List, Tallinn Investor List (I-List), Tallinn Bond List and Tallinn Free Market. Listed securities must meet the relevant conditions established in legal acts (Securities Market Act and decrees of the Minister for Finance) and in the rules and

regulations of the TSE. A company listing securities must also meet additional ongoing requirements regarding the company's management, particularly information disclosure and market expectations. The listing requirements ensure that investors receive comprehensive and adequate information regarding the issuer and its financial solidity. The Listing and Surveillance Committee of the TSE decides whether a security meets the listing requirements. All securities listed on the TSE must be dematerialised, freely negotiable and registered with the EFSA and the ECSD.

The Free Market is a pre-list of the TSE. It was established for the trading of securities which do not qualify for listing or for which an issuer has not yet applied for listing. Such securities may be admitted to the Free Market if supported by at least three member firms. Securities can be traded there for a period of one year, after which they must apply for official listing or be removed from the Free Market.

#### ***Trading hours***

The trading day is divided into a continuous trading period, from 10 a.m. to 2 p.m. CET+1, and an after-market trading period, from 2 p.m. to 2.30 p.m. CET+1.

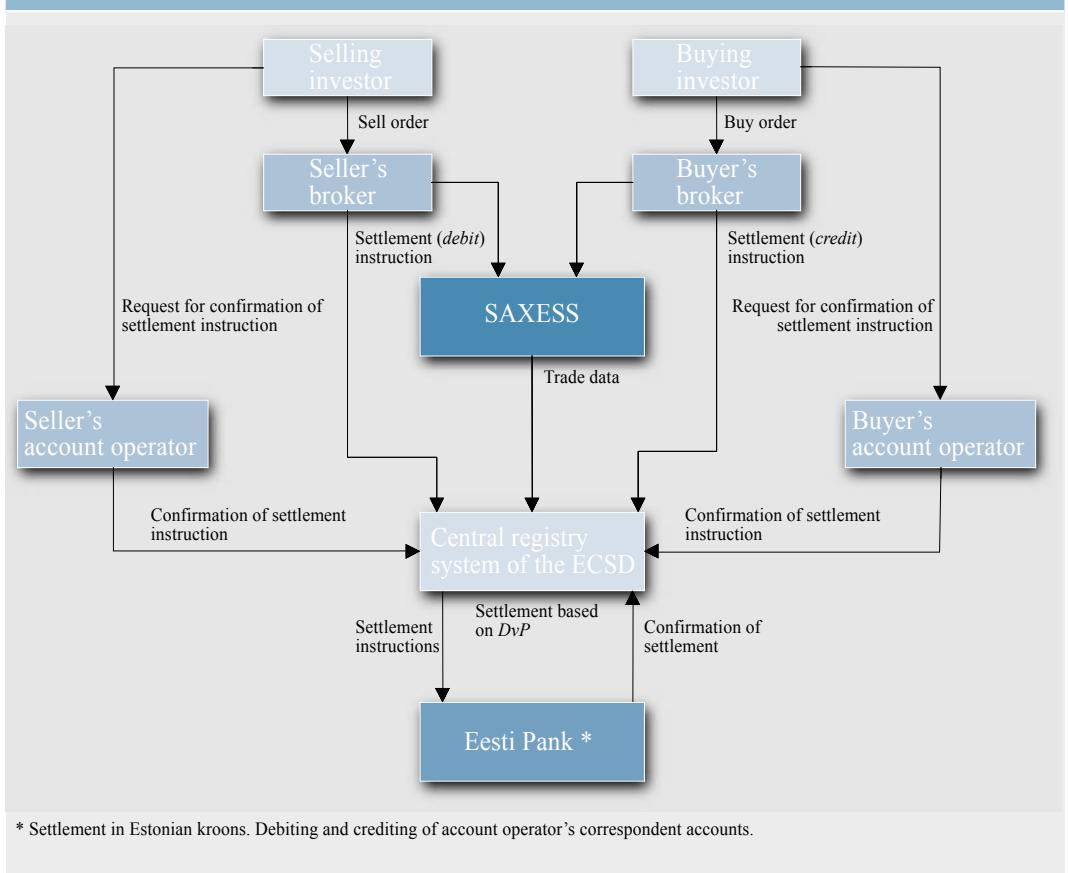
### **4.3 CLEARING**

The Estonian SSS does not include an independent clearing house. The post-trade and pre-settlement clearing services that are performed in connection with the settlement procedures are described in Section 4.4.

### **4.4 SETTLEMENT**

The ECSD manages the settlement process in the Estonian SSS. All trades, i.e. TSE trades and OTC trades, are settled on the value date. The general settlement period for TSE trades is by default T+3 (where T is the day on which the trade data is entered in the ECSD system). For automatically matched TSE trades, the default settlement date is always T+3, while for negotiated trades the settlement date chosen by

Chart 10 Clearing and settlement of TSE trades



brokers can vary from T+1 to T+6. OTC trades are settled with a settlement date no later than T+5.

#### 4.4.1 CLEARING OF TSE TRADES

The settlement details of TSE trades are transmitted automatically to the ECSD. The seller's broker must send a debit instruction to the ECSD, and the buyer's broker must send a credit instruction. If the broker is the buyer's or the seller's account operator in the ECSD system, all data for the calculation of the settlement amount are collected. If this is not the case, the account operator(s) must confirm with the ECSD the debit and credit instructions issued by the brokers. All of the above activities should be completed no later than 5 p.m. CET+1 on day S-1.

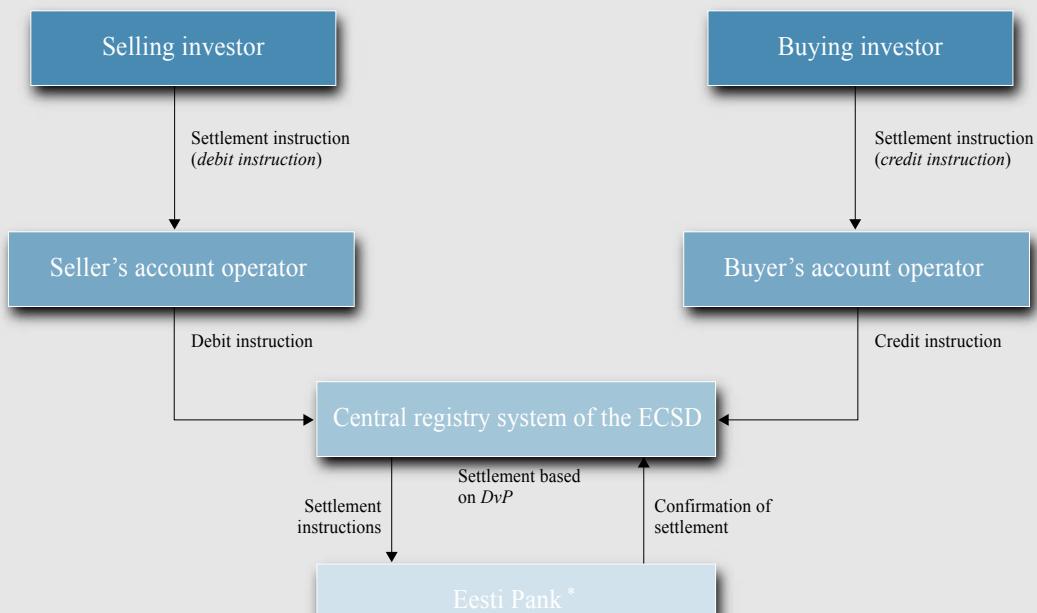
The ECSD calculates the settlement amount, in securities and in cash, of account operators on

the basis of Model 3 as described in the Report of the Committee on Payment and Settlement Systems of the Central Banks of the Group of Ten Countries (on the basis of the net settlement of both securities and funds). The net cash positions of brokers which are not members of Eesti Pank's RTGS system are added to the cash position of its account operator. The claims and obligations of account operators calculated by the ECSD form the basis for settlement.

#### 4.4.2 SETTLEMENT OF TSE TRADES

Settlement of TSE trades is based on the claims and obligations calculated by the ECSD during the clearing process (see Section 4.3.1). The ECSD starts the settlement of TSE trades by blocking the appropriate amount of securities on the securities account to be debited.

**Chart II Settlement of OTC trades in accordance with the DvP principle**



\* Settlement in Estonian kroons. Debiting and crediting of account operator's correspondent accounts.

The calculated net cash positions are settled in Eesti Pank's RTGS system by debiting and crediting the settlement accounts of the account operators. The ECSD sends settlement instructions to Eesti Pank at 1 p.m. CET+1 on the value date.

After Eesti Pank has sent the ECSD confirmation regarding the settlement of the cash positions, the relevant securities transfers will be made. The settlement of TSE trades is final once the seller's securities account has been debited and the buyer's credited.

The TSE has the right to impose sanctions on the member firms of the TSE in order to ensure that transactions can be executed. These sanctions are stipulated in the rules and regulations of the TSE and relate to the submission of special orders to the ECSD, the buying or selling of securities, and the use of the TSE Guarantee Fund, etc. These sanctions can be imposed if the TSE member firm has not

transmitted the transfer order necessary for the execution of the TSE-based security transfer, or if the transfer order cannot be processed for some other reason.

#### 4.4.3 CLEARING OF OTC TRADES

In the case of OTC trades, investors can perform FOP or DvP transactions. In both cases, the seller's and the buyer's account operators must send their respective transfer orders for the securities transfer to the ECSD. The seller's account operator must send a debit instruction to the ECSD, and the buyer's account operator must send a credit instruction. If the data in the transfer orders match and the securities requested are available on the securities account of the seller, the ECSD blocks the necessary amount of securities.

For OTC trades settled against payment, the ECSD calculates the settlement amount, in securities and in monetary terms, of account operators on the basis of Model 2 as described

in the previously mentioned CPSS report (on the basis of the gross settlement of securities and the net settlement of funds). The multilateral monetary net claims or obligations of brokers which are not members of Eesti Pank's RTGS system are added to the monetary claim or obligation of its account operator. The claims and obligations of account operators calculated by the ECSD form the basis for settlement.

#### 4.4.4 SETTLEMENT OF OTC TRADES FREE OF PAYMENT

The settlement of free-of-payment OTC trades takes place as soon as transfer orders from both transaction parties have been entered in the ECSD system and the ECSD has checked whether the securities requested are available on the securities account to be debited. This means that free-of-payment OTC trades can be settled in real time.

#### 4.4.5 SETTLEMENT OF OTC TRADES AGAINST PAYMENT

The settlement of OTC trades against payment is based on the claims and obligations calculated by the ECSD during the clearing process (see Section 4.3.2). As a result of clearing, the relevant amount of securities is blocked on the securities account to be debited.

The calculated net cash positions are settled in Eesti Pank's RTGS system by debiting and crediting the settlement accounts of the account operators. Following confirmation regarding the settlement of the cash positions of TSE trades, the ECSD sends settlement instructions to Eesti Pank at around 1.45 p.m. CET+1 or at 3.30 p.m. CET+1 on the value date, depending on the processing period.

After Eesti Pank has sent the ECSD confirmation regarding the settlement of the cash positions, the relevant securities transfers are made. The settlement of OTC trades against payment is final once the seller's securities account has been debited and the buyer's credited.

In the case of securities transfers against payment, there is no guarantee that the transfer

orders will be effected. If one of the counterparties has not submitted the transfer order via its operator, or the submitted transfer order cannot be processed for some other reason (for example, the requested securities are not available on the account to be debited), the transfer will not be executed.

#### 4.4.6 LINKS WITH OTHER SECURITIES SETTLEMENT SYSTEMS

The ECSD has links to four SSSs: a domestic link to the Central Register of Privatisation Vouchers, and cross-border settlement links to the Latvian, Lithuanian and Finnish central securities depositories.

The link with the Central Register of Privatisation Vouchers enables the transfer of privatisation vouchers from the privatisation vouchers account to the securities account in the ECSD and vice versa.

Bilateral links between the ECSD and the other two depositories in Baltic countries, i.e. the Latvian CSD and the Lithuanian CSD, enable the members of the TSE to carry out DvP transfers of securities registered in all three depositories via the participants' own local securities and cash accounts. The settlement of the cash leg is effected in local currency via central banks. Cross-border settlement is available only via participants that have membership of all three exchanges and have been granted the relevant permission.

The link between the ECSD and the Finnish CSD (APK) is a unilateral link, which covers the shares listed in the Main and Investor Lists of the TSE. As further steps, the ECSD and the TSE plan to reach an agreement also for the safekeeping and administration of securities issued in Finland in the accounts of the Estonian CSD. Messages are exchanged between the ECSD and APK by means of SWIFT.

#### 4.5 THE USE OF THE SECURITIES INFRASTRUCTURE BY THE CENTRAL BANK

Owing to the adoption of the currency board arrangement, Eesti Pank does not participate actively in the interbank money market and does not initiate daily open market operations. It is unlikely that open market operations will be implemented prior to Estonia's participation in Monetary Union.

However, half of the reserve requirement imposed on banks can also be met by holding eligible foreign fixed income securities which are of investment grade and denominated in an anchor currency. Eesti Pank only accepts eligible foreign assets deposited with Euroclear Bank or Clearstream Banking SA Luxembourg (the ICSDs). According to Eesti Pank Governor's Decree No 4 of 2 February 2006, Eesti Pank has the right to obtain data on the banks' liquidity portfolio accounts and the fixed income securities held on these accounts in order to check that the assets in the liquidity portfolios meet the requirements set by Eesti Pank. The market value of the liquidity portfolios is calculated by Eesti Pank on a daily basis.

Considering the important role of the reserve requirement as a liquidity buffer in the payment and settlement system, Eesti Pank has made it possible for credit institutions to manage kroon liquidity with T+0 settlement on accounts holding liquid foreign assets accepted in meeting the reserve requirement. For that purpose, Eesti Pank may carry out securities purchase transactions with credit institutions which have concluded an agreement with Eesti Pank on meeting the monthly average reserve requirement and calculating the value of foreign assets. In addition to the sale of eligible foreign assets by credit institutions to Eesti Pank for the purpose of obtaining liquidity, since April 2005 credit institutions have also been able to apply to Eesti Pank for intraday credit against eligible foreign assets deposited with the ICSDs. The intraday credit provided by Eesti Pank is based on a repurchase agreement, on the basis of which a credit institution sells

eligible collateral to the central bank and undertakes to repurchase the same collateral under the terms of an agreement concluded between Eesti Pank and the credit institution on the same day. However, since the introduction of the T+0 liquidity management facility on the liquidity portfolio accounts, credit institutions' intraday liquidity buffers with Eesti Pank have been sufficient for daily settlements. Therefore, neither securities purchase transactions nor credit-providing services have been necessary in order to obtain additional liquidity.

Finally, regarding the convergence of the Estonian monetary policy framework with that of the Eurosystem, the rate and the calculation basis of the reserve requirement will be gradually changed. The level of the required reserves must be brought down from the current 13% to the Eurosystem's 2%, which will increase the importance of the liquidity management facility with T+0 settlement. As regards the future development of other monetary policy instruments in accordance with Eurosystem standards, the implementation of the standing facilities is in progress, i.e. the overnight credit facility will be constructed on the basis of the current framework of the intraday credit facility.



# CYPRUS

## CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>124</b>
<b>INTRODUCTION</b>	<b>125</b>
<b>1 INSTITUTIONAL ASPECTS</b>	<b>126</b>
1.1 The general institutional framework	126
1.2 The role of the Central Bank of Cyprus	126
1.3 The role of other private and public sector bodies	129
<b>2 PAYMENT MEDIA USED BY NON-BANKS</b>	<b>129</b>
2.1 Cash payments	129
2.2 Non-cash payments	129
2.3 Recent developments	132
<b>3 INTERBANK PAYMENT SYSTEMS</b>	<b>132</b>
3.1 General overview	132
3.2 The large-value payment system	133
3.3 Retail payment systems	134
<b>4 SECURITIES SETTLEMENT SYSTEMS</b>	<b>139</b>
4.1 Trading	139
4.2 Clearing	141
4.3 Settlement	141

## LIST OF ABBREVIATIONS

ACCB	Association of Cyprus Commercial Banks
ASE	Athens Stock Exchange
CCH	Cyprus Clearing House
CCI(s)	Cooperative credit institution(s)
CDCR	Central Depository – Central Registry of Securities
CIR	Central Information Register for Issuers of Dishonoured Cheques
CSE	Cyprus Stock Exchange
JCC	JCC Payment Systems Ltd
JCCTransfer	Retail credit transfer system
LCTS	Large-value Credit Transfer System
MRA(s)	Minimum reserve account(s)

## INTRODUCTION

On the way to joining the European Union on 1 May 2004, the Central Bank of Cyprus took all the necessary steps to achieve harmonisation with the *acquis communautaire*. In view of this process, new legislation and legislative changes were introduced in order to ensure the statutory independence of the Central Bank of Cyprus, prohibit direct public sector financing by the Bank, and achieve compatibility, in all material aspects, with the relevant provisions of the Treaty on European Union and the Statute of the European System of Central Banks and of the European Central Bank. The Central Bank of Cyprus Laws of 2002 and 2003 incorporate amongst the objectives of the Bank appropriate provisions for the smooth operation of payment and settlement systems and contain explicit provisions for the oversight of such systems. Furthermore, the Central Bank of Cyprus prepared legislation for transposing into national legislation the EC directives on settlement finality in payment and securities settlement systems, on financial collateral and on electronic money institutions.

Harmonisation measures include not only the enactment of legislation transposing EC directives, but also the setting-up of the institutional framework necessary for the implementation of the *acquis communautaire* and the smooth functioning of the financial system under a liberalised regime. One such change has been made to the organisational structure of the Central Bank of Cyprus in order to facilitate its policy formulation and oversight functions regarding payment and settlement systems.

With regard to means of payment, cash and cheques continue to be the two main instruments used in the settlement of transactions in Cyprus. However, the use of credit and debit cards has increased substantially in recent years owing to promotional efforts on the part of the banks and wider acceptance on the part of the public. The banks continue to actively market electronic banking services, including payments, which

are offered through various channels such as ATMs, the internet and telephony. Currently, five payment and settlement systems are in operation in Cyprus, dealing with credit transfers (two systems, one for large-value transfers and one for retail transfers), cheques, payment cards and securities. The large-value credit transfer system and the cheque clearing house are operated by the Central Bank of Cyprus and both settle in central bank money. A joint venture company established by the commercial banks operates the card payment system, and the securities system is operated by the Cyprus Stock Exchange (CSE), which is a semi-governmental organisation. The latter two systems settle across accounts held with commercial banks. The retail credit transfer system is also operated by the above-mentioned joint venture company, but settles across accounts held at the Central Bank of Cyprus, i.e. in central bank money.

Current developments in payment systems include the enhancement of payment systems in order to comply with the standards and policies applied by the Eurosystem in preparation for the introduction of the euro and the Single Euro Payments Area (SEPA).

## I INSTITUTIONAL ASPECTS

### 1.1 THE GENERAL INSTITUTIONAL FRAMEWORK

#### *Institutional framework*

The key players in the area of payment systems are primarily the institutions that comprise the banking system. At the apex of the banking system is the Central Bank of Cyprus, which promotes legislation (through the Ministry of Finance), issues regulations, supervises credit institutions, operates payment systems and, since the enactment of the new Central Bank of Cyprus legislation, oversees payment and settlement systems. The Bank's role is described in more detail in Section 1.2. The credit institutions are involved in the formulation of policy in the payment systems in which they participate and, either on an individual basis or collectively through the Association of Cyprus Commercial Banks (ACCB), by their participation in the Payments Committee. The Payments Committee was set up in 2004 by the Central Bank of Cyprus to bring together the major players in the payments area for cooperative and consultative purposes. In addition to the Bank, the ACCB and a selection of commercial banks, also represented on the Payments Committee are the cooperative credit institutions (CCIs) and the credit institutions formerly known as international banking units by the Commissioner of the Authority for the Supervision and Development of Cooperative Societies and the Association of International Banking Units respectively.

Special mention should be made of the Cooperative Central Bank (a credit institution authorised by the Central Bank of Cyprus, which acts as a settlement and clearing agent for the CCIs). Another institution in the field of payment systems is JCC Payment Systems Ltd (JCC), the operator of two of the retail payment systems in Cyprus, i.e. for card payments and retail credit transfers; JCC is described in more detail in Section 3.3.2.

The institutions involved in the securities settlement system are the CSE, which owns and

operates the trading, clearing, settlement and registry system for securities, and the Securities and Exchange Commission, which supervises it. Their respective roles are explained in more detail in Section 4.

#### *Legal framework*

Cyprus has overhauled the legal framework relating to payment and settlement systems through the transposition of the *acquis communautaire* into domestic legislation, the enhancement of existing legislation and the drafting of specific legislation and regulations appropriate to payment systems.

The legal framework regarding the role of the Central Bank of Cyprus is set out in detail in Section 1.2.1, and the legal framework relating to securities is described in Section 4.1.1.

With regard to consumer protection, the revised Consumer Credit Act, which was prepared by the Ministry of Commerce, Industry and Tourism, was enacted in March 2001 and came into effect on 1 June 2002. The amended law took account of the provisions of the relevant EU legislation, including those relating to consumer protection and certain banking services.

### 1.2 THE ROLE OF THE CENTRAL BANK OF CYPRUS

#### 1.2.1 GENERAL RESPONSIBILITIES

The new Central Bank of Cyprus Laws of 2002 and 2003<sup>1</sup> and the pertinent constitutional provisions ensure the statutory independence of the Central Bank of Cyprus, prohibit direct public sector financing by the Bank, and achieve compatibility in all material respects with the relevant provisions of the Treaty on European Union and the Statute of the ESCB. Article 5 of the Law provides that the primary objective of the Bank shall be to ensure price stability.

<sup>1</sup> Law No 34(1)/2007, which was enacted and published in the Official Gazette of the Republic of Cyprus on 15 March 2007, amended the Central Bank of Cyprus Laws to incorporate the necessary legislative provisions for the introduction of the euro.

Furthermore, Article 6 provides that the Bank shall perform all tasks required for the achievement of its objectives, and that the main tasks of the Bank shall be: (a) the definition and implementation of monetary policy; (b) the conduct of the policy on the exchange rate of the Cyprus pound; (c) the holding, keeping and management of the official foreign reserves of the Republic; (d) the supervision of banks; (e) the promotion, regulation and oversight of the smooth operation of payment and settlement systems; (f) the provision of services or performance of the tasks of banker of the Republic; and (g) the participation as a member in international monetary and economic organisations.

### 1.2.2 PAYMENT SYSTEMS OVERSIGHT

As stated above, Article 6(2)(e) provides that one of the Bank's main tasks is the promotion, regulation and oversight of the smooth operation of payment and settlement systems. Furthermore, Article 48 of the Central Bank of Cyprus Law expands on the role of the Bank regarding payment and settlement systems. This article provides that the Bank may operate, participate in, or become a member of any payment and settlement system. The Bank may place under its oversight payment and settlement systems operating in the Republic, which shall be published in the Official Gazette of the Republic of Cyprus. Article 48 also empowers the Bank to issue directives governing the functions and the operating procedures of systems under its oversight. The Directives may be of a general nature, encompassing all systems, or of a specific nature, addressing a particular system or group of systems. In addition, the Bank may impose administrative penalties on any member or operator of a system, suspend the operation of a system or terminate the participation of any member in any system under its oversight. In accordance with the provisions of the law, the Bank has placed under its oversight all the payment and settlement systems described in Sections 3 and 4.

In its regulatory capacity pursuant to the Central Bank of Cyprus Law, the Bank prepared the

Settlement Finality in Payment Systems and in Securities Settlement Systems Law of 2003, transposing the provisions of the Settlement Finality Directive (98/26/EC) into domestic legislation, which came into force upon Cyprus's accession to the European Union on 1 May 2004. It defines the Bank as the competent authority empowered to designate systems for the purposes of this law. The Bank, in this capacity, designated, on 18 June 2004, the Large-value Credit Transfer System (LCTS) and the Central Depository – Central Registry of Securities (CDCR) as systems that fall under the Settlement Finality Law. This designation has been duly notified to the European Commission.

Finally, the Bank, acting within the context of its role in the promotion, regulation and oversight of payment systems operating in the Republic of Cyprus, introduced, in 2003, the regulatory framework (through the issue of a Directive) for the regulation and oversight of the business of intermediation in the transfer of funds. The Bank's aims are twofold: (i) to protect the users of such services; and (ii) to ensure that these services are not used in illegal activities. The Bank has to date provided seven companies with a licence to operate under the provisions of this framework.

### 1.2.3 OPERATIONAL ROLE

The Central Bank of Cyprus owns and manages the two most important payment systems in Cyprus, namely the LCTS and the Cyprus Clearing House (CCH; these systems are described in detail in Sections 3.2 and 3.3.3.2 respectively). The Bank is most influential with regard to these payment systems, in which it participates. The Central Bank of Cyprus is the settlement agent for the retail credit transfer system described in Section 3.3.3.1, in which it is also a participant. Furthermore, in the context of an initiative to reduce the use of cheques as a means of payment, and in cooperation with the government, the Bank has since May 2005 implemented a system for government credit transfers. The Central Bank of Cyprus is both

owner/operator and settlement agent for this new system.

#### ***Provision of settlement accounts***

Banks which are authorised to do banking business in Cyprus are required to maintain balances of no less than 5% of their monthly average deposit liabilities on accounts with the Central Bank of Cyprus designated as minimum reserve accounts (MRAs). The MRA balances up to the required amount are interest-bearing. Shortfalls from the required balance are penalised, with penalties becoming more severe depending on the magnitude of the deviation. As the penalties take the form of non-interest-bearing deposits in multiples of the shortfall, it is in the banks' interest to ensure that they have adequate funds in the MRAs. The MRAs are the only operational accounts of the banks and are used for the settlement of the LCTS, the retail credit transfer system and CCH transactions (see Sections 3.2, 3.3.3.1 and 3.3.3.2), and for monetary policy transactions. Furthermore, the MRAs are credited in the settlement process of the government credit transfer system referred to in the previous paragraph.

Several government departments and agencies maintain current accounts with the Central Bank of Cyprus. These accounts are used to effect credit transfers and for the settlement of cheques which are drawn on the accounts and cleared through the CCH.

#### ***Provision of credit facilities***

The Central Bank of Cyprus provides the commercial banks with an overnight facility (Lombard type) which is fully collateralised with government securities. There is no limit on the size of this facility, provided that it is collateralised as required, but the Central Bank of Cyprus reserves the right to constrain the facility in the event that excessive use may jeopardise its monetary policy objectives. This facility, when utilised, is credited to banks' MRAs.

#### **1.2.4 ACTIVITIES IN THE AREA OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

The Central Bank of Cyprus acts as the government's agent in issuing and managing the domestic public debt. It is responsible for the issue, either by subscription or by auction, redemption and repayment of government borrowing instruments (Treasury bills and development stocks), and for the maintenance of the holders' registers, in accordance with the Treasury Bills Laws of 1989 to 1999 and the Loan (Development) Laws of 1968 to 2003.

Since April 1997 the securities issued by auction have been listed and traded on the CSE. Thus, the Central Bank of Cyprus is a participant in the CSE system, which is described in detail in Section 4, and, through its remote access, may intervene directly in the secondary market for quoted government securities when deemed necessary. As a participant in the CSE, it is obliged to hold an account with the commercial bank that operates the cash settlement side of securities transactions. However, as these securities are not dematerialised, settlement takes place on the registers of holders which are maintained by the Bank. Therefore, with regard to credit operations, the Central Bank of Cyprus has physical custody of all the titles of securities used by the banks in such operations, in addition to responsibility for the settlement of transactions.

The Central Bank of Cyprus is involved in the dematerialisation and transfer of the registers of quoted government securities to the CDCR of the CSE.

#### **1.2.5 COOPERATION WITH OTHER INSTITUTIONS**

As from 1 January 2003 the memorandum of understanding that was signed in 2002 by the Central Bank of Cyprus, the Securities and Exchange Commission and the Insurance Companies' Control Service became effective. In November 2003 the above memorandum was also signed by the Authority for the Supervision and Development of Cooperative Societies. The signing of the memorandum paved the way for a substantial and ongoing cooperation between

the competent regulatory authorities of the financial sector, rendering its monitoring more effective and leading to a more uniform approach to regulation.

The need for close cooperation between the Central Bank of Cyprus and the banking community in the field of payment systems is considered of great importance to ensure a timely and effective response to developments. The exchange of information and the coordination of all parties involved are effectively achieved in the context of the Payments Committee, the composition of which has already been given in Section 1.1. The role of this Committee is consultative vis-à-vis the Central Bank of Cyprus and coordinating vis-à-vis the banking community. Furthermore, in the context of the preparations for the SEPA, the Bank encourages the banking community to implement the standards and practices adopted by the European Payments Council (EPC). In order to monitor and facilitate the preparation for the SEPA, the Bank has contributed towards the preparation of the national migration plan and chairs the national Steering Committee.

### 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

There are no other public or private sector bodies that play an important role for payment and securities clearing and settlement systems in Cyprus other than those described in Sections 1.1 and 4.1.1.

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

The legal tender of Cyprus is the Cyprus pound (CYP) which is divided into 100 cents. The Central Bank of Cyprus has the sole right to issue banknotes and coins under the Central Bank of Cyprus Law. Currently there are four denominations of banknote in circulation – CYP 1, CYP 5, CYP 10 and CYP 20 – and six denominations of coin – 1 cent, 2 cents, 5 cents,

10 cents, 20 cents and 50 cents. The most commonly used banknote denomination is the CYP 10 banknote. The Central Bank of Cyprus is responsible for withdrawing from circulation and replacing demonetised and defective banknotes and coins. Surplus banknotes and coins are removed from circulation by commercial banks, which return them to the Central Bank of Cyprus or hold them to the order of the Bank at appointed cash centres.

Cash is the main means of settling retail transactions, although cashless means of payment are increasingly gaining market share. The share of cash in M1 has gradually declined, from 41.9% as at 31 December 1995 to 30.8% as at 31 December 2005.

### 2.2 NON-CASH PAYMENTS

#### 2.2.1 CREDIT TRANSFERS

Credit transfers are effected between accounts held at the same bank (inter-branch) through instructions received either in writing or via ATMs, via personal computers by direct links or over the internet, from mobile telephones and through “call centres”.

Until 2001 all interbank retail credit transfers were executed via an instrument called an agent's claim voucher (see Section 3.3.3.2) or, in some instances, via the LCTS (see Section 3.2). However, on 9 November 2001 five commercial banks introduced an electronic system for retail credit transfers (see Section 3.3.3.1). The instrument has gradually gained in popularity, as the number of participating banks and the channels for automated processing have increased (ATMs, internet banking).

Furthermore, as banker to the government and facilitator of payment services development, the Central Bank of Cyprus has implemented a system for government payments via credit transfers in an effort to implement its policy to reduce the volume of cheques in circulation. The system became operational on 9 May 2005 and is used for the payment of government pensions, grants, social benefits and expenditure.

It is expected that gradually, with the collection of the relevant payee information, the service will be expanded to cover more categories of government disbursement, including interest payments relating to local public debt. The system processed 1.2 million payments, amounting to CYP 335.6 million (€581.8 million), in its first 8 months of operation, and in 2006 it processed 1.8 million payments, amounting to CYP 648.2 million (€1,125.8 million).

### 2.2.2 CHEQUES

Cheques constitute the non-cash instrument most frequently used in the settlement of both retail and wholesale transactions. Cheques differ from other payment instruments in the sense that their use is regulated by legislation (the Bills of Exchange Law).

Dishonoured cheques that remain unpaid fifteen days after presentation have some adverse effects on the smooth functioning of transactions in the economy, but, overall, do not seriously threaten the payment system, given that a substantial proportion of these are honoured upon subsequent presentation. In 2004 the total value of cheques returned unpaid owing to insufficient funds was around 2% of the total cheques issued by customers of commercial banks. The Criminal Code provides for a fine of up to CYP 1,500 (€2,594) and/or two years' imprisonment for issuing cheques that remain unpaid fifteen days after presentation for payment. In an effort to tackle the problem, the Banking Laws of 1997 to 2000 and the Cooperative Societies Laws of 1985 to 2000 were amended to enable the Governor of the Central Bank of Cyprus and the Commissioner of the Authority for the Supervision and Development of Cooperative Societies respectively to issue Joint Instructions regarding the opening and operation of current accounts, the setting-up of a Central Information Register for Issuers of Dishonoured Cheques (CIR) and other related matters. The relevant technical solution and the instructions came into force on 1 February 2003. The administration and maintenance of the CIR has been assigned to a

special committee (the CIR Administrative Committee) consisting of representatives of the Central Bank of Cyprus, the ACCB, the Cooperative Societies' Supervision and Development Authority and the Law Office of the Republic of Cyprus. Offenders are, in accordance with the instructions, subject to administrative sanctions imposed by the CIR Administrative Committee and enforced by the banking institutions. In its four years of operation the CIR has proven quite effective in reducing the number of dishonoured cheques.

The clearing of cheques takes place at the CCH (see Section 3.3.3.2). The bulk of cheques processed through the CCH are denominated in Cyprus pounds. Payments in foreign currency are usually settled through credit transfers or by banker's draft. However, owing to the abolition of exchange controls, residents are able to maintain foreign currency current accounts and may thus issue cheques in currencies other than the Cyprus pound. As of 4 May 2006 a clearing session takes place at the CCH for cheques denominated in euro which are drawn on participants. In 2006 the number of cheques presented through the CCH was 16.8 million, compared with 17.2 million in 2005. These had a total value of CYP 16.2 billion (€28.2 billion), compared with CYP 14.5 billion (€25.1 billion) in 2005.

Another form of bill of exchange is the postal draft, which is used by the government in order to pay various state benefits. This payment instrument is drawn on the Central Bank of Cyprus by the Director of the Social Insurance Department, instructing the Director of the Postal Services Department to pay the beneficiary. Initially these payment orders could only be cashed in at post offices, whereas nowadays the bulk are cashed in at commercial banks. Postal drafts are delivered daily by the commercial banks to the Central Bank of Cyprus for crediting to the MRAs, and the drafts are then dispatched to the Social Insurance Department. In 2006 the number of postal drafts settled reached 0.6 million, compared with 0.9 million in 2005. These amounted to CYP 203.4

million (€353.3 million), compared with CYP 269.2 million (€466.7 million) in 2005. The substantial decrease is attributable to the operation of the government payments system (see Section 2.2.1 above).

### 2.2.3 DIRECT DEBITS

The use of direct debits is restricted to the payment of utility bills and insurance premiums. These payment instructions are not subject to automated clearing arrangements (i.e. direct debits are not serviced by an ACH) and therefore each service utility or insurance company must maintain an account at each commercial bank through which it intends to offer this facility.

At the end of 2006 the Department of Social Insurance Services also introduced direct debits for the payment of social insurance contributions by employers and self-employed individuals. Settlement of these contributions takes place in the same way as for utility bills and insurance premiums.

### 2.2.4 PAYMENT CARDS

There was tremendous growth in the use of payment cards in the 1990s, as these instruments became widely accepted among merchants and users alike. Further growth was experienced with the increased use of debit cards and EFTPOS. The banks issue cards in cooperation with the two major international card operators, namely Visa and MasterCard. The POS network is owned and managed entirely by JCC, which services all participating banks and merchants. The total number of cards in circulation in Cyprus in 2005 was 752,000, which represented a 7% increase from end-2004.

#### Debit cards

Separate debit card products were first introduced in 1984, but have only been promoted on a larger scale since 1993. These cards enable cardholders to make payments, which are usually debited from their current accounts one day after the transaction has taken place. Some debit cards can be used exclusively at EFTPOS terminals, whereas others can be used both at

EFTPOS terminals and in conjunction with paper vouchers.

In 2005 there were 8.8 million debit card transactions, amounting to CYP 396.4 million (€687.2 million), compared with 6.6 million transactions in 2004, amounting to CYP 394.1 million (€677.3 million).

#### Credit cards

Credit cards usually have a credit facility with a pre-set limit and a credit period. If the balance is settled in full within this period, the cardholder is not charged interest. Credit cards were first introduced in Cyprus in 1983. A flat annual fee is charged for some cards depending on the benefits offered (free travel insurance, purchased goods insurance, roadside assistance, etc.).

In 2005 11.3 million payments were effected with credit cards, amounting to CYP 537.3 million (€931.5 million), compared with 10.4 million transactions in 2004, amounting to CYP 586.2 million (€1,007.4 million).

#### Travel and entertainment cards

Travel and entertainment cards issued by local banks do not differ from the above description for credit cards and are included in the statistical information for credit cards. This also applies to co-branded and affinity cards, which are associated with a brand name or a common cause respectively. The issue of these types of card has steadily declined in recent years.

#### Delayed debit cards or charge cards

Diners Club and American Express are both represented locally by commercial banks, and cards issued by them operate as charge cards, whereby the amount outstanding must be settled in full at the end of each month.

#### Retailer cards

There are two types of retailer card: affiliated cards and loyalty cards. Affiliated cards are credit cards which are issued by a retailer in association with a commercial bank for exclusive use at this retailer. Owing to the small

number of cards in circulation and the clearance of the transactions at bank level, they are excluded from the statistical information on credit cards. Loyalty cards are usually issued by a retailer to attract repeat business through a points scheme or by offering discounts or gifts and, as such, are not payment cards.

#### **Prepaid cards**

One of the local banks has issued a prepaid payment card which can be used at both POS and over the internet, locally or abroad. The card is not a stored-value card, as the value is stored on a card account and its use is subject to availability of funds. It can be reloaded with value either over the counter or at the issuing bank's ATMs.

There is also one type of single-purpose stored-value card in Cyprus, the phone card. The Cyprus Telecommunications Authority introduced the first single-purpose prepaid cards with microchip technology in early 1999 and had completely replaced the old technology by the third quarter of 1999.

#### **Virtual cards**

Two banks have introduced virtual cards (essentially a separate account) for exclusive use in transactions carried out over the internet. One of these cards can only be used if the account has sufficient funds available (essentially it is prepaid, with no credit limit attached), whereas the other card is a credit card with a credit limit of up to CYP 500 (€865).

#### **Accepting devices for payment cards:**

#### **Automated teller machines**

At the end of 2005 each bank effectively owned and operated its own ATM network; there were 444 ATMs in total. ATMs were initially designed to dispense cash, but they now offer a variety of services in addition to cash withdrawals, including cash deposits, balance enquiries, ordering of chequebooks and statements of account, and the preparation of mini-statements. Currently, ATM switching takes place between

most banks, and cash withdrawals at another bank's ATM are charged a fee of CYP 0.50-1.00 (€0.86-1.73). The settlement of these transactions, as with cash withdrawals by holders of foreign-issued cards, is carried out through JCC. Other services can only be accessed through the ATMs of the card-issuing bank.

#### **Electronic funds transfer at point of sale**

The network for POS (manual) and EFTPOS transactions is owned and managed by JCC, which services all participating banks and merchants and also operates the transaction authorisation centre. At the end of 2005 there were 21,000 card-accepting devices in operation in Cyprus, 20,000 of which were electronic.

### **2.3 RECENT DEVELOPMENTS**

JCC and the banks have been following international developments in the field of payment cards. JCC has invested substantially and is in the process of introducing smart cards to Cyprus, which will have chip and PIN technology and satisfy the EMV standard, thus replacing the current magnetic strip cards. The introduction of the new cards began in March 2007, and it is expected that all payment cards will be gradually replaced over a period of two years.

Furthermore, more commercial banks are looking to further develop home banking by offering more internet and telephone banking services. With the implementation of the retail credit transfer system, interbank credit transfers are now being offered through a variety of channels.

## **3 INTERBANK PAYMENT SYSTEMS**

### **3.1 GENERAL OVERVIEW**

This Section provides a detailed description of the interbank settlement systems relating to credit transfers, cheques and payment cards (see also Sections 2.2.1, 2.2.2 and 2.2.4).

Systems are neither interdependent nor interoperable, although three of these four systems settle in central bank money. There is no domestic system for the settlement of transactions in currencies other than the Cyprus pound, with the exception of the above-mentioned arrangement for the clearing of cheques drawn on domestic commercial banks which are denominated in euro (see Section 2.2.2). Cross-border transactions are settled through an extensive network of foreign correspondents of the Central Bank of Cyprus and of the commercial banks, and through parent, subsidiary or branch undertakings in other countries. Furthermore, some of the local banks have become participants in the Euro Banking Association's STEP1 and STEP2 systems for cross-border payments in euro.

### 3.2 THE LARGE-VALUE PAYMENT SYSTEM

There is no RTGS system in Cyprus. The Large-value Credit Transfer System (LCTS), which is an electronic bilateral gross settlement system, facilitates interbank funds transfers. The payment instructions, which are processed automatically (SWIFT messages) or manually (paper-based instructions), are booked individually in the participants' accounts which are held with the Central Bank of Cyprus.

#### 3.2.1 OPERATING RULES

The operating rules are set by the Central Bank of Cyprus as the owner of the system having regard to the Bank's payment systems' objectives (see Section 1.2.1) and policies. The overall framework of the system is straightforward and is based on gentlemen's agreements, thus offering a core service at minimal cost, which at the same time serves the banking community for credit transfers in Cyprus pounds. However, certain rules and restrictions are laid down by the Bank as terms of operation of an appropriate account (an MRA for commercial banks or a current account for other eligible entities), which are the only prerequisite for participation.

#### 3.2.2 PARTICIPATION IN THE SYSTEM

Participation in the system is open to all holders of accounts denominated in Cyprus pounds which are held with the Central Bank of Cyprus. Therefore, participation is restricted to institutions entitled to hold accounts with the Central Bank of Cyprus. As a result, all the commercial banks are direct participants in the system. Furthermore, government departments and government agencies that maintain accounts with the Central Bank of Cyprus also execute payments through this system. At the end of 2005 there were 46 participants in the system.

#### 3.2.3 TYPES OF TRANSACTION HANDLED

Transactions may be interbank, intra-governmental and inter-institutional. The system also handles funds transfers in respect of monetary policy transactions as well as overnight facilities and deposits by banks.

There is no restriction on the type or value of transactions handled, provided that they are denominated in Cyprus pounds and both parties involved maintain accounts with the Central Bank of Cyprus. Some transfers are between accounts of government agencies and semi-governmental organisations with the Central Bank of Cyprus and accounts which they maintain with one or more commercial banks, as conventional bank customers performing treasury management.

#### 3.2.4 OPERATION OF THE SYSTEM

The system is in operation during the banks' normal working hours, i.e. from 7.30 a.m. to 2.30 p.m. (6.30 a.m. to 1.30 p.m. CET). Payment instructions are sent throughout the day to the Central Bank of Cyprus by the participants, via SWIFT, by mail or by hand, in the prescribed format. These payment instructions are batched and processed: one processing cycle for manual instructions (at 1.30 p.m. local time) and three for SWIFT instructions (at 8.30 a.m., 12.30 p.m. and 2.15 p.m. local time), with the last one being effected prior to close-down of the system. On the following working day, SWIFT advices and

SWIFT statements are dispatched to the paying and receiving institutions. Manual advices are sent to participants that are not SWIFT members (such as the government).

Back-value transactions on banks' MRAs, overnight deposit accounts and Lombard-type facility accounts are not permitted other than in exceptional circumstances, because of their use as part of the monetary policy mechanism; a similar restriction applies to the accounts of the other participants. In practice, instructions can be withdrawn by the paying bank prior to processing, from the time of transmission to the Central Bank of Cyprus until the next processing cycle on the execution date of the payment instruction. Instructions are deemed to be final and irrevocable once they have been processed by the Central Bank of Cyprus and posted to the participants' accounts. Corrections can then only be initiated by relevant instructions from the receiving institution. The arrangement is based on a gentleman's agreement, and no instances have occurred of legal measures being required to resolve a dispute. The system accepts forward-dated transactions without time limitation. These instructions are processed first on the relevant value date, during the first processing cycle.

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

The Central Bank of Cyprus has SWIFT Alliance Access in place, which runs on an HP Intel-based server with the Windows 2000 operating system (with disk mirroring). The system was developed in-house and runs under Oracle applications on Sun Solaris. It is subject to the Bank's general business continuity and contingency arrangements. Access to the system is restricted by both physical and electronic security measures. All transaction processing and information updating is subject to the Bank's general application of the "four-eyes" principle to financial data. There are several teams of operators and supervisors, thus ensuring that the application is not affected by personnel issues.

### 3.2.6 SETTLEMENT PROCEDURES

The credit transfer payments are settled in central bank money. The processing of instructions is carried out on a deferred gross settlement basis, with transactions being posted directly to the MRAs of banks and the current accounts of government departments/agencies. Both legs of each transaction are settled simultaneously during a processing cycle whereby they are posted to the participants' accounts in the Bank's accounting system.

### 3.2.7 CREDIT AND LIQUIDITY RISK

Transactions from all sub-systems (including the LCTS) are posted in batches to the Central Bank of Cyprus' accounting system every five minutes; transactions processed through the online accounting system may reduce the payer's balance prior to the posting of the LCTS's transactions to the MRAs. However, it should be noted that the balances maintained at present in the banks' MRAs largely cover all their transactions, and credit and liquidity risks are considered very limited.

### 3.2.8 PRICING

No fees are charged by the Central Bank of Cyprus in connection with the large-value credit transfer system.

### 3.2.9 STATISTICAL DATA

In 2006 the LCTS processed 100,000 transactions amounting to CYP 155.8 billion (€270.6 billion). Of these, 92% by volume and 51% by value were transmitted through SWIFT. The 2006 transactions showed an 11% increase in volume and a 92% increase in value compared with the corresponding figures for 2005.

## 3.3 RETAIL PAYMENT SYSTEMS

### 3.3.1 E-MONEY SCHEMES

At the end of 2005 there were no e-money schemes operating in Cyprus.

### 3.3.2 CARD-BASED SCHEMES

There is a single service provider for card-based schemes in Cyprus called JCC, which was formed in 1990 by six local commercial

banks for the purpose of technical cooperation and the development of interbank systems. Although the scope of JCC's objectives as mentioned above is wide-ranging,<sup>2</sup> this Section will cover the payment cards system, which has been its core business thus far. JCC authorises, clears and settles all the transactions with cards issued under licence from the card schemes of Visa International, MasterCard International, American Express and Diners Club International.

#### ***Operating rules***

The owners of JCC have signed a Letter of Agreement which determines their relationship with JCC as participants in the system. Company policy is determined by the Board of Directors, on which the shareholding groups (two large banks and a consortium of four smaller banks) are represented.

#### ***Participation in the system***

There are seven direct participants in the system – the six shareholders in JCC and another commercial bank that has also signed a Letter of Agreement with the company, whereby the participants adopt the system's rules. The participation of a new applicant is subject to majority approval by the Board of Directors and the signing of a Letter of Agreement with the company. However, the transfer of ownership to a new member is subject to a special resolution at an extraordinary general meeting of the shareholders.

#### ***Types of transactions handled***

JCC handles the clearing and settlement of debit and credit card transactions, including cash withdrawals from ATMs, of both locally issued cards and those cards issued abroad. The company operates the National Authorisation Centre and the National POS Network. It also services merchants with regard to the relevant equipment, which is owned by JCC.

#### ***Operation of the system***

Claims are presented to JCC in batches, either physically or by electronic means. All vouchers are read, verified and processed. The transactions

are classified into two groups – local cards and foreign cards – depending on the country of issue. The transactions for foreign cards are sent abroad electronically by JCC to each international payment scheme for clearing and settlement. Each day, JCC produces an interchange file for the local banks, containing transactions to be debited from cardholder accounts, transactions to be credited to merchant accounts, interchange fees and charges, and reconciliation items. The clearing cycle for local transactions varies between one working day for EFTPOS transactions and up to five working days for paper vouchers. However, the settlement of both types of transaction takes place two days after processing.

#### ***Transaction processing environment***

The JCC computer systems are linked to all the participating banks in Cyprus via dedicated leased lines with backup facilities in place. JCC is also linked to Visa and MasterCard via leased lines. Merchants with EFTPOS terminals send their transactions via the public telephone network to JCC for processing. The exchange of data files with the banks is at present carried out by file transfer via leased lines.

#### ***Settlement procedures***

For settlement with international payment schemes, JCC maintains accounts at foreign banks. For settlement with local banks, JCC maintains current accounts at local, participating banks. These current accounts are used as settlement accounts, with JCC acting in a manner similar to a central counterparty. A bank debits the cardholders' accounts and credits the JCC current account with the cardholder transactions, and it debits the JCC current account and credits the merchants' accounts with the merchant transactions. The merchant and cardholder transactions are taken from the interchange files mentioned above. Therefore, transactions are settled on a deferred net settlement basis.

<sup>2</sup> JCC undertook the technical evaluation of the hardware and specifications of the software used for cheque clearing for the commercial banks. It also developed the retail credit transfer system (see Section 3.3.3.1).

### **Credit and liquidity risk**

The settlement of obligations on a net basis reduces the liquidity risk to the participants in the system. The credit risk is reduced by way of settlement through accounts held by JCC at each participating bank, thus acting as a central counterparty, which is itself owned by the participants. Furthermore, the risks are not deemed to be significant, given that the total average daily net exposure for transactions using cards issued by local banks was CYP 2.7 million (€4.7 million) in 2006.

### **Pricing**

JCC is funded primarily by the merchant service charge. This charge varies, with the maximum rate being 4.3% of the transaction value, although it is usually 2-2.5%. Charges are negotiated individually with merchants and depend on the turnover, average transaction amount and category of the merchant.

### **Statistical data**

In 2006 the JCC payment cards system handled a total of 27.2 million transactions (an increase of 15.7% compared with 2005), amounting to CYP 1,550.4 million (€2,692.7 million), i.e. an increase of 16.9% compared with 2005. Of these transactions, 19.2% by value were cash advances through ATMs. Foreign-issued cards accounted for 16.9% by volume and 27.0% by value of the transactions processed by the system, with a substantial amount being attributable to use by visiting tourists.

### **3.3.3 RETAIL CREDIT, DEBIT AND CHEQUE TRANSFER SCHEMES**

#### **3.3.3.1 Retail credit transfer system: JCCTransfer**

##### **Operating rules**

The retail credit transfer system JCCTransfer is an electronic multilateral net settlement system, which was designed and implemented by JCC (see Section 3.3.1). The system began operations on 9 November 2001. The functioning rules of the JCCTransfer system are included in the operating regulations, which were prepared by

JCC in cooperation with the banks and must be adopted by each applicant prior to participation (see below).

##### **Participation in the system**

Participation is open to any bank that is licensed to undertake banking operations in Cyprus and has accepted the operating regulations of the system by means of an application for participation/authorisation letter. At the end of 2005 there were ten commercial banks participating in the system. The second part of the above-mentioned letter is an irrevocable authorisation to the Central Bank of Cyprus to debit or credit the participant's MRA with the result of the daily clearing process, which is carried out by JCC. The application for participation is approved by the Board of Directors of JCC.

A participant may withdraw from the system by giving two months' written notice, or participation is automatically terminated in cases of bankruptcy, insolvency or revocation of a banking licence.

##### **Types of transaction handled**

The JCCTransfer system handles customer transfers denominated in Cyprus pounds of up to CYP 30,000 (€52,310) between two participating banks. These may be one-off credit transfers of funds or they may be repetitive (e.g. standing orders or payroll payments). The system also handles returned transactions (transfers of funds that could not be applied to the beneficiary's account owing to erroneous or incomplete information) and rejected transactions (where processing of transactions could not be completed by JCC).

##### **Operation of the system**

The participating banks collect payment instructions from paying customers through various channels (branches, ATMs and the internet) and prepare transaction files which are forwarded to JCC by 12 midday (11 a.m. CET). Although participants may include payment orders received up to 11 a.m. (10 a.m. CET) on the same day, in practice they are batched per

working day. This means that customer transactions are processed one day after the order is received. JCC then has two hours in which to validate and process all the files. By 2 p.m. (1 p.m. CET) JCC sends the receiving banks' transaction files and the rejected transaction files to the paying banks. At the same time the net settlement positions are prepared and forwarded to the Central Bank of Cyprus for final settlement.

#### ***Transaction processing environment***

The JCC computer systems are linked to all commercial banks in Cyprus via dedicated leased lines, with backup facilities in place, which are used for the exchange of data files.

#### ***Settlement procedure***

The results of the daily clearing operation are forwarded to the Central Bank of Cyprus for settlement on the participants' MRAs with the Bank at 1.30 p.m. (12.30 p.m. CET).

#### ***Credit and liquidity risk***

No specific risk management measures are applied. However, as the paying bank receives the funds prior to onward transmission there is no credit risk involved. Transactions are deemed irrevocable when the paying bank's transaction file is forwarded to JCC for processing. The settlement of transactions is carried out in central bank money as the participants' net positions are settled across the banks' MRAs. Subsequently, the participants credit the beneficiaries' accounts on the same day as settlement at the Central Bank of Cyprus.

#### ***Pricing***

JCC recovers its costs by charging a fixed fee per transaction. The fees charged to customers by the commercial banks vary depending on the transaction medium used, the type of transaction and each bank's pricing policy.

#### ***Statistical data***

During 2006 the system processed 492,000 transactions amounting to CYP 344.1 million (€597.6 million), showing a substantial increase

of 37% in volume and 53% in value when compared with the previous year.

#### ***3.3.3.2 Cyprus Clearing House***

The Cyprus Clearing House (CCH) was established in June 1964 in order to facilitate the exchange and clearance of cheques, postal drafts and similar instruments drawn by one bank on another.

#### ***Operating rules***

The CCH operates from the Central Bank of Cyprus' premises, and a representative of the Bank is appointed Chief Inspector with responsibility for the general conduct of business in the CCH. The CCH operates according to regulations which are agreed by the representatives of the banks on the CCH Committee. The CCH Committee consists of one representative of each member and is chaired by the Central Bank of Cyprus representative. These regulations determine the payment instruments to be cleared by the CCH, the daily timetable, the time limits for returned cheques, the method of resolution of disputes, the technical specifications and standards of the electronic data exchanged, and the method of settlement.

#### ***Participation in the system***

The CCH has 12 direct members (including the Central Bank of Cyprus), and functions under the auspices of the Bank. There is one indirect member, which is a bank and is represented at clearing exchanges by the Central Bank of Cyprus. Participation in the system is open to any institution authorised by the Central Bank of Cyprus to operate as a bank in Cyprus and the application for participation of which has been accepted by the majority of the existing members of the CCH.

#### ***Types of transaction handled***

The payment instruments cleared through the CCH are cheques, claims arising from direct deliveries or special presentations of cheques, agents' claim vouchers and claims for unpaid cheques. Special presentations are conducted

for large-value cheques<sup>3</sup> at the discretion of each bank. These are presented on the day of deposit to the drawer's bank in order to ensure immediately that sufficient funds exist. However, the settlement is carried out through the CCH in the normal manner. An agent's claim voucher is an instrument issued by the paying bank (e.g. for the purpose of a customer's standing order), which is dispatched to the receiving bank with the particulars of the payment. The receiving bank presents the agent's claim voucher to the CCH in order to receive the funds.

As mentioned in Section 2.2.2, the CCH also clears cheques denominated in euro which are drawn on participants. The volume of such cheques is currently insignificant and therefore a simplified exchange takes place whenever such cheques are presented, without the exchange of electronic records.

#### *Operation of the system*

Cheques in Cyprus have a uniform format, which was agreed by the members of the CCH, to enable the use of optical character recognition (OCR) technology in capturing and processing information. Every day at 9.15 a.m. (8.15 a.m. CET) when the CCH session begins, the banks' representatives present cheques drawn on the other banks for collection. The cheques are enclosed in envelopes addressed to each paying bank concerned, with the total number of cheques and value written on the envelope. These amounts are used to calculate each bank's net position. The exchange of instruments between members is at the same time accompanied by the exchange of electronic media (computer diskettes) containing specific information about the presented items (i.e. data captured<sup>4</sup> from the OCR code line in the cheques exchanged).

The results of the daily session, i.e. the participants' deliveries, are input into the CCH system and the net positions are calculated and settled on the banks' MRAs on a multilateral netting basis.

#### *Transaction processing environment*

Data regarding the cheques presented for payment are exchanged electronically on diskette. These data are processed by the participants using proprietary software. The CCH system was developed in-house and runs under Oracle applications on Sun Solaris.

#### *Settlement procedures*

Although the net positions of the banks are agreed prior to the departure of their representatives from the CCH, the relevant accounting entries are batched and processed after their departure at 11 a.m. (10 a.m. CET). Settlement takes place in central bank money through the banks' MRAs on a deferred net settlement basis.

#### *Credit and liquidity risk*

No specific risk management measures are applied. However, as settlement of the CCH net positions takes place across the banks' MRAs, which at present maintain substantial balances, credit and liquidity risks are considered to be very limited.

#### *Pricing*

No fees are charged by either the CCH or the Central Bank of Cyprus in connection with the cheque clearing system.

#### *Statistical data*

The number of cheques and postal drafts presented through the CCH in 2006 was 17.4 million, amounting to CYP 16.4 billion (€28.6 billion). The corresponding figures for 2005 were 18.1 million, amounting to CYP 14.7 billion (€25.5 billion).

<sup>3</sup> The Central Bank of Cyprus processes as special presentations the cheques that exceed CYP 50,000 (€87,184). Each commercial bank sets its own limit internally.

<sup>4</sup> The information captured is: transaction code, cheque number, bank code, account number and amount.

## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

#### 4.1.1 INSTITUTIONAL ASPECTS

The Cyprus Stock Exchange (CSE) started its operations on 29 March 1996 as a legal entity in the form of a public corporation, by virtue of the Cyprus Stock Exchange Laws and Regulations, which were passed by the House of Representatives in 1993 and 1995 respectively. The CSE is a regulated exchange where all transactions in corporate and public securities are carried out.

The Council of the CSE, appointed by the Council of Ministers, is responsible for the management of the CSE and for the implementation of its policy. More specifically, the Council supervises the operation of the CSE and has exclusive authority over the management and administration of its assets, in accordance with the provisions of the following laws and regulations:

- the Cyprus Securities and Stock Exchange Laws of 1993 to 2006;
- the Cyprus Securities and Stock Exchange Regulations of 1995 to 2005;
- the Cyprus Securities and Stock Exchange (Public Offer for Acquisition of Securities and Merger of Companies Listed on the Stock Exchange) Regulations of 1997 to 2006;
- the Trading Rules (electronic system) of 2003;
- the Clearing and Settlement Rules of 1999;
- the Cyprus Securities and Stock Exchange (Central Depository and Central Registry) Laws of 1996 to 2006; and
- the Central Depository and Central Registry Regulations of 2001.

The Cyprus Securities and Exchange Commission (Establishment and Responsibilities) Law of 2001 assigns the responsibility for supervising the capital market to the Securities and Exchange Commission, which is an independent body. The Securities and Exchange Commission's tasks are to supervise the capital market, secure its smooth operation and development, and monitor transactions in transferable securities which take place both through the CSE and outside it. The only transactions that can occur outside the CSE (but are announced to the CSE) are gratuitous transfers of securities (usually between members of the same family), transfers following a court order (due to death or otherwise) and transactions exceeding CYP 100,000 (€172,951).

#### 4.1.2 OPERATIONAL ASPECTS

Trading takes place through a fully automated, electronic system, via terminals installed at the authorised investment services firms (remote trading), offering the following:

- monitoring of market transactions;
- participation in the trades by a simple method of order entry; and
- automatic update of trading information.

Orders for trades are placed by the members of the CSE (the authorised investment services firms), which forward their customers' orders. An order includes information on the identity of the client: this may be an individual investor or any other legal entity.

The trading daily timetable is:

Pre-opening:	10.10 – 10.23 to 10.25 a.m.	(9.10 – 9.23 to 9.25 a.m. CET)
Prices defined:	10.23 to 10.25 – 10.30 a.m.	(9.23 to 9.25 – 9.30 a.m. CET)
Trading:	10.30 a.m. – 1.00 p.m.	(9.30 a.m. – 12.00 p.m. CET)

At the end of 2005, 235 securities were listed on the CSE, comprising fully paid shares, bonds (corporate and government), Treasury bills, convertible bonds, warrants and rights. The total market capitalisation on 31 December 2005 was CYP 6.2 billion (€10.9 billion). The main participants in the CSE are the 14 members of the CSE, the listed issuers and the investors (as they hold their securities on accounts held directly with the depository).

On 6 September 2004 the CSE announced and launched two new developments. The first was the creation of a five-market structure, and the second was the introduction of the FTSE/Dow Jones Industry Classification Benchmark to the Cyprus market, through which listed companies are categorised in accordance with their main source of income. The five new markets are as follows:

(i) Main Market – includes large capitalised companies that meet the most demanding listing requirements and continuous obligations.

(ii) Parallel Market – includes medium-sized companies, meeting more demanding listing requirements and continuous obligations than previously. (This market may also include larger companies which do not meet all the criteria of the Main Market.)

(iii) Alternative Market – includes smaller capitalised companies, meeting the previous CSE listing requirements and continuous obligations. (This market may include large or mid-capitalised companies which do not meet all the criteria of the Main or Parallel Markets.)

(iv) Bonds Market – listing requirements and continuous obligations continue as before.

(v) Investment Companies Market – includes investment companies, which must abide by the authorised investment companies' obligations, or on whom the CSE's Council has imposed further continuous obligations.

Following the reclassification of the listed companies, a major overhaul of the indices was undertaken. The performance of the CSE is now measured using the following indices:

- CSE General Index
- CSE Main Market Index
- CSE Parallel Market Index
- CSE Alternative Market Index
- CSE Investment Companies Market Index.

The CSE General Index comprises the Main Market Index and the Parallel Market Index. The indices take into account all companies listed on the CSE, with the exception of those equities that are traded under a special regime in a special category. The base date for all the above indices is 3 September 2004 and the base value is 1000.

- FTSE/CySE 20

The FTSE/CySE 20 is the index comprising the twenty best-performing companies listed on the CSE. The FTSE/CySE 20 was established by the FTSE and the CSE to ensure that the management and ongoing operation of the FTSE/CySE 20 index is independent and transparent. The base date is 30 November 2000 and the base value is 1000. The selection of the companies is based upon the ground rules for the management of the FTSE/CySE 20 Index. The CSE is responsible for the daily operation of the FTSE/CySE 20, as well as for monitoring all corporate actions and price changes and implementing all constituent and weighting changes to the index.

- FTSE/Med 100

The FTSE/Med 100 Index tracks the performance of stock exchanges in the eastern Mediterranean region. It comprises 100 of the largest and most liquid companies in the region that are quoted on the stock exchanges of Cyprus, Greece and

Israel. The base date is 19 June 2003 and the base value is 5000.

In addition to the above indices, there are two sectoral sub-indices: Banks and Hotels. These indices are prepared daily by the CSE on the basis of all fully paid shares listed on the CSE Main and Parallel Markets only.

At present, no OTC trading or cross-border transactions take place at the CSE. The only exception is the equity of the Bank of Cyprus, the largest credit institution of Cyprus, which has achieved parallel listing on the Athens Stock Exchange (ASE). Foreign investors may currently invest in listed securities only through the members of the CSE.

#### 4.1.3 FUTURE DEVELOPMENTS

In the context of the CSE's Strategic Plan for 2004-06, the CSE entered a strategic alliance with the ASE. Under this alliance, a common trading platform has been created. This enables economies of scale, offers greater visibility and access to funds for companies listed on the CSE (without the need for dual listing), and provides enhanced services to members and investors. Members of one exchange are able to become remote members of the other, thus offering investment services on both exchanges. The common platform utilises the ASE trading platform ("OASIS") and CSD ("SAT"). The legislative framework has been revised to accommodate the operation of the common platform. The role of custodians is also being introduced into the new environment. Cypriot equities are quoted on the common platform in euro, whereas corporate and government bonds continue to be quoted in Cyprus pounds. The common platform went live on 30 October 2006; a full description of its operational framework will be included in the next issue of this publication.

#### 4.2 CLEARING

There is no independent clearing house for securities in Cyprus (as a separate legal entity). Clearing and settlement procedures are

performed by the CSE. As the current trading system involves a pre-validation stage, whereby the existence and availability of the dematerialised securities being traded is determined prior to the execution of a trade, clearing primarily relates to funds and is therefore an integral part of the settlement process (see Section 4.3).

#### 4.3 SETTLEMENT

As part of the continual efforts to develop, upgrade and update its systems, the CSE has introduced a fully automated electronic system, consisting of the Central Depository – Central Registry of Securities (CDCR) and the clearing and settlement system. The computerisation of all clearing and settlement procedures has reduced the settlement cycle to three days. All securities being traded under the new system are dematerialised, and the transfers of securities, as well as any corporate actions (such as stock splits, bonus issues and rights issues), run through a central electronic book-entry system at the CSE. The new system was introduced on 23 July 2001, and gradually all listed companies were transferred to the new system.<sup>5</sup>

The CDCR contains personal information for each investor, details of the securities owned by each investor and any changes in their holdings. In order to be able to trade in securities deposited in the CDCR, investors must have a depository account and trading account, having appointed a controlling investment services firm for the latter account. The trading account is used in the trading system and is linked to the investor's depository account. For investors to be able to sell securities from their depository account, they must grant an investment services firm access to these securities (by completing the appropriate forms), since only these firms are allowed to place orders on the trading floor.

<sup>5</sup> At present the old system (as described in the August 1999 edition of the Blue Book) runs in parallel with the new system being described in Section 4 and only applies to government bonds and Treasury bills, which are paper-based. These securities settle on T+8.

Access (with ownership remaining with the investor) is given for a specific amount of securities and to a specific investment services firm (with no other investment services firm being able to have access to the same securities). An investment services firm only places an order (buy or sell) with the authorisation of the investor. An investor can open many trading accounts with different investment services firms for “buy only” or “buy and sell” purposes. Investors who are existing shareholders at the time of loading the registries of new companies into the CDCR system do not need to open depository accounts, as their accounts are created automatically; they need only open trading accounts. Investors who are not shareholders at the time of the official loading of a new registry need to open depository and trading accounts in order to be able to trade.

The participants in the settlement procedure are the CSE members, the CSE and the holding bank (a commercial bank).

The clearing and settlement services provided are as follows:

- running the settlement cycle;
- monitoring payments by investment services firms and ensuring that trades settle correctly and in a timely manner (DvP); and
- handling failure to pay and failure to deliver.

#### **4.3.1 THE SETTLEMENT ENVIRONMENT**

The clearing and settlement system processes trades due for settlement and deals with the securities side of settlement at the individual investor level and cash settlement at the investment services firm level. The CSE members are responsible for the delivery of the funds – not the individual investors for whom the transactions were carried out. The transfer of securities takes place through the investors’ depository accounts. Securities are delivered electronically on the settlement date by the CDCR through a book-entry system, and, at the

same time, funds are transferred electronically by the holding bank.

The system supports DvP settlement based on two settlement methods:

- Contractual netting settlement: All buy and sell transactions of each investment services firm in a trading session that are below a certain limit (CYP 30,000; €51,885) are netted, with each investment services firm being a net buyer or a net seller (DvP Model 2).
- Trade-for-trade (TfT) settlement: Each trade is settled individually with no netting. Trades that exceed the limit mentioned above are designated for TfT settlement (DvP Model 1).

#### **4.3.2 SETTLEMENT CYCLE**

The settlement process results in securities being delivered in exchange for cash payment. Thus the process involves communication over several stages between the CDCR (for securities movements) and the holding bank (for funds movements), as follows:

The settlement cycle for both contractual and TfT transactions is defined as the trading day (T) plus three working days (T+3). The money required for these transactions, on day T, must be deposited in the members’ settlement accounts with the holding bank by 12.30 p.m. (11.30 a.m. CET) on T+2.

On the evening of T+2, the CSE forwards payment instructions to the holding bank to escrow the payers’ funds (members representing the buyers) – that is, the payers’ funds are moved from their settlement accounts to the CSE bank account with the holding bank.

By 6.30 a.m. (5.30 a.m. CET) on T+3, the holding bank sends to the CSE the preliminary bank response to the preliminary files, containing the reconciliation of the balances in the preliminary files with the balances in the payers’ escrow accounts.

When the CSE has confirmed that the members representing the buyers have sufficient funds, the cycle proceeds with instructions being sent to the holding bank to allocate funds from the CSE escrow account to the receivers' settlement accounts (members representing the sellers). Simultaneously, within the CDCR depository accounts, the securities that have been sold are delivered, with depository accounts of seller and buyer investors being updated.

#### 4.3.3 SETTLEMENT BATCH JOBS

##### 4.3.3.1 Pass I on T+2

The preconditions for DvP settlement are that sufficient funds are available in the payers' settlement accounts and sufficient securities are available in the sellers' depository accounts. The settlement cycle starts with Pass I. Pass I runs at the end of the day before the settlement date (T+2) in order to ensure that sufficient funds are held by the members, to be transferred the following morning. When the investment services firm places an order for an investor in the trading system, the system validates the order against the investor's available holdings. This is carried out under the control of the specific investment services firm.

Pass I processes the following:

- TfT trades;
- contractual netting trades; and
- payment banking instructions (for payers).

##### 4.3.3.2 Pass II

Pass II is the final process in the settlement cycle, in which securities are transferred electronically from the sellers' depository accounts to the buyers' depository accounts. This is only the case, however, when the buyers' funds have been successfully transferred.

In the case of TfT trades, if a buyer fails to pay, the settlement of the trade is carried forward to the next day. In the case of contractual netting, before security transfers can take place, the

system must verify that all funds have been paid.

After securities have been transferred from the selling investors' depository accounts to the buyers' depository accounts, the final banking instructions file is sent to the holding bank requesting it to transfer the funds from the CSE escrow account to the receivers' bank accounts.

#### 4.3.4 SETTLEMENT FAILURES

Where a member is not in a position to fulfil its payment obligations, available funds from the Guarantee Fund and the Joint Compensation Fund may be used at the CSE's discretion to cover failures during the settlement cycle. The Guarantee Fund is created from contributions by each CSE member of the basis of its everyday transactions, while the Joint Compensation Fund consists of a pre-defined amount of money which each member is obliged to provide.

Furthermore, the Director General of the CSE has the authority to intervene within the following framework:

- to buy in or sell out as appropriate, at the Director General's discretion, in order to complete the transaction. The member responsible owes the CSE the amount required for the completion of the transaction.
- to bar the member responsible for the failure from trading until the member has fulfilled its responsibilities.
- to impose a fine on the member responsible for each day that it does not fulfil its responsibilities.

At present the possibility of failing to deliver securities is unlikely, since holdings are pre-validated when the member places the order.

The Central Bank of Cyprus maintains the registers of holders of domestic public debt and

therefore updates the registers on a daily basis (at T+8) on the basis of the relevant transactions of the CSE. These securities can be used in monetary policy operations (see Section 1.2.3 above). As these securities have not yet been dematerialised, when they are used as collateral the appropriate operations department of the Central Bank of Cyprus marks them as such manually in the relevant register to block their disposal. The role of the Central Bank of Cyprus as a participant in the CSE system is described in Section 1.2.2.



# LATVIA

## CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>146</b>
<b>INTRODUCTION</b>	<b>147</b>
<b>1 INSTITUTIONAL ASPECTS</b>	<b>148</b>
1.1 The general institutional framework	148
1.2 The role of Latvijas Banka	150
1.3 The role of other private and public sector bodies	152
<b>2 PAYMENT MEDIA USED BY NON-BANKS</b>	<b>152</b>
2.1 Cash payments	152
2.2 Non-cash payments	152
2.3 Recent developments	155
<b>3 INTERBANK PAYMENT SYSTEMS</b>	<b>155</b>
3.1 General overview	155
3.2 The real-time gross settlement system	156
3.3 Large-value payment systems	160
3.4 Retail payment systems	160
3.5 Future developments	163
<b>4 SECURITIES SETTLEMENT SYSTEMS</b>	<b>163</b>
4.1 Trading	163
4.2 Clearing	165
4.3 Settlement	165
4.4 The use of the securities infrastructure by Latvijas Banka	168

## LIST OF ABBREVIATIONS

CAS	Central Accounting System (a component of SAMS)
DENOS	SSS operated by the Latvian Central Depository – <i>Depozitārija norēķinu sistēma</i>
EKS	Latvijas Banka's electronic clearing system – <i>Elektroniskā klīringa sistēma</i>
FCMC	Financial and Capital Market Commission – <i>Finanšu un kapitāla tirgus komisija</i>
FDL	First Data Latvia (a card-based payment system)
ICN	Interbank communication network
Itella	Latvian giro system
LCD	Latvian Central Depository – <i>Latvijas Centrālais depozitārijs</i>
LKA	Association of Latvian Commercial Banks – <i>Latvijas Komercbanku asociācija</i>
OMX	Exchange owner and operator in the Nordic and Baltic region and provider of financial services technology
PNS	Postal Accounting System – <i>Pasta norēķinu sistēma</i>
RSE	Riga Stock Exchange – <i>Rīgas Fondu birža</i>
SAMS	Latvijas Banka's RTGS system – <i>Starpbanku automatizēto maksājumu sistēma</i>
SAXESS	Electronic trading system operated by the RSE
VNS	SSS operated by Latvijas Banka – <i>Vērtspapīru norēķinu sistēma</i>

## INTRODUCTION

Over the past few years a number of important reforms have been implemented in the field of payment systems in Latvia. The main objective of these reforms has been to minimise the risks arising from interbank settlements and to harmonise the infrastructure and legal framework of the Latvian payment system with EU standards and requirements.

A number of laws and regulations have been adopted or amended to incorporate the requirements of EC directives. A new Law on settlement finality in payment and securities settlement systems has been adopted to implement Directive 98/26/EC on settlement finality in payment and securities settlement systems. The Financial Collateral Law has transposed into domestic legislation the requirements of Directive 2002/47/EC on financial collateral arrangements. The Credit Institution Law has been amended to incorporate the requirements of Directive 2000/46/EC on the taking up, pursuit of and prudential supervision of the business of electronic money institutions.

Latvijas Banka has exclusive responsibility for the oversight of the payment system, whereas supervision of capital market institutions, including credit institutions, is the responsibility of the Financial and Capital Market Commission (FCMC), the consolidated supervisory authority, which commenced its activities on 1 July 2001.

Large-value interbank payments in national currency (lats) are effected using Latvijas Banka's real-time gross settlement system, SAMS. SAMS commenced operations in September 2000. This system provides settlement for large-value interbank payments and urgent customer payments and serves as a tool for the implementation of monetary policy.

The major interbank retail payment system in Latvia is Latvijas Banka's electronic clearing

system, EKS. This is an ACH system which processes customer payments with same-day value.

A distinctive feature of the Latvian payment system is the predominance of credit transfers. Electronic credit transfers and card payments have continued to increase in recent years. Likewise, the number of POS and ATMs has grown, while the use of electronic means of payment has increased further. Most banks offer online services to their customers. The banks are actively taking advantage of recent innovations in information technology and expanding their services by offering internet-based and phone-based banking to their customers.

The securities market infrastructure in Latvia consists of one stock exchange – the Riga Stock Exchange (RSE) – and two SSSs – the DENOS system operated by the Latvian Central Depository (LCD) and Latvijas Banka's SSS (VNS). VNS is used mainly to register and settle collateral used in Latvijas Banka's monetary policy and intraday credit operations. Other trades and transactions in securities are settled by DENOS.

## I INSTITUTIONAL ASPECTS

### 1.1 THE GENERAL INSTITUTIONAL FRAMEWORK

The main providers of payment services are credit institutions, Latvijas Banka and Latvia Post.

The 1992 Law on the Bank of Latvia gave the central bank the responsibility for promoting the smooth functioning of payment systems in the Republic of Latvia. Latvijas Banka is to fulfil this objective through the oversight of payment systems. The oversight of payment systems, for which Latvijas Banka has sole competence, forms an integral part of Latvijas Banka's wider responsibility for monetary and financial stability.

Under the Law on the Bank of Latvia, the central bank has the exclusive right to issue national currency in the form of banknotes and coins.

On 1 July 2001 the FCMC took over the supervision of credit institutions from Latvijas Banka. Pursuant to the 2001 Law on the Financial and Capital Market Commission, the FCMC regulates and supervises all participants in the financial and capital markets that are subject to such supervision under the relevant legislation.

Under the 1994 Postal Law, Latvia Post is authorised to issue postal payment instruments and is thus also a participant in the Latvian payment system. The regulation and supervision of Latvia Post is the responsibility of the Ministry of Transport.

The general regulatory framework for the Latvian payment system is based on a set of laws, regulations and agreements.

The 1995 Credit Institution Law governs the activity of credit institutions, which are the main providers of payment services in Latvia. Under this Law, the receiving of deposits and other repayable funds and the issuing of non-

cash payment instruments are activities for which credit institutions have exclusive responsibility. The Law also governs the insolvency and bankruptcy procedures that are applicable to credit institutions in particular. The Law on the insolvency of undertakings and companies governs the insolvency and bankruptcy procedures of legal entities other than credit institutions.

The amendments made to the Credit Institution Law in 2004 ensure the transposition into national law of the requirements of Directive 2000/46/EC on the taking up, pursuit of and prudential supervision of the business of electronic money institutions.

The 2003 Law on settlement finality in payment and securities settlement systems ensures the transposition into Latvian law of the requirements of Directive 98/26/EC on settlement finality in payment and securities settlement systems, while the 2005 Financial Collateral Law ensures the transposition of the requirements of Directive 2002/47/EC on financial collateral arrangements. The Financial Collateral Law also sets forth procedures that are applicable in the event that a legal entity becomes insolvent, with the purpose of safeguarding the smooth operation of payment and securities settlement systems.

The 1938 Cheque Law, which is based on the Geneva Convention of 1931, relates to the issuing, design and transfer of cheques.

The 2004 Financial Instruments Market Law has replaced the 1995 Securities Law. The 2004 Law governs the procedures for publicly offering financial instruments, providing investment services and ancillary (non-core) investment services, and licensing and supervising participants in the financial instruments market, and establishes the rights and obligations of participants in the financial instruments market and liability for the infringement of the requirements set out in this Law.

The general principles governing guarantees for the deposits of natural and legal entities held with banks are outlined in the 1998 Deposit Guarantee Law, which implements Directive 94/19/EC on deposit-guarantee schemes.

In addition, the 2001 Investor Protection Law, which implements Directive 97/9/EC on investor compensation schemes, provides for the protection of investors' interests in cases where a capital market participant has become insolvent. The 1998 Law on the prevention of laundering of the proceeds of criminal activity establishes the responsibilities and rights of financial institutions, credit institutions and their supervisory and regulatory authorities with the aim of preventing the laundering of such proceeds. The 1998 Law also set out the procedure for establishing the Disclosures Office, which has a mandate to prevent the laundering of such proceeds, and the Advisory Council, as well as their rights and responsibilities. All types of criminal offence subject to this Law are listed therein. The Law stipulates the procedure for reporting to the Disclosures Office information regarding financial transactions characterised by at least one of the indicators included in the list of indicators of unusual transactions. Pursuant to the Law, credit institutions and financial institutions must refrain from conducting transactions that they suspect of involving money laundering or attempted money laundering.

Most aspects relating to the issuance of payment instruments and the provision of payment services are covered by legislative acts or contracts between financial institutions, customers and retailers. The 1992 Consumer Rights Protection Law prevents the inclusion of unfair terms and conditions in legal contracts, and all agreements with customers must comply with this Law.

In order to ensure the efficient and sound functioning of clearing and payment systems, Latvijas Banka is entitled to issue regulations pertaining to the payment system and payment

services. On the basis of the powers conferred upon it by the Law on the Bank of Latvia, Latvijas Banka has issued the Regulation for credit transfers, the Regulation for issuance and maintenance of electronic money and the Regulation for the use of the IBAN, as well as Recommendations for transactions effected by means of electronic payment instruments.

The Regulation for credit transfers governs the procedure for domestic and cross-border credit transfers and stipulates the rights and obligations of all parties involved in credit transfers. It was also adopted with the aim of meeting the requirements for the execution of cross-border credit transfers established by Directive 97/5/EC on cross-border credit transfers.

The 2002 Latvijas Banka Regulation for issuance and maintenance of electronic money, complementing the Credit Institution Law, contains the requirements of Directive 2000/46/EC with regard to the issuance and redemption of electronic money, as well as the minimum requirements for institutions issuing electronic money.

The 2003 Regulation for the use of the IBAN establishes the minimum requirements that an institution registered in the Republic of Latvia must meet with regard to the procedure for providing, validating and using a Latvian IBAN. The Regulation stipulates that, from 1 January 2005, the IBAN is to be used as the sole identifier of a customer account for both domestic and cross-border payments in Latvia.

The Recommendations for transactions effected by means of electronic payment instruments establish the minimum requirements for issuing, servicing and using electronic payment instruments in Latvia. The Recommendations implement in Latvia Recommendation 97/489/EC concerning transactions by electronic payment instruments and in particular the relationship between issuer and holder.

An out-of-court redress procedure in line with Recommendation 98/257/EC on the principles

applicable to the bodies responsible for out-of-court settlement of consumer disputes was implemented by establishing an Ombudsman at the Association of Latvian Commercial Banks (LKA) in 2002. The Ombudsman resolves disputes between customers and banks in the field of credit transfers and electronic payment instruments.

To collect the statistics necessary for payment systems oversight in Latvia and for the implementation of monetary policy, Latvijas Banka has issued a Regulation on compiling credit institution payment statistics.

## 1.2 THE ROLE OF LATVIJAS BANKA

### 1.2.1 GENERAL RESPONSIBILITIES

The role of Latvijas Banka with regard to payment systems consists of three main elements: oversight of the payment system, operation of interbank payment and settlement systems, and issuance of national currency. Carried out for the purpose of controlling and minimising the potential risks inherent in payment systems, oversight of the payment system serves to promote both the stability of the financial system as a whole and public confidence in money. The operational role derives from the need for banks to have a reliable and safe environment for processing interbank payments and from Latvijas Banka's need for a secure channel for the execution of monetary policy.

### 1.2.2 PAYMENT SYSTEMS OVERSIGHT

The oversight function is formally assigned to Latvijas Banka by virtue of Article 9 of the Law on the Bank of Latvia, which states that "The Bank of Latvia shall promote the smooth operation of the payment systems in the Republic of Latvia. The Bank of Latvia is entitled to approve regulatory requirements and regulations in order to ensure the efficient and sound functioning of the clearing and payment systems."

Latvijas Banka performs this function independently by overseeing systemically

important payment systems, issuing regulations and recommendations, and providing settlement services for banks or other payment and clearing systems, as well as by taking other supportive action to facilitate private sector initiatives that contribute to the safe and efficient functioning of payment systems.

Oversight focuses mainly on large-value interbank payment systems that are used for settlement of Latvijas Banka's monetary policy operations and which constitute the largest source of systemic risk in the Latvian payment system. Latvijas Banka oversees these systems by analysing their compliance with the Core Principles for Systemically Important Payment Systems and requiring payment system operators to take all reasonable measures to achieve full compliance.

Only SAMS (see Section 3.2) is currently regarded as a systemically important payment system in Latvia. The role of EKS (see Section 3.4.3.1) in Latvia's payment infrastructure was assessed in 2003 against the ECB's oversight standards for euro retail payment systems, with the result that EKS was classified a systemically prominent retail payment system. Having aligned the assessment of EKS with the ECB methodology, Latvijas Banka now oversees EKS compliance with Core Principles I, II and VII–X.

Latvijas Banka conducts day-to-day monitoring of the technical and operational functions of SAMS and EKS and analyses their statistical data, in addition to developing and approving regulations governing operational procedures, risk reduction measures and principles for participation in the systems.

The responsibility for the safe and efficient functioning of other retail clearing systems is vested with the institutions which operate such payment systems and their participants, but Latvijas Banka oversees retail payment systems and, together with the system operators, evaluates the risks inherent in these systems and provides consultations on risk reduction.

In 2001 Latvijas Banka's Board of Governors approved Latvijas Banka's payment systems policy, which outlines the NCB's role and objectives with regard to payment systems in Latvia. To raise public awareness of the role of payment systems and Latvijas Banka's objectives in this regard, Latvijas Banka has issued two reports on the oversight of payment systems in Latvia.

### 1.2.3 THE OPERATIONAL ROLE OF THE CENTRAL BANK

Latvijas Banka operates two interbank payment systems. SAMS (see Section 3.2) is used for the real-time settlement of large-value payments through the banks' settlement accounts, and EKS (see Section 3.4.3.1) processes retail payments. Latvijas Banka also operates VNS and performs the settlement of the cash leg of transactions processed through the Latvian Central Depository (LCD). Latvijas Banka defines and formulates the rules and regulations governing the payment systems and the SSS which it manages.

Latvijas Banka executes State Treasury payments, in addition to providing settlement services in central bank money to other payment and clearing systems. Latvijas Banka issues banknotes and coins, which are distributed through the NCB's branch network.

### 1.2.4 ACTIVITIES IN THE AREA OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS

Latvijas Banka operates an SSS called VNS (see Section 4.3.2). It uses VNS to register book-entry rights of VNS participants in securities, as well as collateral used in its monetary policy and intraday credit operations.

In addition, Latvijas Banka oversees both SSSs operating in Latvia, evaluates the risks inherent in these systems and gives consultations on risk reduction.

### 1.2.5 COOPERATION WITH OTHER INSTITUTIONS

In performing its role of overseeing payment and securities settlement systems, Latvijas Banka cooperates with the FCMC. Latvijas Banka and the FCMC have signed an agreement on information exchange in order to ensure that all information which is relevant to the responsibilities of both institutions is shared fully and freely.

Latvijas Banka maintains close contacts with market participants, with whom it meets on a regular basis in order to convey its ideas and obtain feedback on how the NCB's work in the area of payment and securities settlement systems is perceived. For example, any changes in the functioning or the rules of SAMS or EKS are made in close cooperation with the commercial banks. Similarly, Latvijas Banka provides the necessary support for private sector initiatives by participating in various projects relating to payment instruments. In addition, all regulations proposed by the NCB are widely discussed with market participants before finalisation.

Latvijas Banka cooperates with other central banks and international organisations on issues relating to payment and securities settlement systems.

In 2004 Latvijas Banka and the FCMC signed the Memorandum of Understanding (MoU) on cooperation between payment systems overseers and banking supervisors and the Memorandum of Understanding on high-level principles of cooperation between the banking supervisors and central banks of the European Union in crisis management situations. The purpose of the first MoU was to promote safe and continuous operation of large-value interbank payment systems. Cooperation within the framework of the MoU takes place mainly via the exchange of information between Latvijas Banka as the payment systems overseer and the FCMC as the banking supervisory authority. The second MoU stipulates a set of principles and procedures regarding the cross-border cooperation between EU central banks and

supervisory institutions in crisis management situations.

### **1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES**

#### **1.3.1 THE FINANCIAL AND CAPITAL MARKET COMMISSION**

Pursuant to the Law on the Financial and Capital Market Commission passed on 1 June 2000 (which came into effect on 1 July 2001), the FCMC regulates and supervises the financial and capital markets and the activities of their participants. Resulting from a merger of the Credit Institutions Supervision Department of Latvijas Banka, the Securities Market Commission and the Insurance Supervision Inspectorate, the FCMC commenced its activities on 1 July 2001. The financial and capital market participants supervised by the FCMC are: issuers, investors, credit institutions, insurers, private pension funds, insurance intermediaries, credit unions, the Riga Stock Exchange, the LCD, investment firms, brokers, investment companies and investment consultants. The FCMC grants licences to provide financial services, including custody services and other intermediary activities in the Latvian financial and capital market.

#### **1.3.2 THE ASSOCIATION OF LATVIAN COMMERCIAL BANKS**

The Association of Latvian Commercial Banks represents the interests of the Latvian banking sector. The LKA was created in 1992 as a public organisation aiming to enhance the development of a modern and reliable banking sector in Latvia. The LKA organises working groups and holds regular meetings with banks to discuss various aspects of banking business and issues of common interest relating to banking operations and payment systems. It plays an active role in setting standards for payment instruments in the banking sector. The LKA also assists in drafting laws and regulations governing the activities of banks and is represented on the Consultative Council of the FCMC. The LKA Ombudsman handles the complaints of credit institution customers about

credit transfers and electronic payment instruments. The Payment and Payment Card Committees have been established in order to discuss issues related to payments, in particular standardisation issues or plans for migration to the Single Euro Payments Area (SEPA).

## **2 PAYMENT MEDIA USED BY NON-BANKS**

### **2.1 CASH PAYMENTS**

The national currency of the Republic of Latvia is the Latvian lats (LVL), which is divided into 100 santimi. Latvijas Banka issues the national currency in the form of banknotes and coins, including commemorative coins of various nominal values. Banknotes with the following nominal values are in circulation: LVL 5, LVL 10, LVL 20, LVL 50, LVL 100 and LVL 500. The nominal values of the coins in circulation are as follows: 1, 2, 5, 10, 20 and 50 santimi, and LVL 1, LVL 2, LVL 10 and LVL 100.

Cash is widely used in Latvia (mainly by individuals in face-to-face transactions for goods and services). No estimate is available for the value or number of cash payments, but the share of cash in M1 in Latvia has been declining for a number of years (falling from 44.0% in 1998 to 23.8% in 2006).

At end-2006 currency in circulation totalled LVL 1,073.9 million (€1,542.4 million). As the economy continues to grow, the amount of currency in circulation is rising steadily; however, the development of non-cash settlement instruments has gradually reduced the role of cash in money circulation.

### **2.2 NON-CASH PAYMENTS**

The use of payment instruments other than banknotes and coins has become more widespread in Latvia, reflecting a general widening of the population's banking habits. Non-cash payments are effected predominantly through current accounts. Customers are free to

choose the currency in which they open their accounts. Current accounts in lats are used mainly for domestic retail payments, whereas accounts in foreign currencies are used for both cross-border and domestic payments. In Latvia non-cash payments are effected mainly by means of credit transfer. Postal instruments are also widely used, but their value is significantly less than that of credit transfers via the banking system. The overall trend seems to be that financial institutions are gradually expanding their internet, telephone and mobile banking services. The use of other payment instruments, such as payment cards, is also on the rise.

### 2.2.1 CREDIT TRANSFERS

Credit transfers play a dominant role in effecting payments between customers and have doubled in volume and tripled in value over the last five years. In 2006 107.4 million credit transfers, with a total value of LVL 381.1 billion (€547.4 billion), were processed. Credit transfers accounted for 62.5% of the total volume and 99.6% of the total value of non-cash payments. In recent years the use of electronic payment instruments has expanded. The share of credit transfers initiated via electronic, internet and telephone banking rose from 14.2% in 2001 to 48.1% in 2006 in terms of volume, and from 40.6% to 49.3% in terms of value. Most banks offer online services to both corporate and retail customers. Banks are actively taking advantage of recent innovations in information technology, and home banking is being replaced by internet-based and phone-based banking by customers. To encourage customers to use electronic payment instruments, banks have raised fees for payment instructions handed over in paper form. WAP banking applications (mobile phone-based banking services), which were launched in 2000, are currently offered by some banks.

### 2.2.2 CHEQUES

The role of cheques has traditionally been very limited, and cheques are rarely used as a payment instrument in Latvia. Almost all cheques are drawn in foreign currencies. In addition to cheques issued by foreign and

domestic banks, there are also traveller's cheques, which are used by international companies, embassies and travellers.

### 2.2.3 DIRECT DEBITS

In Latvia direct debits emerged in 1994, when several banks developed these as an intrabank payment instrument for the payment of utility bills by their customers. In September 2000 Itella (originally called the National Payment Centre; see Section 3.4.3.3) launched an interbank direct debit system with five banks. This system allows any utility company or commercial bank to join and thus start providing direct debit benefits to its customers. Since the launch of this system, the use of direct debits has grown rapidly, reaching 4.5 million transactions in 2006.

### 2.2.4 PAYMENT CARDS

A wide variety of international card products are available in Latvia. Bank customers use different types of card: credit cards, debit cards, debit cards with an overdraft facility and local cash withdrawal cards.

By the end of 2006 banks had issued 2,065,976 cards. Of these, 233,432 were cards with a credit or delayed debit function and 1,832,544 were cards with a debit function. By the end of 2006 all banks had issued payment cards to their customers.

As a result of comprehensive advertising campaigns launched by banks and First Data Latvia (FDL), payments made by payment card have quintupled in volume and quadrupled in value over the last five years and accounted for 34.9% of the total volume and 0.3% of the total value of payments made with cashless payment instruments. In 2006 figures for card payments were slightly higher than those for ATM cash withdrawals. Card payments effected outside the country accounted for 5.0% of total payments by card in terms of volume and 20.7% in terms of value.

### **Debit cards**

Debit cards have been issued in Latvia since early 1992. Over the last few years banks have enhanced their debit card-related services by developing a POS and ATM infrastructure and offering an increasing number of debit cards with an overdraft facility. By the end of 2006 1,832,544 cards with a debit function had been issued (with this figure including both debit cards and debit cards with an overdraft facility). The most widely used card with a debit function in Latvia is Visa Electron, followed by Maestro and local cards. The choice of card scheme offered by any individual bank depends on factors such as risk management, the availability of electronic card acceptance networks, the cost and efficiency of the local communications network and the kinds of customer targeted. Debit cards are mainly associated with a customer's current account or, alternatively, a special card account.

### **Credit cards**

The number of credit card holders is smaller than the number of debit card holders, and at first credit cards were mostly limited to business customers. However, owing to promotional efforts undertaken by banks, the number of credit cards issued to retail customers is rapidly increasing. Most of the credit cards issued by banks are Visa and Europay products. In 2006 payments made using credit cards accounted for 9.6% (3.1 million transactions) in terms of volume and 21.0% (LVL 126.3 million (€181.4 million)) in terms of value of all payments made with payment cards issued in Latvia.

### **Retailer cards**

Retailer cards have gained in popularity over the past few years. These are single-purpose cards and, unlike bank payment cards, can only be used at POS controlled by their issuers (mainly petrol companies). Some companies process their card transactions themselves, and some are serviced by a card processing centre. By the end of 2006 129,802 retailer cards had been issued in Latvia.

### **Prepaid cards**

Prepaid cards are mainly used for telecommunications, and the schemes are single purpose-oriented. There is a single-purpose smart card project, called "Riga Key", which was implemented by the company Netcards at the beginning of 2001. Riga Key is a prepaid rechargeable smart card which customers use to pay for entry to Riga's Old Town by car and for parking in Riga. Riga Key was designed in such a way that it can be used as a multi-purpose smart card in the future.

### **ATM and POS networks**

The development of ATM networks began in 1996. By the end of 2006 there were a total of 952 ATMs in six networks (managed by FDL and five local banks). The networks are compatible with each other, but the transaction fees differ depending on the pricing policy applied by each network manager and card issuer. International debit and credit cards are accepted across all ATM networks. Acceptance of local cards depends on the product: local cards are generally accepted across the ATM network of the card-issuing bank, but banks can conclude agreements among themselves for the acceptance of these cards also in other networks. In 2006 85.1% of all ATMs were multi-functional, allowing customers to perform various banking operations, such as paying bills, making deposits on savings accounts, withdrawing cash and verifying current account balances.

The first steps in the establishment of a POS network were taken in 1992. At the end of 2006 there were 16,154 electronic POS terminals installed across three networks (managed by FDL and two local banks). The POS network accepts all types of payment card circulating in Latvia, as well as international cards issued by foreign banks. Banks have modernised the servicing of payment cards and have increasingly been using electronic equipment to ensure online authorisation. For this reason, the number of electronic POS terminals has increased, while the number of imprinters has declined. International debit and credit cards

are accepted across the different POS networks; local cards are normally accepted across the POS networks of the card-issuing bank, or banks can conclude agreements with merchants (who participate in the POS network of another bank or card processing centre) on the acceptance of these cards.

#### 2.2.5 POSTAL INSTRUMENTS

Cashless payments can also be made through Latvia Post. Functioning outside the banking system, Latvia Post offers means of payment primarily used by the social security authorities to make pension payments and by companies and individuals to make money transfers. Money orders are convenient for persons which do not have a bank account. In 2006 20.2% of all credit transfers (in terms of volume) were effected through Latvia Post, although postal instruments were largely used for small-value retail payments (for a total amount of LVL 795.3 million (€1,142.3 million)). Like banks, Latvia Post offers its customers standing order, electronic credit transfer and direct debit facilities; however, paper-based payment instruments still account for 22.2% of all credit transfers executed by Latvia Post. Since the autumn of 2001 Latvia Post has also offered its customers the possibility of using debit cards issued in cooperation with a local bank.

#### 2.2.6 OTHER PAYMENT INSTRUMENTS

No other payment instrument plays an important role in the Latvian payment system.

### 2.3 RECENT DEVELOPMENTS

Recently banks have been devoting more attention to the transition to chip technologies in card-based schemes. Most of the recently issued cards in Latvia have both a chip and a magnetic strip. 99% of all stand-alone POS devices have been upgraded to handle EMV chip technology. Banks have started to implement chip-card readers in ATMs. A couple of banks offer additional functions on the payment card's chip, enabling it to also serve, for example, as a student ID card or a library card.

In order to reduce the costs connected with ATM network maintenance and to improve customer service, some banks have merged ATM networks and concluded agreements on allowing customers to use other ATM networks without additional charges. To ensure more efficient use of infrastructure, banks, in cooperation with FDL, are working on the introduction of a "cash back" function on POS terminals in Latvia.

The first virtual e-money for purchases on the internet was issued in 2005. By the end of 2006 six institutions had informed Latvijas Banka about the introduction of e-money based on virtual accounts and accessed using telecommunications (see Section 3.4.1).

## 3 INTERBANK PAYMENT SYSTEMS

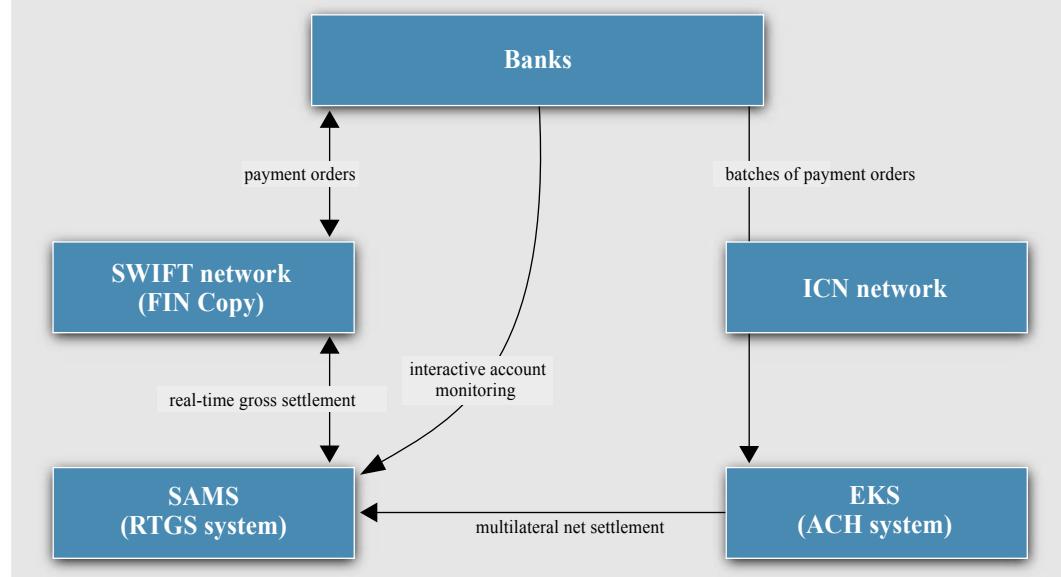
### 3.1 GENERAL OVERVIEW

Latvijas Banka provides clearing and settlement services for interbank transfers through the operation of two payment systems: SAMS and EKS. All banks participate directly in these systems (see Chart 1).

SAMS is used for processing large-value and urgent money, foreign exchange and capital market-related transfers, as well as large-value interbank and customer payments. In addition, it settles the net positions of other payment systems (e.g. EKS and FDL), settles the cash leg of LCD transactions and processes payments relating to monetary policy.

Retail and corporate payments are mainly processed by EKS, a multilateral net settlement system launched in November 1998. The payment messages are transferred in batches between the system participants and Latvijas Banka via the local interbank communication network (ICN). Latvijas Banka launched a new version of EKS in January 2004. The new version introduced a second clearing cycle, thus increasing settlement speed and efficiency. This allowed banks to complete the settlement

Chart 1 Latvijas Banka's interbank payment systems



of customer payments on the day of their submission.

In addition, there are three main payment service providers: FDL (card-based payment system), Latvia Post (the postal payment system) and Itella (the giro system).

### 3.2 THE REAL-TIME GROSS SETTLEMENT SYSTEM

SAMS is an RTGS system which commenced live operations on 8 September 2000. The system is fully automated and consists of two major components: the Central Accounting System (CAS), the software for which was provided by Logica UK Ltd; and the messaging network, i.e. SWIFT. For the purposes of monitoring their account positions, SAMS members use the participant workstations connected to the CAS by the ICN. All SAMS participants hold settlement accounts with Latvijas Banka.

#### 3.2.1 OPERATING RULES

The operating rules adopted by Latvijas Banka are contained in the Regulation on interbank settlements effected by the Bank of Latvia. The

rules are binding on all of the system's participants. This Regulation defines:

- the access criteria;
- the system's daily timetable;
- the rights and obligations of participants and Latvijas Banka;
- the finality and the irrevocability of payments;
- rules regarding the exclusion of a participant from the system; and
- the contingency procedures.

Prior to any operation in the system, the participant and Latvijas Banka sign a bilateral agreement on participation in SAMS and an agreement on operation in the ICN. The SAMS agreement describes the liabilities and responsibilities of the participant and the system operator in detail. The ICN agreement sets out the responsibilities and liabilities of those participating in SAMS through the ICN. Since the payment messages are submitted via SWIFT,

the participants must comply with SWIFT message standards and rules.

### 3.2.2 PARTICIPATION IN THE SYSTEM

In addition to Latvijas Banka, any Latvian bank, any branch of a foreign bank registered in the Republic of Latvia or any credit institution registered and supervised in an EU or EEA country providing financial services in Latvia without opening a branch and complying with the provisions of the Credit Institution Law may become a participant in SAMS. To participate in the system, the bank must have a settlement account with Latvijas Banka and comply with the technical and security requirements for participation, as defined both in the Regulation on interbank settlements effected by the Bank of Latvia and in bilateral agreements with the NCB. The participant must also submit legal opinions to Latvijas Banka and must be a member of SWIFT.

By the end of 2006 there were 23 participants in the system: 21 banks, one branch of a foreign bank and Latvijas Banka. Additionally, on the basis of bilateral agreements, Latvijas Banka can execute payments in SAMS when instructed to do so by the State Treasury, the LCD or a number of other institutions which do not participate in SAMS.

### 3.2.3 TYPES OF TRANSACTION HANDLED

SAMS processes the following types of transaction:

- large-value interbank transactions (the Latvian lats leg of foreign exchange deals, interbank loans, etc.);
- customer payments;
- settlement of final positions for EKS and retail clearings, e.g. FDL and the LCD; and
- monetary policy operations.

In addition, Latvijas Banka has an exclusive right to transfer funds directly between

participants' settlement accounts held in SAMS. This facility is used for:

- the settlement of net positions for EKS and retail clearings;
- the settlement of DvP transactions received from the LCD; and
- transactions relating to the granting of intraday and overnight credit.

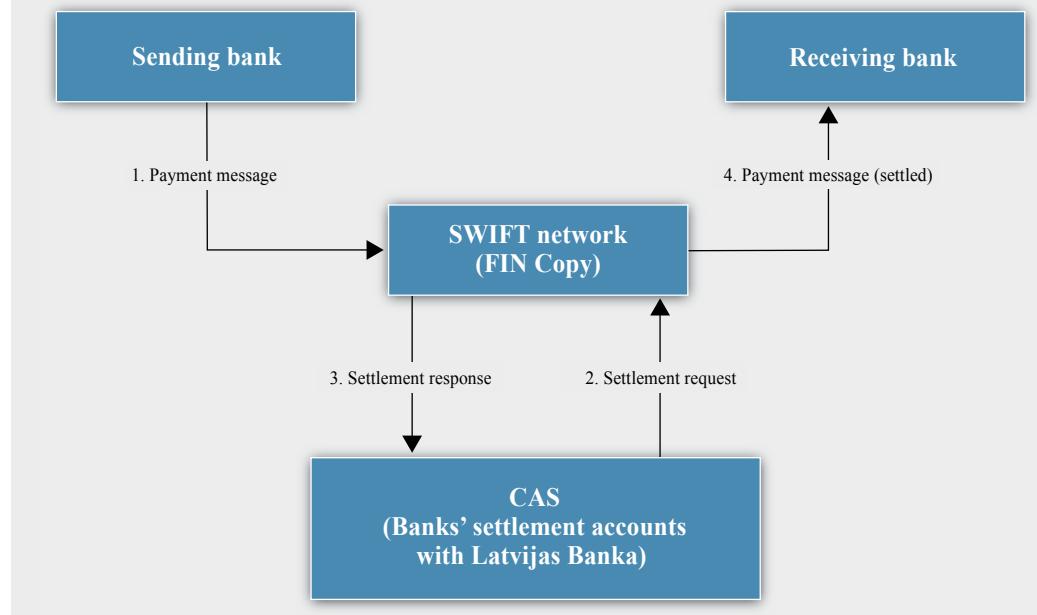
SAMS accepts the following SWIFT message types: MT 102 (multiple-customer credit transfer), MT 103 (single-customer credit transfer), MT 202 (general financial institution transfer) and MT 205 (financial institution transfer execution).

### 3.2.4 OPERATION OF THE SYSTEM

All participants in SAMS are members of a SWIFT closed user group, and the messages are processed using the SWIFT FIN Y-Copy (i.e. store-and-forward message processing) mode.

In Y-Copy mode a funds transfer in SAMS is initiated by submitting a SWIFT payment message addressed to the destination member. Before the message is passed to the receiving bank, it is intercepted and held pending by the FIN Copy service while a settlement response from Latvijas Banka is awaited. For this purpose, all the relevant data (the BICs of the sending and the receiving members, the value date, the value and the transaction reference number) are copied from the original message and sent to the CAS. The CAS then checks that there are sufficient funds in the sender's account to cover the payment. If there are sufficient funds in the account, the CAS settles the payment in real time by transferring the funds between the settlement accounts of the sending and receiving participants, and sends a settlement response to FIN Copy (see Chart 2). FIN Copy then forwards the queued payment message to the destination member. In the event that there are insufficient funds on the account

**Chart 2 Operation of the SAMS SWIFT FIN Y-Copy mode**



of the sending member, the payment is placed in SAMS' queue until sufficient funds are received.

#### **Timetable**

SAMS operates every business day from 8.30 a.m. to 5 p.m. CET+1. The timetable for SAMS is shown in Table 1.

**Table 1 The timetable for SAMS**

Time (CET+1)	Activity
8.30 a.m.	Open for business
4 p.m.	Customer payments (MT 102, MT 103) are closed
4 p.m.-4.30 p.m.	Participants must adjust their settlement account balances
4.30 p.m.	Interbank payments (MT 202, MT 205) are closed
4.30 p.m.-5 p.m.	Granting and settling of funds in the overnight marginal lending facility for those banks which still have a debit position at the end of the business day
5 p.m.	Close of business and archiving of data

#### ***Queuing***

The CAS queues payments that cannot be settled owing to the fact that the funds on the account of the sending member are insufficient. Payments are also queued if the system is busy or if one of the member accounts involved in the payment (or the whole of the CAS) is suspended. All queues are released on the basis of the FIFO principle, taking into account the priorities of the messages in a queue. The participants assign priorities when sending their messages. In the absence of any assigned priority, a default value is set by the system. Queued payments may be cancelled or have their priority changed by the sending member through the submission of a SWIFT message to SAMS. The highest payment priorities are reserved for Latvijas Banka.

#### ***Gridlock***

A payment system is in gridlock when payments cannot be settled via the normal sequential settlement process. A gridlock can be resolved either by using incoming funds from banks or through simultaneous settlement of queued

transfers using the CAS gridlock resolution algorithm. This is initiated periodically at a frequency of 30 minutes. Latvijas Banka's system manager can also initiate the gridlock resolution manually.

#### ***Enquiries and monitoring***

All participants can monitor the status of their accounts and payments in real time via their participant workstations, which are connected to the CAS via the ICN. Additionally, participants may submit enquiry requests in the form of SWIFT messages concerning the status of their accounts and payments sent to or from their accounts, including queued payments. The response from the CAS is automatically sent to the submitter of the enquiry request.

Latvijas Banka's system manager has exclusive access rights to information regarding participants.

#### **3.2.5 TRANSACTION PROCESSING ENVIRONMENT**

SAMS consists of two major components: the CAS and the SWIFT FIN Y-Copy service. The CAS provides the settlement and accounting facility for payment instructions and runs on IBM RS/6000 using an AIX operating system. SWIFT in turn provides the system with the communication network between the SAMS participants and the CAS.

The ICN is used to connect participant workstations, used for monitoring functions, and the CAS. The network infrastructure is provided by a telecommunication services company with local communication points in each bank. Frame relay technology is used as the primary connection, with ISDN as a backup. There is encryption of communication lines, and local firewalls have been implemented on the network devices; all electronic information is also electronically signed and encrypted using PKI software.

SAMS operates on a central server located on the premises of Latvijas Banka and is equipped with "hot backup" facilities.

#### **3.2.6 SETTLEMENT PROCEDURES**

SAMS accepts credit payments for same-day settlement only. However, it is possible to submit a payment message for next-day settlement after the close of the current business day. All members have access to collateralised overdraft facilities in the form of interest-free intraday credit limits (see Section 3.2.4).

Payments are settled in the order of arrival and in accordance with the particular priority level. The two sides of the transaction (debit and credit) occur simultaneously and have the same time stamp. When the receiving member receives the payment message, the payment has already been settled. As defined in the Regulation on interbank settlements effected by the Bank of Latvia, the payment order becomes irrevocable and the settlement becomes final at the moment the beneficiary's bank account is credited.

#### **3.2.7 CREDIT AND LIQUIDITY RISK**

The credit risk in SAMS is eliminated by settling funds in real time, using the SWIFT FIN Y-Copy mode (see Section 3.2.4), and by processing the payments only within the debit balance limit or the fully collateralised intraday credit limit. All funds on banks' settlement accounts, including minimum reserves, are available for settlement.

The intraday credit limit is free of charge and can be requested or changed at any time during the business day. If the participant wishes to change the intraday credit limit, it can apply to Latvijas Banka. Latvijas Banka in turn transfers the relevant securities from the participant's securities account to its collateral account via VNS, increases the participant's intraday credit limit in SAMS and sends the participant confirmation of the change in its intraday credit limit. In the event that a bank wishes to reduce its intraday credit limit, a similar, but reverse, procedure takes place.

If, at the end of the settlement day, there is a debit balance on a bank's settlement account,

Latvijas Banka allows the bank to make use of an automatic overnight lending facility, within the relevant debit balance limit, at a rate set by Latvijas Banka. As collateral, Latvijas Banka selects securities pledged for the intraday credit limit.

Additionally, members of the system can effectively monitor their liquidity in real time (see Section 3.2.4).

### 3.2.8 PRICING

The initial investment in SAMS was carried out by Latvijas Banka; participants merely need to provide adequate hardware and software of their own in order to be able to connect to SAMS via SWIFT and the ICN. There is no entry fee for participation in the system. For the time being only a volume-based regressive fee is levied from participants. The current transaction fee is LVL 0.80 (€1.15) for the first 100 payments per month, LVL 0.50 (€0.72) for the next 900 payments per month, and LVL 0.20 (€0.29) for all subsequent payments. In addition, the participants in the system bear all of the expenses related to the implementation of their SAMS participant workstations, as well as any expenses arising from SWIFT membership.

### 3.2.9 STATISTICAL DATA

In 2006 the volume of payment instructions processed in SAMS was 198,590, with a total value of LVL 51.6 billion (€73.4 billion).

## 3.3 LARGE-VALUE PAYMENT SYSTEMS

No other large-value payment systems play an important role in Latvia.

## 3.4 RETAIL PAYMENT SYSTEMS

### 3.4.1 E-MONEY SCHEMES

Two e-money schemes, e-Ls International and CityCredit, started operations in Latvia in 2005. Both schemes provide an internet-based e-money product, although CityCredit customers can also use prepaid cards as a tool for the conversion of cash into electronic liabilities.

e-Ls is an electronic system of accounting liabilities which is used for payments through the internet. Users can exchange electronic accounting units (e-money) denominated in different currencies, transferring property rights for any goods and services. Any participant in the system can be both a payer and a payee.

The main product offered by CityCredit is payment for car parking in various car parks in Riga. Payments are made by sending SMS instructions via mobile phones.

Both companies are still in the initial phase of their business activities, so the value of e-money issued and exchanged is still negligible.

The interest in issuing e-money in Latvia is growing. By the end of 2006 six non-licensed electronic money institutions had begun offering services. In accordance with the Credit Institution Law, these have informed Latvijas Banka about the commencement of their business activities.

### 3.4.2 CARD-BASED SCHEMES

FDL provides payment card data processing services to the banking system. The company (originally called BankServiss) was established by Latvian commercial banks in 1992.

FDL provides standard international processing services for a range of credit and debit card products available under the Eurocard/MasterCard (MasterCard International), Visa, American Express and Diners Club trademarks, as well as local card services for various domestic and retailer cards. For some banks the company also operates a card management system for both physical and virtual payment cards.

By the end of 2006 FDL supported a network of 16,256 POS and operated a network of 952 ATMs. The services provided by the card processing centre include management of the POS terminal and ATM networks, 24-hour online authorisation, collection of data,

transaction data processing and file preparation for settlement, as well as chargeback and retrieval request processing in accordance with the MasterCard and Visa account processing procedure.

International transactions using MasterCard and Visa products are cleared by MasterCard International and Visa respectively, and the card processing centre provides its customers with primary information processing by preparing the clearing information to be processed in international and local clearing systems. FDL provides multilateral clearing for participating banks and submits net positions to Latvijas Banka for final settlement.

In 2005 FDL was fully compliant with EMV chip technologies.

FDL processes transactions carried out using more than 1,600,000 cards (international and local debit and credit cards) each month, as well as over 4 million acquiring authorisations.

FDL, together with member banks, has introduced secure internet payment technology both for Visa (known as 3-D Secure) and for MasterCard (known as SecureCode) to protect Latvian internet merchants from fraudulent transactions. A secure internet solution has also been introduced to protect member bank cardholders when making purchases online.

In addition, the card processing centre provides its members with issuing services and is developing appropriate measures to reduce the number of fraudulent card transactions in Latvia and the consequent losses to banks, merchants and card users.

#### ***Future developments***

FDL, member banks and acquiring merchants in Latvia have plans to introduce integrated electronic cash registers and cardholder-activated terminals with EMV chip technology.

In addition, FDL has plans to bring the card processing centre into line with the new international payment card organisation standard known as PCI DSS (Payment Card Industry Data Security Standard).

### **3.4.3 RETAIL CREDIT, DEBIT AND CHEQUE TRANSFER SYSTEMS**

#### **3.4.3.1 EKS**

##### ***Organisational set-up***

EKS is an ACH system which handles bulk payments in electronic form.

EKS is owned by Latvijas Banka, which is responsible for formulating, issuing and applying the system's operating rules. In order to participate in the system, the banks sign a mutual agreement with Latvijas Banka, thereby accepting the rules, responsibilities and liabilities relating to their participation in EKS. In addition, participants sign a bilateral agreement with Latvijas Banka regulating the use of the ICN, which is used for the transfer of data to and from EKS.

The following steps are taken in order to minimise systemic risk in EKS:

- Direct participation in the system is granted to all banks. Non-bank entities are not authorised to participate in the system. In addition, procedures are established for removing a participant from the system.
- The system's operational procedures ensure that banks with a shortage of liquidity are able to arrange the transfer of the necessary funds from the interbank market via the RTGS system in order to cover their debit positions.
- As EKS's net positions are settled in SAMS, banks are provided with the same liquidity facilities by Latvijas Banka as in SAMS (see Section 3.2.7). The intraday liquidity facility substantially reduces delays in the final settlement.

- An unwinding procedure is established for exceptional circumstances, e.g. when a bank fails to meet its obligations by a specified cut-off time.
- Latvijas Banka ensures reliable operational and technical facilities to complete the daily processing activities of EKS.

Moreover, the changes to the Regulation on interbank settlements which came into force on 1 February 2002, to the effect that the amount of any single payment order in EKS must not exceed LVL 50,000 (around €71,839), have further reduced the possibility of liquidity and credit risk in the system and possible debit positions on the part of participants.

#### ***Participation in the system***

In addition to Latvijas Banka, any Latvian bank, any branch of a foreign bank registered in the Republic of Latvia or any credit institution registered and supervised in an EU or EEA country providing financial services in Latvia without opening a branch and complying with the provisions of the Credit Institution Law may become a participant in EKS. Owing to the risks involved in the net settlement system, non-banks are not authorised to take part in EKS. At the end of 2006 21 banks, one branch of a foreign bank and Latvijas Banka were participating in EKS.

#### ***Types of transaction handled***

EKS is a multilateral net settlement system which settles bulk payments with same-day value. EKS processes only corporate and retail payments in the form of electronic credit transfers. The message format of the payments processed corresponds to the SWIFT message type MT 103 (single-customer credit transfer).

#### ***Transaction processing environment***

EKS operates on a central server located on the premises of Latvijas Banka and is equipped with hot backup facilities. The ICN is used for the data exchange (see Section 3.2.5).

#### ***Settlement procedures***

Banks prepare files of payment instructions (batches) in electronic form, which are then submitted to Latvijas Banka daily between 8.30 a.m. and 3 p.m. CET+1. The calculation of multilateral net positions takes place twice a day at 10.30 a.m. and 3 p.m. CET+1, and multilateral net position are settled via banks' settlement accounts with Latvijas Banka. First, all the debit positions are settled, and only then does the settlement of the credit positions take place. In the event of a bank's failure to cover its debit position in the first cycle, settlement takes place up to the amount of the available funds on the settlement account. The remaining payments are then forwarded to the next cycle. If a bank fails to cover its debit positions in the second cycle, the settlement is postponed until that bank receives the necessary funds, but only until 4 p.m. CET+1. Funds can be received either from other banks via SAMS, or from intraday liquidity facilities. If the funds are not received by 4 p.m. CET+1, the system initiates the unwinding procedure, cancels all payment orders sent and received by the bank failing to cover its debit position, and recalculates the net positions for the remaining banks. After the execution of final settlement, EKS submits the accepted payment instruction files to receiving banks together with the clearing results. According to the Regulation on interbank settlements effected by Latvijas Banka, a payment order becomes irrevocable immediately after submission to EKS, and the net settlement becomes final once all credit positions within the relevant clearing cycle have been recorded.

#### ***Pricing***

To cover the system's operational costs, banks are charged a monthly regressive fee based on the volume of transactions. The fee is LVL 0.015 (€0.022) for the first 10,000 payments per month, LVL 0.007 (€0.01) for the next 90,000 payments per month, and LVL 0.002 (€0.003) thereafter.

### Statistical data

In 2005 the total volume of payment instructions processed in EKS was 21.8 million, with a total value of LVL 8.4 billion (€12.1 billion).

#### 3.4.3.2 Latvia Post

Latvia Post, which is authorised under the 1994 Postal Law to issue postal payment instruments, also manages the Postal Accounting System (PNS). The PNS was developed in 1996 and is managed by the Postal Accounting Centre, which is a branch of Latvia Post. The PNS ensures convenient, fast and secure execution of a variety of payments among private individuals and legal persons, using modern data processing technology and electronic data interchange. Only part of pensions and other social payments are still processed in the PNS in paper form. A number of different money orders and postal payment orders issued by Latvia Post are used as payment instructions in the PNS (see Section 2.2.5). This system benefits from an extensive branch network. At the end of 2006 Latvia Post had a network of 979 branches, and 178,291 accounts had been opened in the PNS.

#### 3.4.3.3 Itella

Itella (originally called the National Payment Centre) was established in 1998 by the company Swedgiro, which was a subsidiary of Swedish Post. In 2004 Finland Post acquired the National Payment Centre from Swedgiro. This system allows every utility company or commercial bank to join the giro system and thus provide direct debit instruments to their customers (see Section 2.2.3).

Itella's products and services encompass digital printing, data management, e-commerce transactions and direct marketing. Among those e-commerce transaction services are e-invoices, direct debits and giro payments. E-invoices are personalised electronic invoices, which the recipient can view on the internet using a specific user name and password. Direct debits are a payment method whereby the payer authorises a bank to transfer payments for services or goods to the payee using Itella's

direct debit system. Giro payments involve the collection of payment information from different banks, followed by its comparison, sorting and delivery to companies with a view to providing quick and accurate settlement. Itella receives billing files from partnership utilities, extracts files with the information required for direct debit instructions and sends instruction files to the respective banks. Direct debit transaction information received from banks is validated against billing files and sent to the utilities.

Itella provides information logistics solutions, i.e. solutions for communications which are going digital. Information logistics cover the management of information both on paper and in electronic format.

### 3.5 FUTURE DEVELOPMENTS

With the prospect of joining the euro area, the main focus is on TARGET2 and on adapting local systems and the legal framework to ensure smooth entry to this system, possibly with the first migration group.

The development of a retail payment system for payments in euro is still under discussion. At the same time, Latvijas Banka is still seeking to enhance the operation of the payment systems that it already operates.

## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

The basic categories of instrument traded in the Latvian securities market are as follows:

- Government debt securities traded on the RSE and the OTC market. Interest-bearing, fixed rate Treasury bonds can be issued with a maturity of two, three, five or ten years, whereas Treasury bills can be issued with a maturity of one, three, six or twelve months.

- Corporate debt securities traded on the RSE and the OTC market. This category includes corporate money market instruments (e.g. commercial paper and certificates of deposit), corporate bonds, mortgage bonds, etc. deposited with the LCD.
- Equity shares traded on the RSE and the OTC market.
- Mutual fund units.

At present there is no central market for derivatives, although some banks issue such instruments and trade them with their customers and other banks.

#### 4.1.1 INSTITUTIONAL ASPECTS

Most securities trading takes place at the RSE. The RSE is the sole licensed stock exchange in Latvia. It is 93%-owned by the OMX Group and is incorporated as a joint stock company. The RSE is a member of the NOREX trading alliance and thus operates a fully automated electronic continuous trading system (SAXESS) based on a public order book. Any bank or brokerage company licensed by the FCMC can become a member of the RSE. Remote (foreign) participants are also eligible for membership of the RSE. It is supervised and regulated by the FCMC. The operational procedures of the exchange, such as the rules for admission of new members, the listing requirements, the trading and quotation rules, and the clearing and settlement rules, are established in the Rules of the RSE.

The settlement of OTC trades is supported by the SSSs operated by the LCD and Latvijas Banka.

#### 4.1.2 OPERATIONAL ASPECTS

In order to buy or sell securities quoted on the RSE, an investor must approach an RSE member – a licensed bank or a brokerage company. The RSE had 20 members at the end of 2006 (9 local and 11 cross-border).

**Table 2 RSE trading day**

Time (CET+1)	Activity
8.30 a.m.	Open for business
9.45 a.m.-10 a.m.	Pre-opening auction period
10 a.m.	Opening auction
10 a.m.-1.50 p.m.	Trading period
1.50 p.m.-2 p.m.	Pre-closing auction period
2 p.m.	Closing auction
2.05 p.m.-2.30 p.m.	After-market trading

Since 27 September 2004 the RSE has been employing the SAXESS trading model, which is used by all OMX exchanges, as well as the NOREX alliance. The trading system has the following special features:

- transactions can be made simultaneously with securities traded on different exchanges;
- investors' transaction orders can be entered and matched automatically without the direct involvement of a broker; and
- multiple types of transaction order can be used (limit orders, market orders, etc.).

The official trading currency of the RSE is the lats. Securities denominated in euro or US dollars may be traded in RSE markets; if so, the payment will be in the relevant currency. The timetable for RSE activities is shown in Table 2.

The smallest tick size is the minimum price set for a security, by which a broker can alter transaction orders and buy confirmations displayed in the trading system. The smallest tick size for stocks listed on the RSE is LTL 0.01 (€0.014).

The minimum lot is the minimum quantity, set for each security, which may be entered in the trading system as a transaction order. The minimum lot for securities is one; hence, even

the smallest order can be entered in the trading system.

Trading in bonds and traded fund units takes place from 10 a.m. to 2 p.m. CET+1. There is no automatic matching of transactions; all transactions are executed as negotiated deals only. Bond prices are displayed in the trading system as a percentage of the nominal price, including accrued interest.

Latvian government securities are sold in the primary market through the RSE tender system. Prior to the auction, the Ministry of Finance publicly announces the auction details, e.g. the auction date, settlement date, offered amount and ISIN code. On the auction date, the system processes a competitive auction on the basis of the bids submitted by the participants. After the auction has been completed, the participants receive information about the results. The amount of securities issued is always equal to the amount of securities bought in the auction. One day after the competitive auction, a non-competitive auction is organised, and government securities are offered at the weighted average price of the competitive auction.

In the secondary market, government debt securities are bought and sold by Latvijas Banka through tenders or by market participants concluding trades mutually. (For details of the settlement of these transactions, see Sections 4.3.1.2 and 4.3.2.2.) Latvijas Banka also organises repo tenders for securities eligible for use in monetary policy operations.

## 4.2 CLEARING

There is no separate clearing house currently operating in Latvia.

## 4.3 SETTLEMENT

There are two SSSs in the Republic of Latvia: DENOS, operated by the LCD; and VNS, operated by Latvijas Banka (see Chart 3). Latvijas Banka and the LCD have established a

bilateral correspondent banking relationship to transfer securities from VNS to DENOS and vice versa. All eligible securities that are settled via VNS are registered with the LCD.

Transactions in Latvian government debt and highly rated corporate debt securities are settled in both SSSs. Trades in other Latvian securities (equities, other corporate debt securities and mutual fund units) are settled in DENOS. Automatically matched transactions are always settled on the third day after the transaction (T+3). The default day of settlement for negotiated deals is also T+3. Negotiated deals may have a settlement day between T+0 and T+40 inclusive. Settlement for OTC transactions may be up to T+360.

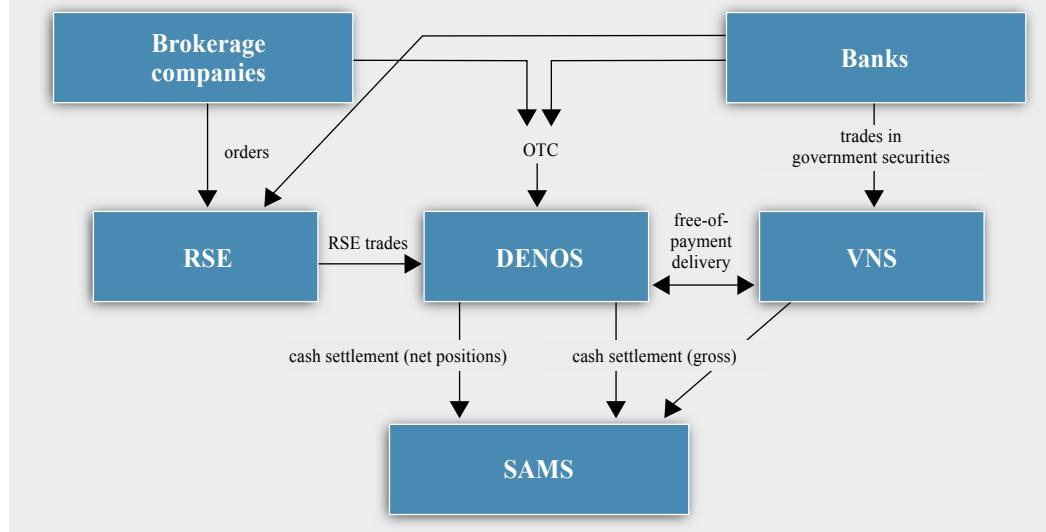
### 4.3.1 DENOS

#### 4.3.1.1 Institutional and legal aspects

DENOS, which was launched in June 1995, is an SSS operated by the LCD. The LCD is a private institution which operates in accordance with the 2003 Financial Instruments Market Law, as well as in compliance with the rules and regulations approved by the FCMC. As the CSD, the LCD provides safe custody services for deposited securities, clears and settles stock exchange and OTC trades, manages corporate actions and provides information to securities market participants. The LCD does not act as a central counterparty. The services of the LCD are available only to authorised participants; those participants are not, however, required to become LCD shareholders.

The LCD participants are banks, brokerage companies and securities issuers. Special participation status is granted to the RSE, Latvijas Banka, the Estonian CSD, the Lithuanian CSD, institutional investors and mutual funds. Banks and brokerage companies licensed by the FCMC to operate in the securities market are direct participants and may be custodians of securities accounts. Brokerage companies, however, are not allowed to open cash accounts and conduct cash settlements. Thus, their cash settlements are executed on the

Chart 3 Securities settlement systems in Latvia



basis of an agreement with a bank which is an LCD participant. For the safe custody and settlement of securities, individual investors open securities accounts with a bank or brokerage company which is an LCD participant. Institutional investors and investment funds can also open securities accounts with the LCD. An indirect participant has a securities account with the LCD and participates in DENOS via a direct participant. The direct participant records the securities on behalf of the indirect participant.

#### 4.3.1.2 Operational aspects

The daily operating hours of DENOS are from 9 a.m. until 6 p.m. CET+1 every business day.

DENOS performs the following transactions:

- DvP settlement for all transactions concluded and registered at the RSE;
- DvP settlement for OTC transactions;
- free-of-payment settlement for OTC transactions;
- transfers of securities portfolios;

– registration of pledging rights in relation to securities which are in public circulation in Latvia; and

– execution of corporate actions. (The LCD administers lists of shareholders for the purpose of general shareholder meetings, prepares lists of all shareholders as at a specific date, and pays dividends on shares and interest and principal on debt securities. Issuers use the LCD to allocate additional shares, to change the characteristics of securities and to execute other corporate actions.)

DENOS operates in a real-time processing environment. Only the LCD participants are authorised to initiate transfers in DENOS. Data exchange between the LCD participants is carried out electronically by applying special data formats to all documents used in securities transactions. At present, communication between the LCD and participants takes place using SWIFT messages sent through the SWIFT network and message files using dial-in access.

Two types of settlement are used by DENOS to settle securities transactions: net settlement and gross settlement.

Net simultaneous settlement of securities and cash (DVP Model 3) is used to settle transactions concluded at the RSE. The settlement day for trades concluded on the central and continuous markets is T+3, but for block trades it may be at any point between T+0 and T+40. The RSE uses a direct link to transmit information on concluded trades to the LCD on a daily basis. On the settlement day custodians must confirm trades in accordance with client instructions. Starting on the settlement day, the LCD calculates the multilateral net positions of market participants for securities and cash. If the securities positions are sufficient for settlement, the settlement cycle is started and the LCD sends an irrevocable instruction to Latvijas Banka to transfer cash. If cash positions are sufficient, Latvijas Banka transfers the cash, and the LCD transfers the securities. If the cash positions at Latvijas Banka are not sufficient, a second settlement attempt is made in the middle of the settlement day.

In order to minimise systemic risk, members of the RSE are obliged to contribute to a guarantee fund managed by the RSE. The guarantee fund contains only cash reserves and is used to ensure final settlement in the event of settlement failure owing to insufficient funds on the part of a participant. There is no possibility of unwinding a participant in the event of failure. As a result, the risk of another participant failing owing to the failure of the first participant is eliminated. If a participant fails, it must pay a penalty.

Gross simultaneous settlement of securities and cash (DVP Model 1) on a real-time basis is used to settle trades concluded either on the stock exchange (for the settlement period T+0 only) or on the OTC market. Each trade is settled separately. To initiate settlement for an OTC trade, brokers or custodians submit DvP instructions to the LCD. In order to facilitate communication, instructions can be submitted

by one counterparty, while the other counterparty confirms information that is received from the LCD. The LCD matches the instructions and, if necessary, requests confirmation. For matched trades, the LCD checks to see whether there is a sufficient amount of securities in the account of the seller. If so, it blocks the securities and sends an instruction to Latvijas Banka to transfer the cash. Latvijas Banka transfers the cash, and the LCD transfers the securities.

FOP transactions are executed on an RTGS basis. This type of settlement is used to settle FOP securities transfers between LCD participants, between the LCD and VNS, between the LCD and the Estonian CSD, and between the LCD and the Lithuanian CSD.

The LCD's transaction fees are regularly revised and set in accordance with its actual operational and administrative costs, which are thereby recovered. The fees differ for each type of transaction processed in the LCD.

In 2006 35,251 trades, with a market value of LVL 265 million (€377 million), were concluded on the RSE.

#### 4.3.2 VNS

##### 4.3.2.1 Institutional and legal aspects

VNS, launched in December 1993, is an SSS operated by Latvijas Banka and used mainly for its monetary policy operations. The Regulation on the securities settlement system of the Bank of Latvia determines the legal basis for VNS, for securities holdings and for transfers made through VNS. VNS does not act as a central counterparty.

Latvian and foreign banks which have a settlement account in lats with Latvijas Banka (i.e. a cash account) may be participants in VNS. The FCMC has been given special user status. Latvijas Banka also uses VNS to settle its monetary policy operations and to register operations with collateral.

#### 4.3.2.2 Operational aspects

VNS provides the following services:

- settlement of operations conducted with Latvijas Banka: (namely outright transactions, collateral services for refinancing operations, the marginal lending facility, intraday credit and forex transactions with securities collateral);
- securities transfers between VNS and DENOS;
- securities redemption and interest payments; and
- provision of statements of holdings and other settlement-related information.

VNS is a continuous gross settlement system. The transactions are processed individually in real time. The daily operating hours are from 8.30 a.m. to 5 p.m. CET+1 every business day. The system processes operations with government securities, as well as operations with highly rated corporate debt securities (a list of eligible securities being approved by the Chairperson of Latvijas Banka's Board) in the secondary market. All operations processed by VNS are OTC transactions. The SWIFT network is used for securities transfers initiated by VNS participants, with the exception of the FCMC.

VNS settles securities on both a DvP and an FOP basis.

DvP gross settlement is used to settle monetary policy operations of Latvijas Banka. VNS is linked to SAMS, so that the cash leg of a transaction can be settled if necessary. If the securities and cash positions are sufficient, SAMS transfers the cash and VNS transfers the securities. VNS uses DvP Model 1: both legs of a transaction, i.e. the securities leg and the cash leg, are settled on a real-time gross settlement (trade-by-trade) basis with final and irrevocable transfers of securities taking place simultaneously with the final transfer of funds.

FOP transfers are used to settle transactions between participants, pledge securities and transfer securities between VNS and DENOS. The deliverer of securities sends an unconditional credit transfer order in electronic format as a SWIFT message. VNS checks the balance on the account of the deliverer. If the relevant securities are in the account, the account is debited, the account of the receiver is credited and both are notified of the transaction.

VNS is a continuous RTGS system which settles transfer instructions for securities and funds on a trade-by-trade basis. The only condition for performing settlements is a sufficient balance on the securities account with VNS, thus eliminating settlement risk in the system. VNS has the capacity to monitor participants' accounts continuously during working hours. Both participants involved in the securities transfer promptly receive settlement confirmation.

VNS is an integral part of Latvijas Banka and operates as a not-for-profit entity. There are neither participation nor annual fees. Participants in VNS pay only transaction fees and a monthly custody fee. Statements of holdings and other settlement-related information are available upon request via SWIFT.

In 2006 VNS settled 1,412 transactions, with a total value of LVL 3.2 billion (€4.5 billion).

#### 4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY LATVIJAS BANKA

Latvijas Banka registers its holdings of domestic securities with VNS and uses it for settlement when carrying out operations directly related to monetary policy. Latvijas Banka mainly uses government securities deposited with VNS as collateral for monetary policy and intraday credit operations. However, certain corporate debt securities (i.e. those on a list of securities approved by the Chairperson of Latvijas Banka's Board) are also available for use as collateral for central bank operations.

Outright and reverse transactions, in which Latvijas Banka acts on its own behalf in implementing monetary policy, are executed in the form of tenders. Banks which are willing to enter into a deal with Latvijas Banka submit bids to Latvijas Banka via SWIFT. On the basis of concluded trades, the tender system initiates the respective transactions to be executed in VNS. Each deal is settled individually on a DvP basis on the trade date (T).

VNS processes operations involving collateral for intraday credit and for the overnight marginal lending facility concluded between commercial banks and Latvijas Banka. A bank may access the cash liquidity facilities provided by Latvijas Banka at any time during a settlement day by sending a request to Latvijas Banka. Upon receiving the request, Latvijas Banka calculates the necessary amount of collateral and checks the availability of collateral in the commercial bank's securities account with VNS. All collateral for transactions with Latvijas Banka is managed using a pooling method. If the necessary securities are not in VNS, the bank can transfer them from DENOS to VNS and then use them as collateral. The cash leg of the transaction is settled in SAMS (see Section 3.2).





# LITHUANIA

## CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>172</b>
<b>INTRODUCTION</b>	<b>173</b>
<b>1 INSTITUTIONAL ASPECTS</b>	<b>174</b>
1.1 The general institutional framework	<b>174</b>
1.2 The role of Lietuvos bankas	<b>175</b>
1.3 The role of other private and public sector bodies	<b>176</b>
<b>2 PAYMENT MEDIA USED BY NON-BANKS</b>	<b>176</b>
2.1 Cash payments	<b>176</b>
2.2 Non-cash payments	<b>177</b>
2.3 Recent developments	<b>178</b>
<b>3 INTERBANK PAYMENT SYSTEMS</b>	<b>179</b>
3.1 General overview	<b>179</b>
3.2 The RTGS system LITAS-RLS	<b>179</b>
3.3 The retail payment system LITAS-MMS	<b>182</b>
3.4 The retail payment system KUBAS	<b>183</b>
<b>4 SECURITIES TRADING, CLEARING AND SETTLEMENT</b>	<b>184</b>
4.1 Trading	<b>184</b>
4.2 Clearing	<b>186</b>
4.3. Settlement	<b>186</b>
4.4 The use of the securities infrastructure by Lietuvos bankas	<b>189</b>

## LIST OF ABBREVIATIONS

FMI	Financial brokerage company – <i>Finansų maklerio įmonė</i>
LCKU	Central Credit Union of Lithuania – <i>Lietuvos centrinė kredito unija</i>
LCVPD	Central Securities Depository of Lithuania – <i>Lietuvos centrinis vertybinių popierių depozitoriumas</i>
OMX	Exchange owner and operator in the Nordic and Baltic region and provider of financial services technology
VVPB	Vilnius Stock Exchange of Lithuania – <i>Vilniaus vertybinių popierių birža</i>
VPK	Lithuanian Securities Commission – <i>Lietuvos Respublikos vertybinių popierių komisija</i>

## INTRODUCTION

A number of significant steps have been made towards improving the Lithuanian payment and securities settlement infrastructure in recent years. The real-time gross settlement system LITAS, replacing the previous payment system TARPBANK, was introduced in 2004. The introduction of LITAS markedly improved the quality of the services offered by Lietuvos bankas (Bank of Lithuania). In addition, the Central Securities Depository of Lithuania (LCVPD) introduced the new securities settlement system in 2004. At the beginning of 2007 LITAS was replaced by two new payment systems: the real-time gross settlement system LITAS-RLS and the retail payment system LITAS-MMS. With a view to the enlargement of the euro area Lietuvos bankas has been preparing for participation in TARGET2.

With regard to means of payment, cash still plays an important role in the area of payments. However, its popularity is declining with the development of new technologies in the non-cash payments market. Internet banking is rapidly gaining in popularity. The use of cards with a debit function and cards with a credit function has also increased substantially in recent years. The latest developments include the introduction of mobile banking services.

Considerable changes have been made to the legal framework in the payment and securities settlement field. In order to transpose EU Directives, a number of laws have been amended or new laws adopted. The Law on payments has been amended to transpose Directive 97/5/EC on cross-border credit transfers and Commission Recommendation 97/489/EC concerning transactions by electronic payment instruments. The Law on settlement finality in payment and securities settlement systems has been adopted in order to transpose Settlement Finality Directive 98/26/EC.

Upon Lithuania's accession to the European Union Lietuvos bankas became a member of the European System of Central Banks, which

comprises the European Central Bank and the national central banks of all EU Member States. It participates in the work of the General Council of the ECB and the committees of the ESCB in developing and adopting the decisions of the ESCB, *inter alia* in the field of payment and securities settlement systems. Moreover, through an amendment of the Law on the Bank of Lithuania, Lietuvos bankas obtained exclusive responsibility for the oversight of payment and securities settlement systems.

## I INSTITUTIONAL ASPECTS

### 1.1 THE GENERAL INSTITUTIONAL FRAMEWORK

The core of the Lithuanian payment infrastructure comprises banks, which provide payment services to individuals, companies and organisations, and Lietuvos bankas, which provides fund transfer services to banks. Lietuvos bankas also provides cash settlement services to capital market intermediaries for the settlement of securities transactions. The functions related to the settlement of securities transactions are performed by the LCVPD.

The legal basis for property relations between private individuals is the Civil Code of the Republic of Lithuania (18 July 2000, No VIII-1864), which, *inter alia*, establishes the general principles for the contractual relations between banks and customers with regard to opening accounts and executing payments.

The main provisions with respect to payments within the Republic of Lithuania and cross-border payments are stated in the Law on payments (28 October 1999, No VIII-1370, as amended on 15 July 2004, No IX-2404). This lays down the rules governing payment instruments, the relations between credit institutions and customers in effecting payments and the payment procedure. The legal foundation for the safe and reliable operation of payment and securities settlement systems was established through the adoption of the Law on settlement finality in payment and securities settlement systems (5 June 2003, IX-1597) which ensured that the interests of system participants would be safeguarded in the event that a participant's operations were suspended or bankruptcy proceedings were initiated against it.

The activities of banks are regulated by the Law on banks (30 March 2004, No IX-2085). However, this Law does not contain specific provisions with regard to payments. Its purpose is to regulate the activities of banks in order to ensure a stable, reliable, efficient and safe

banking system. It defines the procedures and terms for the establishment and licensing of banks, as well as the specific characteristics of their activities. Other legal acts also regulate banking activities and specify standards for these activities. Banks carry out all types of banking operation, including those related to payments.

Pursuant to the Law on currency (1 July 1993, No I-199) the current monetary unit is the litas (LTL), which consists of one hundred centas. The Law on foreign currency (7 July 1993, No I-202, as amended on 22 October 2002, No IX-1140) allows the foreign currency to be used for non-cash payments and settlements by agreement between the parties, while the euro may also be used for payments and settlements in cash.

There are no limits on cash and non-cash payments in Lithuania. However, according to the Law on the prevention of money laundering (19 June 1997, No VIII – 275, as amended on 27 April 2004, No IX-2189), banks and other credit institutions are obliged to identify the customer and notify the relevant state institution with jurisdiction in this matter whenever the amount of a non-cash payment transaction exceeds a specified amount.

The Law on the credibility of the litas (17 March 1994, No I-407) specifies that the litas put into circulation by Lietuvos bankas shall be fully covered by Lietuvos bankas' gold and foreign currency reserves. Pursuant to the procedure set forth in this law, the official exchange rate of the litas is fixed against the chosen anchor currency (which, since 2 February 2002, has been the euro).

Other relevant items of legislation are the Law on bills of exchange and promissory notes (16 March 1999, No VIII-1087) and the Law on cheques (16 March 1999, No VIII-1088). These two laws comply with the respective Geneva Conventions.

The legal framework for a safe, open and efficient functioning of the securities market is provided by the Law on markets in financial instruments (18 January 2007, No X-1024), which came into effect on 8 February 2007. The Law on markets in financial instruments replaced the Law on the securities market (17 December 2001, No IX-665). The Law on markets in financial instruments stipulates that all securities issued in Lithuania are to be in book-entry form. It also regulates the activities of the LCVPD, which it entrusts with opening and managing securities accounts for account managers and personal accounts in the manner laid down by the Lithuanian Securities Commission (VPK), and with ensuring that transacted securities are entered into securities accounts in a timely manner. This therefore gives the LCVPD an exclusive role as the securities register in the securities settlement system.

## 1.2 THE ROLE OF LIETUVOS BANKAS

### 1.2.1 GENERAL RESPONSIBILITIES

Lietuvos bankas is the country's national central bank and is wholly independent from the government. Lietuvos bankas is a member of the European System of Central Banks. Its primary objective, as stated in the Law on the Bank of Lithuania (13 March 2001, No IX-205, as amended on 15 April 2004, No IX-2139), is to maintain price stability. In the pursuit of its primary objective, Lietuvos bankas performs the following functions: it issues the currency of the Republic of Lithuania; it formulates and implements monetary policy; it manages, uses and disposes of foreign reserves; it acts as a State Treasury agent; and it issues and revokes licences to credit institutions and supervises their activities, etc. As regards payment and securities settlement systems, the function of Lietuvos bankas is to encourage the stable and efficient operation of payment and securities settlement systems. Lietuvos bankas carries out the activities necessary for the implementation of its functions and for the development and maintenance of the infrastructure needed for their implementation.

### 1.2.2 THE OVERSIGHT OF PAYMENT AND SECURITIES SETTLEMENT SYSTEMS

The oversight role of Lietuvos bankas in respect of the payment and securities settlement systems was formalised in 2003 when the new function related to oversight activities was defined in the Law on the Bank of Lithuania. In September 2003 the Board of Lietuvos bankas approved the Payment and Securities Settlement Systems Oversight Policy, in which Lietuvos bankas defined and disclosed the objectives and measures of oversight. In the area of systems oversight Lietuvos bankas gives priority to systematically important payment systems and securities settlement systems. The Core Principles for Systemically Important Payment Systems were recognised as the standard for the oversight of payment systems. The Recommendations for Securities Settlement Systems were recognised as the standard for the oversight of the securities settlement system. Moreover, a definition was made of the basic concepts underlying the relevant oversight measures – system registration, assessment and monitoring.

The registration and deregistration of payment and securities settlement systems and the management and announcement of the official list of registered systems is carried out in accordance with the Procedure for the Registration of Payment and Securities Settlement Systems, Data Management and Publication approved by the Board of Lietuvos bankas.

System monitoring involves a periodic analysis of the status of the systems in-between system assessments.

In assessing systems, Lietuvos bankas checks for their compliance with the Core Principles for Systemically Important Payment Systems, the Recommendations for Securities Settlement Systems established by the Bank for International Settlements, and/or other standards, principles and recommendations established by international institutions and organisations.

### **1.2.3 OPERATIONAL ROLE OF LIETUVOS BANKAS**

Lietuvos bankas owns and operates LITAS-RLS and LITAS-MMS, and through them provides funds transfer services for account holders. Credit institutions in Lithuania hold settlement accounts with Lietuvos bankas to facilitate the settlement of their own and their customers' payments. LCVPD and securities market intermediaries also hold settlement accounts at Lietuvos bankas for the cash settlement of securities transactions.

The procedure for accepting and excluding system participants, the rights and obligations of the system operator and participants, the procedure for processing payment instructions, and the risk management measures are laid down in the Rules of Operation of the Payment System LITAS-RLS and in the Rules of Operation of the Retail Payment System LITAS-MMS (28 December 2006, No 173), as approved by the Board of Lietuvos bankas. Lietuvos bankas enters into a bank account agreement with an entity that meets the requirements for participants as stipulated in the Rules. Once the agreement has been entered into, Lietuvos bankas opens a settlement account for the entity, and this then acquires the status of system participant.

### **1.2.4 COOPERATION WITH OTHER INSTITUTIONS**

When Lithuania became a Member State of the EU on 1 May 2004, Lietuvos bankas became a member of the ESCB. Participation in the ESCB involves close cooperation with the national central banks and banking supervision institutions of the EU Member States.

In fulfilling its functions Lietuvos bankas cooperates with the competent national bodies: the Lithuanian Securities Commission, the LCVPD and the Association of Lithuanian Banks (see Section 1.3).

## **1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES**

### **1.3.1 LITHUANIAN SECURITIES COMMISSION**

The VPK is an independent capital market supervisory institution. Since January 1996 the VPK has been organising its activities in accordance with the Law on markets in financial instruments. This Law established the VPK as an independent institution reporting directly to the Seimas (Parliament) of the Republic of Lithuania. The VPK authorises capital market intermediaries, registers securities issues and regulates the securities market.

### **1.3.2 THE CENTRAL SECURITIES DEPOSITORY OF LITHUANIA**

The LCVPD operates on the basis of the Law on markets in financial instruments. The main functions of the LCVPD are to conduct the general accounting of book-entry securities, specify accounting procedures for its members and perform securities transfers between accounts. The LCVPD also operates the settlement system for securities transactions traded on the Vilnius Stock Exchange (VVPB) and over the counter.

### **1.3.3 REPRESENTATIVE BODIES**

The Association of Lithuanian Banks represents the interests of banks. The interests of securities market intermediaries are represented by the Lithuanian Financial Brokerage Association. The National Consumer Rights Protection Board is responsible for consumer protection (bank customers).

## **2 PAYMENT MEDIA USED BY NON-BANKS**

### **2.1 CASH PAYMENTS**

Pursuant to the Law on the Bank of Lithuania, Lietuvos bankas has the exclusive right to issue banknotes and coins. Lietuvos bankas is responsible for putting into and withdrawing from circulation the currency of the Republic of Lithuania. The unit of currency, which was introduced on 25 June 1993, is the Lithuanian

litas, which is divided into one hundred centas. There were nine banknote denominations (LTL 1, 2, 5, 10, 20, 50, 100, 200 and 500) and 9 coin denominations (1, 2, 5, 10, 20 and 50 centas; and LTL 1, 2 and 5) in 2006.

As at the end of 2006 banknotes in circulation accounted for 98.2% of the value of all cash, with coins making up the remaining 1.8%.

Recently, owing to technological developments within the banking sector and the growing accessibility of electronic payment methods, an increasing tendency towards the use of cashless payment instruments has become evident. The transfer of salaries, student grants, educational allowances and social allowances to the bank accounts of beneficiaries has resulted in a continual increase in the number of payment cards, ATMs and POS terminals. However, cash still continues to play an important role as a form of payment in Lithuania.

## 2.2 NON-CASH PAYMENTS

### 2.2.1 CREDIT TRANSFERS

Credit transfers are one of the most commonly used payment instruments for non-cash payments in Lithuania. The volume and value of credit transfers increased continually between 2002 and 2006. In 2006 Lithuanian banks executed 82.0 million credit transfers, with a value of LTL 1,149 billion (€332.9 billion). In 2006 credit transfers accounted for 52.1% of all non-cash payment instruments in terms of volume and 99.0% in terms of value. The average value per transaction tended to be high and exceeded the average transaction value for other non-cash payment instruments. Payment instructions can be submitted to banks in paper-based or non-paper-based form. Paper-based credit transfers are executed upon submission of a paper-based payment instruction form. In 2006 60.5% of all payment instructions were sent to banks electronically, as compared with 68.8% in 2005, 50.2% in 2004 and 38.2% in 2003.

### 2.2.2 CHEQUES

Cheques are not popular in Lithuania. The volume of payments made using cheques accounts for a negligible share of the total volume of all non-cash payment transactions. In 2006 cheques accounted for only 0.2% of all non-cash payment instruments in terms of volume and 0.3% in terms of value.

### 2.2.3 DIRECT DEBITS

Direct debits have been used in Lithuania since 1997. In 2006 direct debits accounted for 3.9% of all non-cash payment instruments in terms of volume. The direct debit is used for recurrent payments – e.g. to pay for telecommunications or other utilities, insurance payments or leasing instalments – where the payment is initiated by the payee. Direct debit instructions can be submitted to banks in paper-based or non-paper-based form. For the vast majority of direct debits, the payer and payee have accounts with the same bank. However, the direct debit can also be used where the payer and the payee have accounts with different banks. In this case direct debits are routed through LITAS-MMS.

### 2.2.4 PAYMENT CARDS

There has been a substantial rise in the use of payment cards in recent years. By the end of 2006 3.5 million payment cards (1 per person) had been issued in Lithuania. Consequently, the value and the volume of payments made using payment cards has grown significantly; since 2002 the volume of payments made using payment cards has increased more than fourfold and the value of payments made using payment cards has increased more than fivefold.

Payment cards account for a significant share of total non-cash payments in terms of volume. In 2006 the volume of payments by payment cards accounted for 43.8% of total non-cash payments, as compared with 30.6% in 2002. Payment cards are usually used to make small-value payments, with the average value of a single payment being 106 LTL (€31) in 2006. To a large extent the growth of the payment card market is due to the development of innovative services and successful marketing.

As at the end of 2006 nine out of eleven banks in Lithuania were issuing payment cards.

#### **Cards with a debit function**

Cards with a debit function are the most popular form of payment card in Lithuania. At the end of 2006 they accounted for 90.8% of all payment cards issued in the country. International cards appear to predominate and account for 99.8% of all cards with a debit function, while domestic cards have only a negligible share of all cards with a debit function. All banks that issue international cards are members of Visa International and/or MasterCard International card schemes. In the recent period only one Lithuanian bank has issued domestic cards with a debit function, which are used for payments and cash withdrawals in Lithuania.

#### **Cards with a credit function**

In Lithuania cards with a credit function are not as widespread as cards with a debit function. At the end of 2006 cards with a credit function accounted for 6.9% of all payment cards issued. However, the number of cards with a credit function is increasing rapidly. Currently all cards with a credit function are international cards issued by Visa or MasterCard.

#### **Retailer cards**

Lietuvos bankas does not collect statistical information on the extent to which retailer cards are used in Lithuania. Such cards are largely offered by petrol stations and supermarkets. They are usually free of charge, and companies attract customers by offering discounts on selected goods and services when using retailer cards.

#### **Cards with an e-money function**

There is one card with an e-money function, which was launched in May 1996. A wide service network, which was developed immediately after the scheme was launched in Lithuania, resulted in a situation whereby cards with an e-money function were more popular than the traditional payment cards that were introduced at around the same time. However, the situation has changed in the meantime. The

widespread use of international payment cards and the wide POS network have entailed a decline in the market share of cards with an e-money function, which was 2.3% at the end of 2006.

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

All ATMs and EFTPOS terminals in Lithuania are interoperable. Most banks have their own ATMs. EFTPOS terminals are usually owned by retailers and enterprises maintaining POS networks. First Data Lietuva Ltd is the major payment card processing centre in Lithuania and provides for the connection of ATMs and EFTPOS terminals to VISA International and MasterCard International payment card networks.

All ATMs can be used to withdraw cash and check account balances. Moreover some banks have extended the functions of their ATMs; cardholders can, for example, use ATMs to transfer funds within the bank, to pay for mobile phone services or to deposit cash.

Today the great majority of POS are equipped with EFTPOS terminals, with imprinters generally being used as a back-up facility. Payment cards usually require online authorisation.

As a response to the growing use of payment cards, ATM and POS networks have been expanding continually. Since 2002 the number of ATMs in Lithuania has increased by 29%, the number of POS terminals by 101%, and the number of e-money card-accepting terminals by 15%.

### **2.3 RECENT DEVELOPMENTS**

At the beginning of 2004 the IBAN account number standard was implemented in Lithuania. The IBAN facilitates the STP of payment transactions throughout the processing chain. Currently the IBAN is the only account number standard used for processing both national and cross-border transactions.

Electronic payments are becoming more popular. All Lithuanian banks offer internet

banking products to their customers. In addition to traditional credit transfer forms, the majority of banks offer special payment forms for utility and other services. In addition, it has become possible to receive e-invoices from service providers via internet banking applications, and to verify and pay the bills received from service providers.

Several private enterprises have introduced schemes enabling their customers to receive e-invoices via internet, fill in payment forms for utility, telecommunication, cable TV or other services and to pay for them. Money is withdrawn from the customer's bank account.

Some banks already offer the possibility of using WAP banking applications. Using a mobile phone, customers can check account balances and lists of executed transactions and make domestic and cross-border payments.

For some years the majority of banks have been offering a service whereby their customers can check their account balances and execute transactions using SMS messaging. Moreover, mobile payment services have been expanded to include funds transfers by SMS between the accounts of customer of the same bank, or to pre-determined payees.

Banks are striving to ensure the safety of cardholder data and are therefore improving payment card technology. All payment cards feature a magnetic strip, but for cardholder safety purposes banks have started using integrated chips. Expired magnetic cards are usually replaced with chip cards. In addition, old POS terminals have been gradually upgraded or replaced with new ones, thus enabling payments by chip card.

### 3 INTERBANK PAYMENT SYSTEMS

#### 3.1 GENERAL OVERVIEW

There are three interbank payment systems currently operating in Lithuania: LITAS-RLS,

LITAS-MMS and KUBAS. All of these systems are overseen by Lietuvos bankas and are designated systems in accordance with the Settlement Finality Directive.

LITAS-RLS is a fully-fledged RTGS system and LITAS-MMS is a retail payment system. The owner and operator of both systems is Lietuvos bankas. KUBAS is designed to process payments between credit unions (cooperative credit institutions) and their customers. KUBAS is owned and operated by the Central Credit Union of Lithuania (LCKU).

#### 3.2 THE RTGS SYSTEM LITAS-RLS

LITAS-RLS was launched on 29 January 2007 and together with the retail payment system LITAS-MMS replaced the previous payment system, LITAS. LITAS-RLS was developed by Lietuvos bankas in close cooperation with other stakeholders (the LCVPD and banks).

##### 3.2.1 OPERATING RULES

LITAS-RLS is regulated by the Rules of Operation of the Payment System LITAS-RLS, as approved by the Board of Lietuvos bankas on 28 December 2006. These Rules were published in the Official Gazette and are available on Lietuvos bankas' website ([www.lb.lt](http://www.lb.lt)) in both Lithuanian and English.

The Rules of Operation cover the basic areas of LITAS-RLS operation, i.e. its purpose, the procedure for admission and exclusion of participants, the rights and obligations of Lietuvos bankas and participants, the procedure for processing payment instructions, the finality and irrevocability of payments, the instances in which payments can be rejected, opening hours, credit, liquidity and operational risk management measures, the principles for setting service fees and the continuity of LITAS-RLS operations.

The Board of Lietuvos bankas has also approved other documents relating to LITAS-RLS operations, namely the Rules on the Conclusion and Execution of Intraday and Overnight Repurchase Agreements between the Bank of

Lithuania and Participants of the Payment System LITAS-RLS (as amended on 28 December 2006, No 173), and the Rules of the Bank of Lithuania on the Electronic Certification System.

In order to enforce all the aforementioned rules, Lietuvos bankas enters into contractual agreements with counterparties.

### 3.2.2 PARTICIPATION IN THE SYSTEM

In addition to Lietuvos bankas, the following entities may be admitted as participants in LITAS-RLS: credit institutions and investment firms established in the EEA and supervised by competent supervisory authorities, the Ministry of Finance of the Republic of Lithuania, the LCVPD, the LCKU and the institutions that provide clearing and settlement services and are supervised by competent authorities. In addition, branches of banks established in non-EEA states that have been granted permission by Lietuvos bankas are also entitled to participate in LITAS-RLS. While Lietuvos bankas requires potential participants to fulfil certain legal and technical requirements, financial requirements are not applied.

At the commencement of LITAS-RLS there were 23 participants: ten credit institutions established in Lithuania, two branches of credit institutions established in the EEA, and nine domestically established FMIs. The remaining two participants were Lietuvos bankas and the LCVPD, the operator of the securities settlement system. There were no remote participants.

### 3.2.3 TYPES OF TRANSACTION PROCESSED

LITAS-RLS processes domestic real-time payments. Settlements are carried out in the national currency, the litas.

All participants in LITAS-RLS may initiate credit transfers, and Lietuvos bankas may initiate both credit and debit transfers. Debit transfers are mostly used for debiting the fees for the services provided to system participants. Payment agents – that is, Lietuvos bankas and the LCVPD – may submit special payment

orders. Such payment orders are used to initiate transfers of other participants in the LITAS-RLS system.

LITAS-RLS also creates conditions for the final settlement of ancillary systems. Since the start of its operations, LITAS-RLS has settled the positions of the SSS operated by the LCVPD and the retail payment system LITAS-MMS operated by Lietuvos bankas.

### 3.2.4 SYSTEM OPERATION

LITAS-RLS operates on business days established in the Republic of Lithuania. The system starts receiving payment instructions from 7.45 a.m. local time, i.e. CET+1. The processing of payment order starts at 8 a.m.

A payment order submitted to LITAS-RLS is validated by the system if its structure conforms to the message structure requirements described in LITAS-RLS technical documentation. If the payment order is verified and recognised as correct, an attempt is made to settle it immediately. If the sending participant does not have sufficient funds, payment orders are placed into the payment queue. Participants have various possibilities for payment queue management, i.e. they can:

- cancel a payment order;
- change the priority of a payment order;
- temporarily suspend the processing of a payment order. The suspended payment order remains in the queue, but is not processed. If its suspension is not revoked, the payment is removed from the payment queue at the end of day.

The cut-off time for customer and interbank payments is 4 p.m. Payment orders remaining in the queue after the cut-off time are processed by the special procedure, which begins with the application of the multilateral offsetting procedure and is followed by the continuous bypass FIFO processing method. Payment

orders not settled during this procedure are removed from the payment queue.

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

Communication between LITAS-RLS and its participants takes place by means of a proprietary message exchange system (PAS), which was developed by Lietuvos bankas and has been functioning since January 2004. PAS receives and sends messages based on XML syntax, checks them, ensures security of messages and maintains the message exchange log. Payment messages are processed using a V-shaped message flow structure.

LITAS-RLS has a secondary site, which is physically separated from the primary site. Synchronous data mirroring ensures that the core components and processes will be available without any loss of data in the event of a failure of the primary site.

In LITAS-RLS all messages transferred are signed using the digital signature certificates issued by the operators of the Electronic Certification System of Lietuvos bankas. The usage of PKI-based technology ensures a high level of transaction security.

### 3.2.6 SETTLEMENT PROCEDURES

LITAS-RLS has liquidity saving and gridlock resolution procedures in place for payment orders. An attempt is first made to settle every payment order by the bilateral offsetting procedure (known as the bilateral optimisation procedure). The system analyses whether there is an incoming payment, the simultaneous processing of which would save funds. This procedure succeeds only if such a payment order is found. If there is no incoming payment, LITAS-RLS settles the payment order on a gross basis by debiting the sending participant's settlement account with Lietuvos bankas and crediting the beneficiary's account. The time span for such transaction is calculated in seconds.

The multilateral offsetting procedure is designed for gridlock resolution. It may be performed

regularly during the day and at the end of the day automatically according to the parameters set by the system operator in advance.

### 3.2.7 CREDIT AND LIQUIDITY RISK

Payment orders processed in LITAS-RLS do not pose a credit risk, as a check is conducted prior to every settlement of a payment order as to whether the available funds of a system participant are sufficient for the settlement of the payment order.

LITAS-RLS participants can monitor the operation of the system online and in real time. They are informed of all events taking place during the operation day and are able to monitor settled payments, settlement balances and their queues.

LITAS-RLS has an efficient queuing facility which provides for the possibility of prioritisation. Payment instructions are queued according to their priority, as defined by participants, and the instruction submission time. Participants have a number of options as to how to manage the queue, i.e. they can cancel, change the priority of or temporarily suspend the processing of a payment order.

Lietuvos bankas may conclude intraday and overnight repurchase agreements with LITAS-RLS participants for the purposes of providing them with liquidity.

### 3.2.8 PRICING

LITAS-RLS service fees are based on the principles of full cost coverage, transparency and equality of treatment of system participants. The costs taken into account include development costs, operating costs and overheads. No public good factor is applied. There is no entry or annual fee. Participants pay only for each of their initiated and settled payment orders. The fee for each payment order settled is LTL 0.31 (€0.09).

### 3.2.9 STATISTICAL DATA

In the first quarter of 2007 LITAS-RLS processed a daily average of 1,016 payment

orders with a value of LTL 934.5 million (€270.6 million).

### 3.3 THE RETAIL PAYMENT SYSTEM LITAS-MMS

LITAS-MMS began operations on 29 January 2007 and performs the function of automated clearing house.

#### 3.3.1 OPERATING RULES

The legal framework for LITAS-MMS is similar to that for LITAS-RLS. LITAS-MMS is regulated by the Rules of Operation of the Retail Payment System LITAS-MMS, as approved by the Board of Lietuvos bankas on 28 December 2006. These Rules were published in the Official Gazette and are available on Lietuvos bankas' website ([www.lb.lt](http://www.lb.lt)) in both Lithuanian and English.

In order to enforce the aforementioned rules, Lietuvos bankas enters into contractual agreements with counterparties.

#### 3.3.2 PARTICIPATION IN THE SYSTEM

Only a participant in LITAS-RLS that has its settlement account in litas in LITAS-RLS may become a participant in LITAS-MMS. In addition, several requirements are applied to LITAS-RLS participants that wish to participate in LITAS-MMS. They should have the relevant hardware and system software installed and perform the requisite testing procedures.

#### 3.3.3 TYPES OF TRANSACTION PROCESSED

LITAS-MMS was designed for the processing of payment orders in litas at a designated time. All participants of the system may initiate credit and debit payment orders. Although LITAS-MMS is oriented towards the retail payment market, it does not establish any maximum limit on the value of a payment order.

In addition, LITAS-MMS provides services to its participants for exchanging file management instructions. These files, the management of which is the responsibility of the participants, store the information on submitted, but not yet

settled, debit transfers when settling for agricultural production, as well as instructions related to enforceable instruments. Using the technical solutions of LITAS-MMS, the participants of the system may exchange file management instructions, initiate debit transfers and, if the debit transfer was not settled during the day of its submission, initiate credit transfers at a later stage on the basis of the information obtained through debit transfers.

#### 3.3.4 SYSTEM OPERATION

LITAS-MMS operates on the LITAS-RLS business days. Participants may submit debit payment orders from 7.45 a.m. to 3 p.m. and credit payment orders from 7.45 a.m. to 3.30 p.m. local time. The instructions for confirming the accepted debit transfers or changing settlement conditions may be submitted by 3.30 p.m. Payment orders are processed four times per day: at 9 a.m., noon, 3 p.m. and 3.30 p.m. local time.

Participants of LITAS-MMS have the same possibilities for payment queue management as in LITAS-RLS.

#### 3.3.5 TRANSACTION PROCESSING ENVIRONMENT

LITAS-MMS shares the processing environment with LITAS-RLS (see 3.2.5).

#### 3.3.6 SETTLEMENT PROCEDURES

LITAS-MMS calculates net liabilities and net claims of participants obtained by netting payment orders. The final settlement of LITAS-MMS, i.e. the transfer of net positions between settlement accounts, takes place in LITAS-RLS through a special account opened in this system. First of all, the funds are accumulated in this account from those participants that have a net liability with respect to other participants of the system according to net positions. Then, the amount accumulated in this account is credited to participants that have a net claim with respect to other participants of the system according to net positions.

### 3.3.7 CREDIT AND LIQUIDITY RISK

The credit risk is virtually eliminated, since the calculation of net positions is based on the information on the funds actually available in the settlement accounts. If the funds are insufficient for the settlement of all payment orders that were submitted, those payment orders that have the lowest priority and were sent last are left by the system in the payment queue until the next clearing.

Liquidity risk is managed by the participants in the system through liquidity risk management measures of LITAS-RLS. Moreover, the participants of LITAS-MMS may adjust the forthcoming net position by changing priorities of, suspending or cancelling payment orders.

### 3.3.8 PRICING

LITAS-MMS service fees are based on the principles of full cost coverage, transparency and equality of treatment of system participants. The costs taken into account include development costs, operating costs and overheads. No public good factor is applied. There is no entry or annual fee. Participants pay only for each of their initiated and settled payment orders. The fee for each payment order settled is LTL 0.28 (€0.08).

### 3.3.9 STATISTICAL DATA

In the first quarter of 2007 LITAS-MMS processed a daily average of 94,208 credit transfers and 377 debit transfer orders with a value of LTL 877.1 million (€254.0 million) and LTL 0.5 million (€0.15 million) respectively.

## 3.4 THE RETAIL PAYMENT SYSTEM KUBAS

KUBAS was developed to serve the specific needs of credit unions. The system is owned and operated by the LCKU. In February 2004 KUBAS was designated in accordance with the Settlement Finality Directive. Since then the system has been subject to oversight by Lietuvos bankas.

### 3.4.1 OPERATING RULES

The LCKU concludes bank account agreements with participants of KUBAS, whereby parties agree, *inter alia*, to follow the settlement procedure for payment orders. The settlement procedure was approved by the Board of the LCKU on 23 December 2003.

### 3.4.2 PARTICIPATION IN THE SYSTEM

The system's participants are credit unions and the LCKU. No other entities can participate in KUBAS. In order to participate in KUBAS a credit union must become a shareholder of the LCKU and meet certain technical requirements. As at the end of 2006 there were 60 participants in the system. Only direct participation in KUBAS is permissible.

### 3.4.3 TYPES OF TRANSACTION PROCESSED

KUBAS processes domestic payments on a gross basis. Settlements are carried out in the national currency, the litas. Payment orders are processed in five-minute cycles if the available funds are sufficient. KUBAS processes credit transfers and debit transfers.

KUBAS has a link with LITAS-RLS and LITAS-MMS through the LCKU, which is a direct participant in both systems. This enables KUBAS participants to send and receive payments to/from participants of LITAS-RLS and LITAS-MMS using the system's infrastructure.

### 3.4.4 SYSTEM OPERATION

KUBAS operates on business days established in the Republic of Lithuania. System participants can submit payment orders 24 hours a day, whereas the system starts the validation process at 8 a.m. local time. If the structure of a payment order conforms to the message structure requirements described in KUBAS technical documentation, a payment order is placed in the queue. Participants are able to revoke a payment order until the moment of its entry into the system. The cut-off time for the validation process is 3.40 p.m. local time.

### 3.4.5 TRANSACTION PROCESSING ENVIRONMENT

Communication between KUBAS and its participants takes place by means of encrypted messages through telephone lines. Payment messages are processed using a V-shaped message flow structure. Participants use the accountancy software developed by the LCKU.

### 3.4.6 SETTLEMENT PROCEDURES

KUBAS participants hold settlement accounts within the LCKU, which acts as the settlement agent. Payments between participants of KUBAS (referred to as internal payments) are settled in five-minute cycles. The account of the sending participant is debited and the account of the receiving participant credited.

For payments addressed to LITAS-RLS or LIAS-MMS participants (referred to as external payments) the block-of-funds procedure is applied, whereby funds are earmarked and made unavailable for any transaction or purpose other than the execution of the payment order concerned. When positive acknowledgement of a completed transaction is received from LITAS-RLS or LITAS-MMS, the account of the sending KUBAS participant is debited. Where the KUBAS participant is the party receiving a payment from the LITAS-RLS or LITAS-MMS participant, the LCKU credits the account of the KUBAS participant only when the transaction is final in LITAS-RLS or LITAS-MMS.

### 3.4.7 CREDIT AND LIQUIDITY RISK

The payments processed in KUBAS do not pose a credit risk, as they are processed on a gross basis. Payment instructions are queued according to their priority, as defined by participants. KUBAS participants are able to monitor their settlement balances.

The LCKU may conclude account overdraft agreements with KUBAS participants for the purposes of providing them with liquidity.

## 4 SECURITIES TRADING, CLEARING AND SETTLEMENT

### 4.1 TRADING

#### 4.1.1 INSTITUTIONAL ASPECTS

Organised trading in securities (shares, rights, Treasury bills and corporate and government bonds) on the secondary market takes place at the VVPB. This operates pursuant to the Law on markets in financial instruments and is supervised by the VPK. The VVPB is a public company owned by the Helsinki Stock Exchange Ltd (OMX Group). In 2004 the Helsinki Stock Exchange Ltd acquired its shareholding from the Ministry of Finance, then the principal shareholder, and, with 93.09% of the shares, took control of the VVPB.

Only members of the VVPB – namely the FMIs authorised by the VPK to act as market intermediaries in the public trading of securities, banks licensed to deal in securities, and EU investment firms and banks that have undergone the VPK and Lietuvos bankas notification procedure – may trade on the VVPB. In order to become a member of the VVPB, these institutions must obtain permission to trade from the VVPB Board.

A member can participate in trading on the VVPB once the following requirements have been met:

- the member becomes a participant of the SSS of the LCVPD – or has concluded agreements with participants of the SSS – and provided the relevant information on standard settlement conditions;
- the member has at least two authorised Exchange traders;
- the approved technical equipment has been connected to the trading system and an agreement concerning technical connection to the VVPB has been concluded;

- the initial contribution to the Guarantee Fund has been transferred; and
- the member pays a fee for participation in VVPB trading.

Trading on the VVPB is largely regulated by the Trading Rules of the Vilnius Stock Exchange (19 May 2005, No 1K-13, as amended). These Rules cover the:

- procedure, conditions and periods for admission of securities to VVPB lists, and the delisting thereof;
- order of trading in securities;
- timing of trading sessions on the VVPB;
- types of transaction concluded on the VVPB;
- procedure for securities price fixing;
- requirements, rights and obligations of VVPB members, terms and conditions for the suspension and revocation of the right to trade on the VVPB, removal of VVPB members and liability in the event of default;
- procedure for the announcement of prices and trading volumes;
- level of the VVPB membership fee, fees for transactions concluded on the VVPB, listing fees and the annual quoting fee;
- order of formation and use of the Guarantee Fund; and
- means of resolving disputes arising in relation to transactions concluded on the VVPB.

The VVPB lists securities on the Main List, the I List, the Debt Securities List and the Investment Units List. The Main List, the I List and the Debt Securities List are trading lists.

The Investment Units List is not a trading list, and trading in these securities is not organised on the VVPB. The trading list indicates the reliability and liquidity of securities traded on the VVPB.

#### 4.1.2 TRADING SYSTEM

The VVPB belongs to the OMX Group, which covers the Helsinki, Copenhagen, Riga, Stockholm and Tallinn stock exchanges. These exchanges, together with the Oslo and Iceland stock exchanges, belong to the NOREX alliance and use the same trading system – SAXESS. A member of any of these exchanges can easily obtain access to the VVPB or any other exchange of the NOREX alliance.

The trading operations of the VVPB are divided into the Equities Market and the Debt Securities Market. Each market may be divided into smaller segments – sub-markets. A VVPB trading session comprises pre-trading, opening call, continuous trading, closing call, and post-trading.

VVPB trading is order-driven, meaning that transaction prices are determined by the orders. Trading is fully computerised and paperless. At the VVPB, transactions can be executed on the central market (“automatch trades”) or directly negotiated (“manual trades”).

#### Central market

The main objective of the central market is to create the necessary conditions for VVPB members to submit public orders to sell and/or buy securities. The procedures for trading on the central market apply to all securities included in the trading lists of the VVPB.

Trading is carried out in three phases: the opening call auction, automatic matching during continuous trading and the closing call auction at the end of the trading session. Debt securities are traded without the opening and closing call auctions. The placement of orders starts on the trading day at 8.30 a.m. local time in the Equities Market and at 10 a.m. local time in the Debt Securities Market. Order placement

ceases at 2 p.m. local time. The opening call auction and the closing call auction take place at 10 a.m. and 2 p.m. local time respectively.

During continuous trading (10 a.m. – 1.30 p.m. local time) orders are executed according to the price-time priority principle. If an order book has existing limit orders on the opposite side of the order book that could be matched with an incoming market order or crossing limit order, the highest price of an existing buy order or lowest price of an existing sell order, depending on the side of the order book, determines the price for the executable volume of the incoming order. The next limit order determines the price for any remaining volume, and so on. The allocation order at the same price level is based on time priority.

#### **Manual trades**

Manual trades are buy/sell transactions of securities directly negotiated between VVPB members, or between VVPB members and their clients or the clients of a VVPB member. When concluding manual trades in listed securities VVPB members must comply with the requirements laid down by the VVPB and report the manual trades to the VVPB in due time. Manual trades in equities may be reported during the pre-trading, continuous trading and post-trading phases, whereas manual trades in debt securities are only permitted during the continuous trading phase.

### **4.2 CLEARING**

Lithuania currently has no central counterparty clearing house. The post-trade and pre-settlement clearing services performed in connection with the settlement procedures are described in Section 4.3.

### **4.3 SETTLEMENT**

#### **4.3.1 INSTITUTIONAL AND LEGAL ASPECTS**

The LCVPD is the only clearing and settlement organisation in Lithuania which operates an SSS – the SSS of the LCVPD – and provides the

services of a central securities depository. The LCVPD operates pursuant to the Law on markets in financial instruments and is supervised by the VPK. The LCVPD became operational on 30 August 1993 as a structural unit of the VVPB. On 25 February 1994 it became an independent non-profit organisation. In July 1998 the LCVPD was reorganised into a public company. It is owned by Lietuvos bankas (60%), the OMX group (32%) and the VVPB (8%).

According to the Law on markets in financial instruments, all securities in Lithuania are dematerialised (book-entry system), i.e. they are recorded as entries in the personal securities accounts opened for the securities owners or collateral takers, and in the nominee accounts of foreign custodians operating on behalf of their customers.

The LCVPD: opens and operates securities accounts for account managers (issuers and intermediaries); prepares and presents to the VPK for approval the rules for the accounting and turnover of securities; and verifies whether the account managers, representing the investors, comply with the rules and instructions governing securities accounting.

The LCVPD, as an SSS operator, organises the settlement of VVPB and OTC transactions in line with the DvP principle, i.e. securities are transferred only when funds have been transferred; this principle is strictly adhered to.

The procedure for the settlement of VVPB transactions is described in the Rules on the Settlement of Securities Transactions Concluded on the Vilnius Stock Exchange, as approved by the Board of LCVPD (11 May 2005, No 11) and the Board of the VVPB (17 May 2005, No 05-29). The LCVPD has concluded an agreement with Lietuvos bankas on participation in LITAS-RLS in order to service the cash settlement of securities settlement transactions using central bank money.

In January 2004 the new SSS of the LCVPD became operative. This SSS enables the settlement of securities transactions in real and designated time. The operation of the SSS is governed by the Rules of the Securities Settlement System approved by the LCVPD on 8 December 2003, No 20 (as amended). The Rules establish the procedure for acceptance or removal of participants of the SSS, the rights and duties of the SSS operator and participants, the operational basis for the SSS, the operational risk management facilities, the basis for determining the fees for the services provided by the SSS, the means and the moment of entry of instructions into the SSS and the procedure for their execution.

#### 4.3.2 OPERATIONAL ASPECTS

##### Securities operations handled

The settlement of all transactions concluded at the VVPB (with the exception of some manual trades) and of some OTC transactions is performed through the SSS of the LCVPD, ensuring compliance with the DvP principle. Settlement of manual trades may be executed through the SSS (DvP) or directly between transaction counterparties.

The SSS participants, except stock exchanges and foreign central or international securities depositories, must be participants of LITAS-RLS and hold a settlement account with Lietuvos bankas for the cash settlement of DvP transactions. The messaging system used by the SSS and LITAS-RLS ensures an automated interface between the systems and facilitates the prompt settlement of the cash leg using central bank money.

The settlement cycle for shares and non-government debt securities traded on the VVPB is T+3. The settlement cycle for government securities is T+1. The settlement cycle for manual transactions can be from T+1 to T+6 for all securities (with T+3 being applied where parties to a securities transaction do not indicate the settlement day). The cycle for the settlement of OTC transactions and free-of-payment

securities transfers can range from T+0 to T+30.

Settlement of VVPB central market transactions is executed according to the net positions in a single daily batch processing cycle. For all other transactions (manual trades, over-the-counter transactions and free-of-payment transfers), securities and funds (if relevant) are transferred in real time on a gross basis.

##### Settlement procedures

The settlement of VVPB central market transactions starts at 1 p.m. local time. The SSS checks whether there are sufficient securities in the securities accounts of participants, blocks the amounts of securities required for settlement and submits to LITAS-RLS the payment instruction indicating the sums to be debited from the settlement accounts of participants delivering funds to the special account and to be credited to the settlement accounts of participants receiving funds from the special account. Upon receiving a notification from LITAS-RLS on the transfer of funds, the SSS immediately transfers securities among the securities accounts of participants.

The settlement instructions for the VVPB manual trades are entered into the general queue for real-time gross settlement and their processing is started at 12.30 p.m. local time. The SSS checks whether there are sufficient securities in the securities account of the participant delivering securities, blocks the amount of securities required for settlement and submits to LITAS-RLS a mandated payment instruction indicating the sums to be debited from the settlement account of the participant delivering funds and credited to the settlement account of the participant receiving funds. Upon receiving a notification from LITAS-RLS on the transfer of funds, the SSS immediately transfers securities between the general securities accounts of the respective participants. The settlements are processed until 4 p.m. local time.

OTC securities transactions are settled on a real-time gross basis in accordance with the participants' instructions, following the same procedure as for the settlement of VVPB manual trades. Such transactions are processed from 8 a.m. to 4 p.m. local time.

Free-of-payment securities transfers are carried out on a real-time gross settlement basis from 8 a.m. to 4.45 p.m. local time.

#### **Risk management**

The settlement procedures eliminate principal risk. The cash and securities positions of participants are matched against instructions prior to the settlement, and settlement takes place on a DvP basis.

In order to prevent the default of participants, the SSS has an early warning system, which informs SSS participants of the securities and cash required for settlement and warns of an anticipated shortage of securities (if appropriate) during the settlement cycle on the day in question.

In addition, the SSS and LITAS-RLS provide their participants with the possibility of monitoring and managing their securities and cash accounts in real time. Where a shortage of securities or cash is expected or already exists (i.e. where transactions are settled in real time), participants can take appropriate action to remedy the situation.

If a participant has insufficient securities or cash to settle central market securities transactions, the system excludes the failed transactions from settlement. Then new settlement positions are calculated. The recalculation algorithm ensures that the impact on settlement is kept to a minimum and that the new debit positions are not larger than the number/value of securities or the cash amounts blocked for the settlement.

The settlement of failed central market transactions is automatically postponed to the next business day. The settlement of transactions

may be postponed up to S+4 (with S referring to the day on which the transaction should have been settled) in the event that there are insufficient securities, and up to S+3 in the event that there is insufficient cash. If the failed transactions are not settled by these days, the Guarantee Fund is employed. On S+5 the VVPB will organise a special procedure for the purchase of securities. If the securities are not available on the market, the settlement of the transaction is cancelled on S+10. In the event that there is insufficient cash on S+3, the Guarantee Fund is used on that day.

The Guarantee Fund only secures the settlement of transactions concluded on the central market. If participants do not deliver sufficient cash or securities to cover the settlement of manual trades, the settlement of the transactions is postponed to the next business day. Unsettled manual trades are cancelled at the end of S+2, whereas OTC DvP transactions which have not been settled on account of insufficient securities or cash are cancelled at the end of the settlement day.

The LCVPD never plays the role of central counterparty in settlements; it never lends securities or cash to settlement participants. Thus, counterparty risk occurs only in cases of default on the part of participants, i.e. where they fail to deliver either cash or securities on time. The volume of such cases can be illustrated using due date settlement criteria. According to recommendations of the World Federation of Exchanges (FIBV) and the International Securities Services Association (ISSA 2000), the acceptable norms for suspended and deferred settlements are 1% of the total value of transactions and 2.5% of the total number of transactions. In 2004 and 2005 failed settlements in the SSS accounted for 0.02% and 0.03% of the total value of transactions respectively, while the share of failed transactions in the total volume was 0.005% and 0.001% respectively.

In order to manage operational risk the LCVPD has implemented technical measures to protect

the system components and equipment from natural disasters and physical damage to the premises, and to prevent unauthorised access to system data and equipment. The LCVPD has established a secondary site equipped with a backup system. If the operation of the main system is interrupted, the backup system will begin to operate. The secondary site is also used for backup data storage.

#### Pricing policies

Participants in the LCVPD pay the following fees:

- entrance fee;
- annual fee;
- quarterly fee for the handling of securities accounting (securities custody);
- operations fee;
- stock event administration fee;
- fee for drawing up and submitting the list of securities owners to the issuer or its authorised account manager;
- fees for securities custody (and other operations) on the LCVPD accounts opened with foreign and international central securities depositories.

#### Links with other SSSs

For the cross-border settlement of securities transactions, the LCVPD has established bilateral links with the Latvian Central Depository and Estonian Central Securities Depository. These links facilitate the settlement of securities transactions concluded on the VVPB, the Riga Stock Exchange and the Tallinn Stock Exchange. This is relevant when market intermediaries trade on stock exchanges operating in Baltic countries other than that in which they are established.

In 2001 the LCVPD also established a link with Clearstream Banking Luxembourg SA.

#### 4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY LIETUVOS BANKAS

In order to provide liquidity to the participants of LITAS-RLS and ensure its smooth operation, Lietuvos bankas grants intraday and overnight credit against collateral through the conduct of repo transactions with participants. The repo transactions are regulated by the Rules on the Conclusion and Execution of Intraday and Overnight Repurchase Agreements between the Bank of Lithuania and the Participants of the Payment System LITAS-RLS. Repo transactions are settled in the SSS of the LCVPD. Settlement takes place in the same manner as for two interrelated OTC DvP transactions. Depending on the repo instructions submitted by the participant and Lietuvos bankas, the SSS manages the settlement of both legs of the repo transaction.

In the near future Lietuvos bankas intends to replace the repo technique by pledge. The pooling method will be used for the collateralisation of Lietuvos bankas credit operations. Counterparties will deliver securities as collateral to Lietuvos bankas through an FOP securities transfer in the SSS.





# HUNGARY

## CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>192</b>
<b>INTRODUCTION</b>	<b>193</b>
<b>1 INSTITUTIONAL ASPECTS</b>	<b>194</b>
1.1 The general institutional framework	194
1.2 The role of the central bank	196
1.3 The role of other private and public sector bodies	198
<b>2 PAYMENT MEDIA USED BY NON-BANKS</b>	<b>199</b>
2.1 Cash payments	199
2.2 Non-cash payments	199
2.3 Recent developments	202
<b>3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS</b>	<b>203</b>
3.1 General overview	203
3.2 The real-time gross settlement system	204
3.3 Large-value payment systems	207
3.4 Retail payment systems	207
<b>4 SECURITIES SETTLEMENT SYSTEMS</b>	<b>211</b>
4.1 Trading	211
4.2 Clearing	214
4.3 Settlement	214

## LIST OF ABBREVIATIONS

ÁKK	Government Debt Management Agency
BSE	Budapest Stock Exchange
GBC	Giro Bankcard Ltd
GIRO	GIRO Clearing House Ltd
HBA	Hungarian Banking Association
HFSA	Hungarian Financial Supervisory Authority
ICS	Interbank Clearing System
KELER	Central Clearing House and Depository Ltd
KIS	KELER Internetwork System – communication network of KELER
MKB	Magyar Külkereskedelmi Bank
MMTS	Multi-Market Trading System – the trading system of the BSE
MNB	Magyar Nemzeti Bank (the central bank of Hungary)
SPAN	Risk management system of KELER for spot and derivatives margin requirements
VIBER	RTGS system of the MNB

## INTRODUCTION

Commercial banking was re-established in Hungary in 1987 and the restoration of the capital markets took place in 1989. The enormous task of restoring a market-based economic system required strong leadership from the Magyar Nemzeti Bank (MNB), the central bank of Hungary, in the development of payment and securities clearing and settlement systems. Recognising the key importance of building efficient systems serving the needs of the business community, the MNB decided to involve the users of the payment systems in the development process. The Hungarian ACH, GIRO Clearing House Ltd (GIRO), was established in 1988. The owners of the company are credit institutions, while the MNB holds 7% of the shares. Central Clearing House and Depository Ltd (KELER) was founded in 1993, the current ownership structure comprising the MNB with a 53% holding and the Budapest Stock Exchange (BSE) – which merged with the Budapest Commodity Exchange in 2005 – with a 47% holding.

The oversight competence of the MNB with regard to payment and securities clearing and settlement systems is clearly defined in the Central Bank Act. Large-value and retail payments are clearly and increasingly separated. VIBER, the RTGS system operated by the MNB, is used for urgent and large-value payments, and the Interbank Clearing System (ICS), which is operated by GIRO, processes retail payments. These two systems are very closely linked and interdependent, since both operate on the basis of gross settlement, but with different time frames. KELER concentrates on depository, clearing and settlement functions, acts as a CCP in respect of spot and derivatives exchange market transactions and is the sole provider of these services to capital market participants. Cash settlement of securities trades is split between KELER and the MNB, the former serving non-banks, the latter the banking industry. All of these systems are characterised by a high level of automation, sophisticated services, a proven record of

reliability and advanced features for the containment of financial risks.

Banking and payment services are developing rapidly. The vast majority of employees receive their wages, salaries and benefits in bank accounts and most people use payment cards. Initially, cards were used almost exclusively to withdraw cash. Recent trends show that cards are increasingly being used at points of sale. In order to give their customers better control over their spending, most issuing banks send SMS messages to their customers' mobile phones. Cardholders can also send such messages to change their spending limits at any time throughout the day. One notable feature of the Hungarian banking system is the relatively low penetration of ATMs and the large number of POS terminals used to withdraw cash at bank branches and post offices. The use of cheques is extremely limited and banks have stopped issuing cheque books. The most widely used payment instruments are credit transfers and direct credits (i.e. batch orders). Although bank services are growing in importance, the cash payment services provided by the Hungarian Post Office (e.g. postal inpayment money orders) still play an important role in retail payments.

The MNB puts great emphasis on the transparency of policies on payment and securities clearing and settlement systems and has thus published its oversight policy in a formal document first issued in 2001, with a revised, updated version issued in 2006.

## I INSTITUTIONAL ASPECTS

### 1.1 THE GENERAL INSTITUTIONAL FRAMEWORK

#### 1.1.1 INSTITUTIONS

The development of payment and securities clearing and settlement systems, and the oversight of their activity in the interests of their smooth and efficient functioning, are defined as basic tasks of the central bank in Act LVIII of 2001 on the Magyar Nemzeti Bank. In order to perform these tasks, the MNB operates an RTGS system, settles payments for clearing systems, supports or manages payment system development projects, and oversees payment and securities clearing and settlement arrangements in Hungary. Credit institutions and clearing houses are obliged to provide the MNB – regularly or upon request – with the information necessary to monitor the functioning of the payment and securities clearing and settlement systems.

Supervision of financial service-providing companies operating in the banking, insurance, pension fund management and securities markets is the responsibility of the Hungarian Financial Supervisory Authority (HFSA). The overall objective of the HFSA is to contribute to the stability and efficiency of the Hungarian financial system.

The Ministry of Finance is responsible for legislation governing activities in the financial sector (i.e. those of credit institutions, investment firms, stock exchanges, fund managers, clearing houses and insurance companies).

#### 1.1.2 THE LEGAL FRAMEWORK

The principal laws and agreements forming the legal framework for the payment and securities clearing and settlement systems infrastructure are listed and described briefly below:

Act CXII of 1996 on credit institutions and financial undertakings (the Banking Act) governs banking activities and financial services in general. It regulates, among

other matters, the prudential supervision of financial institutions, the requirements for obtaining a bank licence, prudential requirements, bank secrecy, the issuance of cashless payment instruments and the provision of payment clearing services. It lays down rules regarding the setting-up and operation of a payment clearing house. It is required by law that every financial institution join directly or indirectly one of the interbank funds transfer systems (VIBER or the ICS).

Act LVIII of 2001 on the Magyar Nemzeti Bank defines the basic tasks of the central bank, empowers it to regulate and oversee the domestic payment and securities clearing and settlement systems, contains the rules for keeping accounts for public and private sector bodies, authorises the conduct of on-site or off-site examinations with regard to the institutions falling under the scope of the Act, guarantees the independence of the central bank from the government and establishes the MNB's main decision-making bodies.

Act CXX of 2001 on the capital markets comprehensively regulates the functioning of the different segments and players of the securities market, i.e. the operation of the exchanges, pension funds, securities firms, the CSD and clearing houses, and the supervision of capital market-related activities and companies. In 2005 the act was modified in order to create the legal preconditions necessary for the organisational separation of central securities depository functions from standard clearing house activities, including central counterparty functions.

Act XXIII of 2003 on settlement finality in payment and securities settlement systems fully implements the regulations of Directive 98/26/EC on settlement finality, appoints the MNB as the notification authority and establishes detailed rules on procedures. It assigns the MNB the task of designating

systems that are subject to this Act. In accordance with the Act, upon entry into the system, transfer orders and netting are legally enforceable and indefeasible even if a participant is subject to insolvency proceedings, provided they were entered into the system before the insolvency proceedings opened. Decisions and measures arising from insolvency proceedings shall not have retroactive effect on the rights and obligations of a participant arising from its participation in the system prior to the moment such proceedings were opened; thus, no zero-hour rules exist. Furthermore, the Act guarantees the protection of the rights of holders of collateral security from the effects of insolvency proceedings against the provider of the collateral.

Act XXXV of 2004 on specialised credit institutions issuing electronic money establishes special requirements concerning activity, capital and prudential requirements in harmonisation with Directive 2000/46/EC on electronic money institutions.

Act XV of 2003 on the prevention and combating of money laundering defines the legislative framework for the fight against money laundering and, among other matters, establishes rules on the identification of customers and documents that are acceptable for that purpose.

Government Decree 227/2006 on payment services and electronic payment instruments primarily regulates civil legal relationships concerning bank accounts and the execution of payment transactions, the execution of payment orders involving bank account holders subject to bankruptcy, liquidation and other such proceedings, financial enforcement of judicial decisions (using prompt collection orders) and the order in which payment instructions must be executed. It also ensures that there is full harmonisation with the relevant requirements of Directive 97/5/EC on cross-border credit transfers and Commission Recommendation

97/489/EC concerning transactions by electronic payment instruments and in particular the relationship between issuer and holder.

Decree 21/2006 of the Governor of the Magyar Nemzeti Bank on payment and clearing services defines the range of available payment instruments, the structure of the uniform bank account number, the structure and implementation of the international bank account number and standardised (paper) forms. It also specifies the general rules for the execution of payment orders, including execution times of domestic and cross-border payment instructions (the latter being fully in line with Directive 97/5/EC on cross-border credit transfers) and the information that must be given to customers prior and subsequent to the execution of payment orders, which is also fully in line with the relevant requirements of Directive 97/5/EC.

Decree 23/2005 (XI.23.) of the Governor of the MNB on the infrastructural, technical, security and business continuity requirements related to carrying out clearing transactions establishes detailed requirements concerning the security of personnel and infrastructure (buildings, power supply, telecommunications, etc.) and other technical conditions, business continuity and requirements regarding a security policy and security rules to be met by clearing houses for credit institutions operating payment systems.

Decree 2/2006 (II.15.) of the Governor of the MNB on the requirements in respect of the general terms and conditions and operating rules of organisations providing clearing house activities under the Capital Markets Act defines those measures, especially in the field of risk management, that are covered by the CPSS-IOSCO "Recommendation for Securities Settlement Systems" and are not regulated in the Capital Markets Act or are only generally referred

to without any special requirements, in order to satisfy the basic criteria and requirements declared in the relevant international recommendations and standards.

Decree 11/2006 (VIII.1.) of the Governor of the MNB on the requirements for the general terms and conditions and internal regulations of clearing houses for credit institutions establishes requirements regarding the contents of the general terms and conditions and internal regulations of clearing houses.

## 1.2 THE ROLE OF THE CENTRAL BANK

### 1.2.1 GENERAL RESPONSIBILITIES

Act LVIII of 2001 on the Magyar Nemzeti Bank assigns to the central bank the primary objective of achieving and maintaining price stability. This Act defines the basic tasks of the central bank as determining and implementing the monetary policy; the issuance of banknotes and coins; the formation and management of official reserves; the execution of foreign exchange transactions in connection with the management of foreign exchange reserves and the implementation of exchange rate policy; the development and oversight of payment and securities clearing and settlement systems to ensure the effective and smooth functioning of the payment system; the collection and publishing of statistical information necessary to carry out its tasks; promoting the stability of the financial system; and contributing to the development and smooth conduct of policies related to the prudential supervision of the financial systems.

The MNB plays a pivotal role in payment and securities clearing and settlement systems, as it is responsible for the development of these systems, the operation of VIBER, the regulation and licensing of payment clearing services and the exercise of the oversight function with regard to interbank payment and securities clearing and settlement systems. The Governor of the MNB is authorised by law to issue decrees

concerning payment services and payment and securities clearing and settlement systems.

### 1.2.2 PAYMENT AND SECURITIES CLEARING AND SETTLEMENT SYSTEMS OVERSIGHT

The Act on the Magyar Nemzeti Bank grants the MNB legal authority for the development of national payment and securities clearing and settlement systems. The role played by the MNB in the various systems is in line with the significance of each system in terms of systemic risk.

Within this framework, oversight covers the following activities:

- data collection and information gathering via statutory reporting;
- on-site inspections;
- consultation and informal requests for information;
- analysis, continuous monitoring of the functioning of the systems and evaluation of the various analyses prepared on the systems and operators;
- regular assessment of the systems in respect of compliance with internationally accepted core principles, recommendations and standards;
- regulating payment services and certain provisions of clearing and settlement activities, in the context of which the MNB has the right to issue decrees within the scope of its authority (see Section 1.1.2);
- the MNB has clearly defined its payment system objectives and publicly disclosed its role and major policies with respect to systemically important payment systems.

The following are special aspects of payment systems oversight:

- granting and withdrawing the licences of clearing houses operating payment systems;
- approval of the systems' operating rules and of modifications to the contracts underlying the systems;
- the MNB expresses its opinion on major development decisions. It may also supervise the development of procedures on site.

Regulation of securities clearing and settlement systems falls within the competence of the Ministry of Finance, while responsibility for the licensing and the supervision of clearing houses is borne primarily by the HFSA.

Under the Capital Markets Act, the MNB has the following oversight competences in respect of securities clearing and settlement systems:

- the HFSA grants, modifies and withdraws the licenses of clearing houses operating securities clearing and settlement systems in agreement with the Governor of the MNB;
- the HFSA approves the general terms and conditions and other rules of clearing houses in agreement with the Governor of the MNB;
- the MNB is entitled to participate in on-site supervision carried out by the HFSA in respect of operational reliability and risk management.

In its capacity as an overseer, the MNB's aim is to ensure that systems operate in accordance with its objectives, i.e. that they are secure and efficient and do not prevent fair market competition. In this context, the MNB deems it important, *inter alia*, to ensure that access to systems is based on objective and public criteria. In the field of retail payments, the

MNB pays particular attention to efficiency. Within the private sector, it aims to promote cooperation.

The MNB ensures that its own payment system (VIBER) complies with internationally agreed standards by incorporating them into the system's operating rules and regularly overseeing operations. Within the organisation of the MNB the oversight policy and operational functions are separated. The Payment System and Currency Issue Policy Department is responsible for policy issues and – quite independently from this task – for oversight, while operational functions are the responsibility of a separate department. The Internal Audit Department also conducts regular inspections of the operational reliability and efficiency of banking operations.

### 1.2.3 THE OPERATIONAL ROLE OF THE CENTRAL BANK

VIBER was established and is operated by the MNB. The operator of the ICS is GIRO, a company that is jointly owned by the banking community and the MNB, with the latter being the minority shareholder. The operator of the domestic securities clearing and settlement system is KELER, in which company the MNB currently has a 53.3% share.

The MNB provides settlement services through VIBER. The MNB is the operator of the central accounting system, while communication takes place through the SWIFT network.

The MNB holds accounts for credit institutions, KELER, State Privatisation and Holdings Ltd, the Hungarian State Treasury Ltd and the Hungarian Post Office. In addition to holding settlement accounts, it also provides correspondent banking services to some indirect participants in VIBER and the ICS.

All banks have a single account with the MNB. Since credit institutions are required to meet reserve requirements on an average basis over a given period, reserve holdings can be used for settlement purposes during the day.

The MNB is the settlement agent for the ICS and for the domestic card clearing system operated by GIRO Bankcard Ltd (GBC). The MNB provides cash settlement in respect of the cash leg of securities transactions exclusively for credit institutions in the VIBER system, which is directly connected to the real-time settlement system of KELER, enabling OTC transactions to be settled according to DvP Model 1 and BSE and derivatives transactions to be settled according to DvP Model 3.

#### **1.2.4 COOPERATION WITH OTHER INSTITUTIONS**

There is a distribution of responsibilities between the three public sector bodies dealing with the regulation, supervision and oversight of payment systems, securities clearing and settlement systems, the banking sector and the capital markets. The Ministry of Finance submits bills, decrees and proposals for legislation to the government and exercises the state's ownership rights with regard to the MNB. The MNB is thus a company limited by shares and the Ministry of Finance is the sole shareholder. However, this ownership structure has no impact on the independence of the MNB. The HFSA has no regulatory power, but it supervises all financial service providers. The MNB has regulatory competence in the fields of payment services and payment and securities clearing and settlement systems within the scope of its mandate, and oversees these systems. The distribution of tasks requires coordination among these bodies.

The MNB and the HFSA have a Memorandum of Understanding under which the two institutions share information and coordinate statutory reporting as well as on-site inspections. The MNB cannot impose sanctions on the providers of payment services or system operators in the event that rules are infringed, but it can propose that the HFSA impose fines on the offending institutions. In addition to the more usual public administration procedures, a formal memorandum of understanding has also been signed by the Ministry of Finance, the MNB and the HFSA in order to strengthen cooperation and coordination among the three

bodies. Within the framework of this agreement the Financial Stability Committee has been established in order to discuss and oversee various issues related to the stability of the financial intermediary system.

In the summer of 2003, on the initiative of the central bank and with the support of the Hungarian Banking Association (HBA) and the participation of both the "Tens" (the ten commercial banks accounting for the highest portions of payments) and the Hungarian State Treasury Ltd, the Hungarian Payment System Forum was established. Its mission is to initiate and facilitate consultation among financial service providers aimed at the development of the Hungarian payment and securities clearing and settlement systems and the promotion of the integration of domestic payment systems with those of the EU and the euro area.

### **1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES**

#### **1.3.1 THE HUNGARIAN FINANCIAL SUPERVISORY AUTHORITY**

With effect from 1 April 2000, parliament established the HFSA by means of Act CXXIV of 1999. The HFSA is the general legal successor to the Hungarian Banking and Capital Market Supervisor, the State Insurance Supervisor and the State Private Fund Supervisor. It is a legal entity and operates as an independent budgetary agency.

The objectives of this consolidated supervisory authority are to promote the smooth operation of the money and capital markets, to protect the interests of customers, to enhance the transparency of markets and to maintain fair and regulated market competition. These aims can be achieved by constantly monitoring the operation of organisations and entities engaged, *inter alia*, in the provision of financial services, clearing house activities, and investment and fund management activities, and of stock and commodity exchanges and their members.

Among its other duties, the HFSA grants licences for the provision of payment services and for the issuance of cashless payment instruments.

#### 1.3.2 THE OFFICE OF ECONOMIC COMPETITION

Act LVII of 1996 on the prohibition of unfair and restrictive market practices, harmonised with EU legislation, contains provisions prohibiting the abuse of dominant positions, anti-competitive price cooperation, unfair market practices, etc. The Act also sets out the tasks of the Office of Economic Competition, which is a publicly owned legal entity. It is entitled to impose penalties.

#### 1.3.3 THE HUNGARIAN BANKING ASSOCIATION

The Hungarian Banking Association represents the interests of its member banks. Even though membership is voluntary, every bank has joined the association. The HBA participates in the drafting of laws and regulations concerning the financial sector and facilitates the formulation of a common position on the part of its members on various issues. The HBA has actively supported the development of common market infrastructures (such as the ICS, the Deposit Insurance Fund, the Creditguarantee Company and the compulsory debt information system). The HBA joined the Banking Federation of the European Union as a correspondent member in 1991 and was granted associate status in 1998. It is an associate member of the European Committee for Banking Standards.

#### 1.3.4 THE HUNGARIAN STATE TREASURY LTD

The State Treasury offers quasi-banking services to public sector institutions by keeping non-interest-bearing budgetary accounts. Account holders can make payments related to activities financed by the government, provided that payments are made out of positive balances.

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

The MNB has the exclusive right to issue banknotes and coins in Hungary and is responsible for their exchange, the replacement of worn banknotes and the withdrawal from circulation of counterfeit banknotes.

Cash payments continue to play an important role in payment transactions in the Hungarian economy, although the market share of electronic payment instruments (such as payment cards, credit transfers and direct debits) is continuously growing.

Both banknotes and coins are issued in seven denominations (banknotes: HUF 20,000; 10,000; 5,000; 2,000; 1,000; 500 and 200; coins: HUF 100, 50, 20, 10, 5, 2 and 1). A new series of banknotes and coins was issued between 1997 and 2001.

Banknotes are printed by the Hungarian Printing Works, and coins are manufactured at the Hungarian Mint.

The value of banknotes and coins in circulation amounted to HUF 1,968 billion (€7.4 billion) at the end of 2006. The share of cash in M1 declined from 38% in 2000 to 33.7% in 2006. In the same period, cash in circulation as a percentage of GDP grew slightly, from 6.6% to 7.8%.

### 2.2 NON-CASH PAYMENTS

Bank customers have access to a wide range of payment instruments. The predominant means of payment are giro credit transfers, direct debits/credits, card payments and postal payments. A high proportion of transfer instructions are initiated remotely (by bank card, telephone, personal computer (PC), through telecommunication lines, etc.). Banks are also actively encouraging large organisations that generate or receive high volumes of

recurring payments to use paperless electronic transfers.

Decree 21/2006 of the Governor of the Magyar Nemzeti Bank on payment and clearing services regulates non-cash payment instruments.

### 2.2.1 CREDIT TRANSFERS

The credit transfer is the most commonly used payment method in Hungary. The order to make a credit transfer can be given to a bank either on paper or in electronic form (on diskette or magnetic tape, or by file transfer).

The emergence of PC, telephone, internet and mobile banking is a significant new development. More and more account holders are presenting their payment orders electronically via telecommunication lines, making labour-intensive manual data capture within the banking system unnecessary. In 2005 more than 90% of transfers were initiated electronically. The total number of transactions reached 191.7 million in 2005, with their value amounting to HUF 215,248 billion (€867.7 billion).

There are two types of credit transfer: the ordinary credit transfer and the direct credit.

#### *Credit transfer*

A credit transfer can be presented to the account-keeping financial institution either in paper form or via electronic channels. The payment can be routed through either VIBER or the ICS depending on the method chosen by the originator and the facilities offered by the banks to their customers. Generally speaking, VIBER is used to transfer large-value and/or urgent payments.

#### *Direct credit*

Direct credit is used by payers who regularly initiate mass transfers, such as wages, social benefits and allowances, pensions and insurance premiums. Typically, the payment orders are presented in electronic batches by sending them either to the originator's bank or directly to

GIRO (the ICS operator), which ensures a high level of automation of transaction processing.

### 2.2.2 CHEQUES

Cheques have not been popular in Hungary. Debit cards took over from cheques very quickly. There is no cheque clearing system, owing to the low volumes involved, meaning that cheques are exchanged bilaterally between banks. Given that banks have stopped issuing cheque books, it is expected that the settlement of this instrument will disappear in the near future. It should be mentioned that cheques issued in other currencies are present in the Hungarian payment system, but their role is not significant in cross-border payments.

### 2.2.3 DIRECT DEBITS

Direct debits were introduced in Hungary in 1997. Given the nature of this payment instrument, the average amounts involved are very small, and it is more significant in terms of volume than value compared with other cashless payment instruments.

In 2005 59.79 million transactions were effected, with a total value of just over HUF 372 billion (€1.5 billion).

### 2.2.4 PAYMENT CARDS

Currently 25 commercial banks and one financial enterprise offer payment cards and, as a result of their vigorous promotional efforts, by the end of 2006 the number of bank-issued cards in circulation was more than 8 million. One of the commercial banks has a dominant position in the issuing business.

The overwhelming majority of the cards have a debit function (6.6 million); the number of cards with a credit function is increasing year by year (1.56 million in 2006), and there are also cards with a delayed debit function (20,000).

In practice, the MasterCard and Visa brands have made mutual card acceptance possible, so the great majority of cards (97%) carry one of these brands.

13% of the cards (1.035 million) are issued in cooperation with merchants (co-branded cards) or non-profit organisations (affinity cards).

Nine banks and a financial enterprise have a role in the card-acquiring business; nonetheless, two banks dominate the market in practice. Around 33,766 EFTPOS terminals are in operation at merchant locations; around 929 imprinters are used in low-turnover shops; and around 1,091 imprinters are used as a backup card acceptance solution in the event that EFTPOS terminals are out of operation.

It is a special feature in Hungary that payment cards can be used to make electronic cash withdrawals not only at ATM devices, but also at EFTPOS terminals installed at bank branches and post offices. 93% of the number of cash withdrawals are made at ATMs, the rest are made at POS terminals. At the end of 2006 there were 3,810 ATMs and 10,051 EFTPOS terminals at the disposal of cardholders for cash withdrawals.

PINs must always be used at ATMs, but are not mandatory in retail outlets where they are used if so decided by the issuing bank.

#### *Cards with a debit function*

The majority (99%) of cards can be used internationally, since they carry either the Visa or MasterCard logo. The remaining 1% are exclusively for domestic use.

There is a special sub-category within cards with a debit function: some cards (192,531) are not linked to a current account but to a credit account providing no interest-free period, so they function as debit cards.

The volume of transactions made with cards with a debit function is growing continuously. In 2006 211 million transactions were made, 55% of which were cash withdrawals. The value of these transactions was HUF 5,738 billion (€21.7 billion).

#### *Cards with a credit function*

Bank-issued cards with a credit function only appeared in Hungary in 1997, but their number is increasing rapidly and, by the end of 2005, reached 1.56 million. Their market share reached 19% of the total number of issued bank cards in 2006, and the corresponding turnover was HUF 228.5 billion (€0.86 billion), which represented 4% of total bank card turnover.

One of the main reasons for this significant growth is that banks are investing heavily in marketing campaigns transmitting the message to customers that they can enjoy interest-free periods of up to 30-40 days, provided that all of their debt is paid off by the date specified in the monthly statement. Cardholders are making use of this interest-free credit facility offered by the banks, and the share of payments is thus much higher for these cards (80%) than for cards with a debit function (45%). The situation regarding cash withdrawals is the reverse.

#### *Cards with a delayed debit function*

The issuance of cards with a delayed debit function also began in 1997, but their number has only increased moderately. Only 20,000 cards were in circulation at the end of 2006, mainly with Amex or Diners Club brands.

The value of transactions in 2006 was HUF 17 billion (€0.06 billion). 94% of transactions were payments, with the rest being cash withdrawals.

#### *Retailer cards*

As defined in the Banking Act, a retailer card can be used only in the network of the issuing company.

Currently five petrol companies issue cards for use within their own networks for purchases of fuel and other goods available in their shops. At the 1,021 petrol stations countrywide, more than 1,409 POS terminals and 488 manual imprinters are in operation.

By the end of 2006 more than 460,000 petrol cards had been issued, and, in the same year,

16.9 million transactions were recorded inside and outside the country, with a value of HUF 292.8 billion (€1.1 billion).

#### ***Single-purpose prepaid cards***

Single-purpose prepaid cards are mainly used in the telephone industry; they are non-reloadable chip-cards.

#### **2.2.5 ELECTRONIC MONEY**

Even though EMV chip migration has begun in Hungary, there is no e-money storage function.

Since 2004 the establishment of e-money institutions in Hungary has been regulated by law, but at the end of 2006 there was no such institution operating in the country.

#### **2.2.6 POSTAL INSTRUMENTS**

The Magyar Posta (Hungarian Post Office) provides cash payment services. A large proportion of households use the postal network for paying public utility bills and making other regular payments (e.g. insurance premiums) or effecting occasional cash transfers to other individuals. A significant proportion of social security benefits and pension payments are also delivered through the postal network. There are currently around 2,800 post offices in Hungary, compared with 2,990 bank branches. Banks and the Magyar Posta settle their bilateral obligations in VIBER (with the Magyar Posta being a VIBER participant).

The Magyar Posta offers the following three types of cash payment service:

The postal inpayment money order enables non-account holders to make credit transfers. Generally, the beneficiary provides the debtor with a paying-in slip, which has the necessary payment data pre-printed on it. The Magyar Posta delivers the payment data to the beneficiary's bank or directly to the beneficiary via a data medium or on paper in image form. This instrument is typically used to pay utility bills and insurance premiums and therefore competes with the direct debit. In 2006 around

274.5 million transactions were processed, with a value of HUF 2,888 billion (€10.93 billion).

The domestic postal order is a money transfer order whereby the debtor's cash is handed over at the counter and the cash is delivered to the address of the beneficiary. The paper slips for this purpose can be obtained at post office counters. This payment instrument is generally used by individuals. In 2006 2.9 million transactions were processed, with a total value of HUF 51 billion (€0.19 billion).

The cash delivery order is used for paying cash from current accounts held with banks. The debtor may initiate payments either on paper or via a magnetic data medium. The bank debits the account for the total value of the orders and forwards them to the nearest post office. With the bank's consent, the debtor may hand in orders directly at the post office using a bank cheque, which serves as collateral. This instrument is heavily used by government agencies to pay social benefits, pensions, etc. to beneficiaries who have no bank account. In 2006 41.77 million transactions were processed, with a value of HUF 1,934 billion (€7.31 billion).

#### **2.2.7 OTHER PAYMENT INSTRUMENTS**

There are a number of other payment instruments in use in Hungary, such as prompt collection orders (similar to direct debits, though their use is confined to corporate accounts), traveller's cheques, letters of credit and cash withdrawal orders (similar to cheques). However, these instruments are used to a lesser extent than those mentioned above.

### **2.3 RECENT DEVELOPMENTS**

#### ***Internet banking***

Credit institutions – including savings cooperatives – provide internet-based services. Using the internet, customers can carry out various operations, i.e. they can interactively manage their current or securities accounts, set limits for bank cards, download various forms and documents, apply for credit, etc.

### **Mobile banking**

There are various services which enable secure payments to be made by credit, debit and charge card. Account holders receive an SMS message if a transaction is made on their accounts. Some banks offer use of active SMS whereby customers can initiate payments or change the spending limits of their cards. Some banks offer WAP-based access to accounts, which offers similar functionality to internet banking.

### **Mobile payments**

Telecommunications companies have recently enlarged the scope of their services by enabling payments for small, fixed-value products (ringtones, logos, movie tickets, etc.) or services (higher rate SMS messages – e.g. for voting in various TV programmes and paying parking fees) to be made by mobile phone, either by debiting the prepaid balance or by including these purchases in the monthly phone bill (postpaid). Mobile operators must be the seller of these products and services. Although this turnover cannot be regarded as significant for the time being, it is rapidly growing. Thus, the banking industry faces sharpening competition in the field of micropayments.

### **Chip migration**

In line with the SEPA objectives, chip migration has begun in Hungary. The first card bearing an EMV chip was issued in the fourth quarter of 2002. By the end of 2006 23% of cards contained EMV chips, and 33% of EFTPOS terminals operating at merchant outlets and 2% of those installed at bank branches and post offices were able to read chips. The adaptation of ATMs is yet to commence.

### **Standardisation**

The 28-character Hungarian IBAN consists of three main parts in accordance with the ECBS standard. The first part is the country code "HU", the second is the check digits and the third incorporates the 24-character domestic account number.

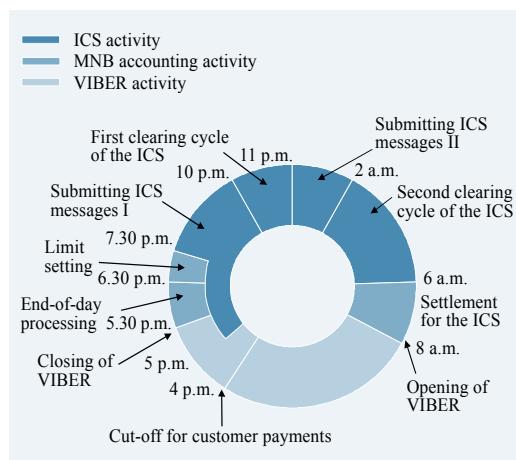
## **3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS**

### **3.1 GENERAL OVERVIEW**

There is a clear division of business hours between large-value and retail payment systems in Hungary. The distribution between VIBER and the ICS is partly dependent on their different functions and partly on the free choice of users. There is no limitation in terms of the value of transactions. The basis for direct participation in VIBER and in the ICS is the settlement account relationship with the MNB. The lists of direct participants in the two systems largely overlap.

The core payment systems are closely linked and complement each other. Bulk payments are processed overnight in the ICS using the daily initial liquidity information on a batch-by-batch basis, and settlement is carried out in the MNB's accounting system before the opening of VIBER. Only the occasional second clearing cycle of the ICS during VIBER hours requires the splitting of the sending party's liquidity. Financial risks for participants and the MNB arise in a similar way in both systems, although ICS participants should manage their liquidity *ex ante*, while in VIBER there are a number of tools for managing liquidity during operating hours.

The following chart shows the daily schedule of the core payment systems (times are CET):



Large-value payments tend to pass through VIBER, while low-value payments are generally made through the ICS, as can be seen from the following table:

Aggregate turnover of VIBER and the ICS in 2006		
	Transaction volume (in thousands)	Value of payments (€ billions)
VIBER	809.4	2,957.82
ICS	204,068.6	234.18
Total	204,878.0	3,192.00

There are three clearing systems for domestic card payments. International card associations operate two of these.

Furthermore, there are a number of other payment arrangements that, although not an established payment system, bear some of the characteristics of a payment system.

The customer accounting system of the MNB provides a full settlement account service for banks that are not direct participants in VIBER. The master accounts of VIBER participants (except for the MNB itself) are kept in the accounting system, and entries are made before and after VIBER business hours. ICS positions,

the Hungarian forint leg of foreign exchange transactions with the MNB and the crediting of due deposits with the MNB are settled in the morning, while fees, interest payments, collection orders, loan repayments and the extension of overnight credit by the MNB are entered in participants' accounts after VIBER closes.

The accounting system of the Bank of Hungarian Savings Cooperatives Ltd operates according to a similar arrangement. It provides savings cooperatives with indirect access to the payment systems and enables intra-sectoral payments to be made.

The Magyar Posta operates an internal clearing system in connection with its cash-related services.

### 3.2 THE REAL-TIME GROSS SETTLEMENT SYSTEM

The Hungarian RTGS system, VIBER, has been operational since September 1999. It is owned and operated by the MNB.

#### 3.2.1 OPERATING RULES

The operating rules of the system are set out in the terms and conditions for the settlement accounting and VIBER services of the MNB. The rules include membership criteria, operating hours, a timetable for the business day, revocability and finality provisions, message standards, responsibilities and obligations of participants, intraday credit and related collateral arrangements, prices, etc. Participating banks concluded an agreement on the time-frames for executing customer payment instructions, which has been published in the Official Gazette of the Ministry of Finance.

#### 3.2.2 PARTICIPATION IN THE SYSTEM

The system is open to domestic credit institutions and Hungarian branches of foreign credit institutions, the MNB, the State Treasury, KELER, the Magyar Posta and, via remote access, to credit institutions registered in the European Economic Area. There are 42 direct

participants. The criterion for direct participation by a credit institution is purely technical: it should have an account with the MNB (any credit institution can have one) and should be able to link up to the system (this requires membership of a SWIFT closed user group and successful testing). Furthermore, foreign participants via remote access and Hungarian branches of foreign credit institutions must fully comply with the special requirements set out in their respect in the Act on Settlement Finality. Indirect participation has two salient features: customers of indirect participants can be addressed directly, and indirect participants can send and receive bank-to-bank payments after the cut-off for customer payments. The position of an indirect participant is part of the position of the direct participant acting as an access provider.

### 3.2.3 TYPES OF TRANSACTION HANDLED

The system handles transactions regardless of their value. Participants other than the MNB and KELER can only initiate credit transfers by submitting a SWIFT payment message. By contrast, the MNB and KELER can initiate debiting and crediting of participants' accounts.

#### *Customer payments*

Every participant can send and receive payments on behalf of their customers using MT 103 message formats. SWIFT customer payments should be entered into the system before the customer cut-off time at 4 p.m. CET.

#### *Bank-to-bank payments*

Bank-to-bank payments are payments among participants (both direct and indirect) for their own account made from 8 a.m. until 5 p.m. CET.

#### *Securities payments*

Payment orders for settlement of the cash leg of securities and derivatives transactions are initiated by KELER on behalf of the credit institutions that are parties to the underlying trade transactions, which parties are direct VIBER participants. If one party to the trade is

an investment service provider and the other is a VIBER participant, KELER acts as an intermediary in VIBER.

KELER performs these services in the following cases:

- the settlement of securities transactions on a DvP basis. This applies to OTC transactions (primary and secondary markets, repo transactions and negotiated block trades on the BSE). The settlement of these trades fulfils the criteria for DvP Model 1;
- BSE stock exchange multilateral net settlement; and
- debiting on the basis of margin calls in the case of exchange-traded derivatives.

The message formats for these transactions are proprietary, but are based on SWIFT messaging standards, using MT 298 sub-messages.

#### *Central bank transactions*

The MNB can debit and credit the accounts of participants in the case of settlement for other (net) systems (e.g. card clearing and occasional second ICS positions), cash transactions (e.g. deposits and withdrawals at cashier desks), or the placing of deposits with the MNB. Participants receive MT 900/910 notifications of the transactions. Refinancing loans are disbursed in a more conventional way, using MT 202 messages.

### 3.2.4 OPERATION OF THE SYSTEM

When the system opens, it first<sup>1</sup> imports the opening balances and limits from the accounting system of the MNB. When it closes, the closing balances and limits are exported to the MNB's accounting system.

The system is open from 8 a.m. until 5 p.m. CET. Customer payments should be entered into

<sup>1</sup> The limit is an intraday credit line fully covered by pledged securities accepted by the MNB. The use of the limit is free of interest and any other charges. This limit can be changed at any time during VIBER operating hours.

the system before 4 p.m. CET. Customer payments entered into the system before the cut-off time and queued can still be settled after the cut-off. Erroneous customer payments can also be returned after the customer cut-off time.

Every order is settled in real time, except for forward value payments. Forward value dates can be up to seven calendar days ahead of the current business day. On the due day, these payments are the first to be executed among orders with the same priority. There is no back value dating (not even in the case of error correction). The originator may delete forward value and queued payments before settlement, although neither it nor any third party may revoke settled transactions.

When the system closes, participants receive a detailed statement of account in the form of a SWIFT message.

### **3.2.5 TRANSACTION PROCESSING ENVIRONMENT**

The core of the system is formed by a central accounting system, a central terminal and two complementary computer units, one of which hosts the central accounting system, while the other handles communication. Since these two computers back each other up, this is a fault-tolerant configuration. A hot remote backup was established in May 2004. In 2005 a new function was added to VIBER: an online information service using SWIFTNet Browse. This facility complements the exchange of status enquires and reports using SWIFT FIN. Besides browsing, the online information service allows the priority of orders to be changed and orders to be withdrawn.

The system uses the SWIFT FIN Y-copy service. A closed user group has been established, and only its members have access to the system. Some participants have shared access to SWIFT through ELMASWIFT, a specialised SWIFT access point operator.

As the operator, the MNB can access the system through workstations. These workstations can be used to track the system and to manually

capture certain central bank transactions (e.g. positions from net systems). In the event of a failure in their communications, participants can also use these workstations if they are unable to connect to the SWIFT network.

### **3.2.6 SETTLEMENT PROCEDURES**

Settlement is carried out on a transaction-by-transaction basis with immediate finality. Settled payments cannot be revoked by the sender or a third party. If the sending direct participant does not have sufficient funds on its account, the payment will be queued and the sender receives notification. There are 99 priority levels in the system: the first seven are reserved for central bank transactions, the next three for KELER transactions, and the remaining 89 priorities can be freely assigned by the participants. The payment at the front of the queue within each priority level will, once funds become available, be released and settled according to the FIFO principle. The system is able to automatically resolve gridlock, although this process must be initiated manually.

Payments remaining in the hold queue until closing time are automatically rejected at the end of the business day.

Participants obtain information via SWIFT on their balances, incoming and outgoing queued payment orders and settled payments.

### **3.2.7 CREDIT AND LIQUIDITY RISKS**

Since VIBER is an RTGS system settling in central bank money with immediate finality, participants are not exposed to liquidity and credit risks regarding the payments settled.

The MNB extends intraday interest-free credit against full collateral, which can turn into overnight credit at the marginal rate of interest if the participant is unable to repay the intraday credit. In order to limit its risk, the MNB applies collateral valuation and a haircut in the calculation of the amount of credit.

There are also a number of ways to limit the risk of gridlock in the system:

- The required reserve holdings (currently 5% of the reserve base) can be freely used. Banks must meet reserve requirements on a monthly average basis.
- The intraday overdraft limit can be changed at any time during the system's operating hours with an instruction to KELER. KELER blocks and releases collateral at the request of the participant, and the MNB acts according to KELER's instructions. Nevertheless, collateral can only be released if the corresponding credit has not been drawn.
- The MNB schedules its own payments in a way that benefits other participants.
- The system's operating time is sufficiently long to meet the needs of the markets. It was extended by half an hour in 2006. In the run-up to EMU, the MNB is planning to extend the system's operating hours to match those of TARGET.
- There are two ways in which participants can rearrange their payment queues. First, they can delete queued transactions and resend them in a new order. Second, they can change the priority code assigned to the queued transactions. Both can be achieved by sending SWIFT messages and using the SWIFTNet Browse monitoring tool.
- Active liquidity management is facilitated by promptly notifying participants through a SWIFT message of every settled transaction (be it a credit or a debit), the formation and disappearance of queues, and limit changes. These notifications are sent automatically by VIBER. Participants may also use SWIFT messages to enquire about their current balance, settled transactions, and queued payments and receipts. These services allow participants to track their current balance in the system.

- Participants are urged to make payments without delay in an agreement between them and the MNB. Under the terms of the agreement, participants undertake to carry out customer transactions within two hours of the receipt of an order.

Furthermore, the use of the system's DvP services can eliminate principal risk in securities transactions.

### 3.2.8 PRICING

The MNB charges a flat fee of HUF 350 (€1.39) for every payment transaction. The fee is payable by the debtor. The fee does not include the cost of communication arising from transactions, notifications and statements received from the system, which is paid by SWIFT members. There is no entrance or periodical fee. The pricing policy aims to ensure full cost recovery.

### 3.2.9 STATISTICAL DATA

In 2006 the number of transactions in VIBER averaged around 67,453 per month, with an average monthly turnover of HUF 65,137.52 billion (€246.48 billion), which was 33.17 times GDP in 2006. The historical peak in daily volume was 5,686 transactions in June 2006, while the highest daily turnover was HUF 6,043 billion (€24.36 billion) in January 2003. In 2006 the average transaction value in VIBER was HUF 1,187.5 million (€4.49 million).

## 3.3 LARGE-VALUE PAYMENT SYSTEMS

There is no large-value payment system operating in Hungary besides VIBER.

## 3.4 RETAIL PAYMENT SYSTEMS

### 3.4.1 CARD-BASED SCHEMES

The clearing of payment transactions is administered by three different systems, namely the GBC, Visa and MasterCard national net settlement systems.

The GBC is a network operator owned by a foreign automated clearing house and providing

clearing services to seven members. Some major issuers and acquirers are not members of this company, and therefore Hungarian banks have agreed to use the domestic clearing services of the Visa and MasterCard associations. While the MNB is the settlement agent for the GBC clearing system, a private bank – the Magyar Külkereskedelmi Bank (MKB) – acts as the settlement agent for Visa and MasterCard clearing arrangements. The GBC sends interbank positions to the MNB, which processes them on the same day. Visa and MasterCard notify participants in their respective systems of their net positions, and net debtors discharge their obligations with a credit transfer to the clearing account held with the MKB via the ICS. Conversely, the MKB initiates giro credits for net receivers on the same day. The clearing of card transactions in all of the above-mentioned systems is based on the principle of net settlement.

In each system, each participant must pledge government securities as collateral, the value of which is calculated on the basis of the value of the domestic transactions made with the issuing bank's cards outside its own network. The value of the collateral is reviewed from time to time and the minimum amount is determined. The settlement agents (the MNB and the MKB) are contractually obliged to extend overnight credit up to the nominal value of the collateral of the participant if it cannot meet its obligations. Non-failing participants share any losses exceeding the market value of a failing party's collateral according to their contribution to the collateral pool.

In all three systems, the MNB manages the collateral deposited with KELER.

### **3.4.2 INTERBANK CLEARING SYSTEM**

GIRO operates the ICS. Although it is a retail system, the ICS is regarded as a systemically important payment system. In 2006 the ICS processed 99.6% of interbank Hungarian forint payments in volume terms and, by contrast, 7.3% in value terms. VIBER and the ICS complement each other, as they have distinct

operating hours which enable participants to use the same liquidity source in both systems. This entails a close interrelationship and dependency between these systems. Each system can only commence operations if the other has completed its daily operations. GIRO is a private joint stock company owned by 27 commercial banks, KELER and the MNB, the latter having a 7.29% stake.

The ICS is a gross payment system, settling at a designated (deferred) time and processing in batches. It processes credit and debit transfers, direct credits, collection orders (including direct debits and letter of credit), cheques and bills of exchange. The system started operating in 1994.

The system's general terms and conditions include the clearing agreement, the operating rules and the applicable standards. Any modifications to these must be agreed upon by ICS participants. The MNB approves amendments to the rules before they enter into force and has the right to veto them.

#### **3.4.2.1 Operating rules**

The ICS operates according to its general terms of contract, applicable standards, manuals and other internal rules. GIRO and the participants are in a bilateral contractual relationship under uniform conditions. The general terms of contract are published in the Official Gazette of the Ministry of Finance. Credit institutions are expected to contribute to the improvement of the ICS by participating in the Interbank Experts' Committee, which operates under the aegis of GIRO. However, all modifications and additions to rules require the approval of the MNB. Rules governing settlement can be found in the settlement account contract of the MNB.

#### **3.4.2.2 Participation in the system**

Any domestic credit institutions, Hungarian branches of foreign credit institutions and, via remote access, credit institutions registered in the European Economic Area may apply for membership. Domestic credit institutions licensed

to provide payment services, with the notable exception of savings cooperatives, are obliged to join directly either the ICS or VIBER or both according to the Banking Act. Furthermore, foreign participants via remote access and Hungarian branches of foreign credit institutions must fully comply with the relevant special requirements set out in the Act on Settlement Finality. Besides credit institutions, the MNB, the State Treasury and KELER also participate in the system directly. There are 57 direct and 159 indirect participants in the system.

#### 3.4.2.3 Types of transaction handled

The ICS supports the following payment instruments:

##### *Transfer orders*

- Ordinary transfer orders (i.e. credit transfers)  
Ordinary transfers may be customer payments or bank-to-bank payments.
- Direct credit  
A direct credit is a particular kind of transfer order. The originator hands the instruction into its bank in electronic batch format. There is one transferor and a number of transferees in an instruction. GIRO not only carries out the transfer order, but also draws up a detailed status report on settled and failed payments for the originator.

##### *Collection orders*

The system can handle collection orders. Collection orders may be initiated either with a non-clearing message (request for collection) or by means of a letter with the relevant documents attached. Therefore, the system does not match requests for collection with the actual transfer messages.

##### *Cheques, bills of exchange and letter of credit collection orders*

These types of collection are always initiated with a letter.

##### *Direct debit*

A direct debit is a pre-authorised batch collection order. There is one originator and a large number of payers in an instruction. Records of direct debit requests are kept by the system and corresponding transfers are matched. The ICS not only carries out the transfer order, but also prepares a detailed status report on settled and failed payments for the originator. The debtors' banks forward their customers' authorisations to the beneficiaries through the ICS in electronic form.

All transactions have the same priority. There is no limit on the value of a payment. The system processes transactions exclusively in the national currency, the Hungarian forint. Forward value transactions are not handled by the system. Collection orders processed in the system are always traced back to credit transfers, i.e. the beneficiary's bank sends a debit request and the actual funds transfer is always initiated by the debtor's bank. Therefore, there are so-called clearing (i.e. payment) and non-clearing (i.e. initiation of collection) transactions. Original and rejected payment transactions are clearly distinguished.

#### 3.4.2.4 Operation of the system

The system starts operating at 10 p.m. CET. Before the processing of transactions commences, the MNB supplies information on participants' funds. This is composed of participants' closing settlement account balances with the MNB and initial intraday credit limits (see Section 3.2.4). Credit limits are set after the daily closure of the accounts in the accounting system of the MNB and remain unchanged during ICS operating hours until the opening of VIBER. When the ICS system closes, participants receive detailed transaction files, a report on their settlement positions and a number of other reports (the most notable of which is the MNB's settlement position report).

The system is open from 3.30 p.m. until 2 a.m. CET for the receipt of payment messages that are forwarded in electronic batches.

Payments are processed on a batch-by-batch basis. Transaction batches are opened and processed if there are available funds. If sufficient funds are not available, all payments from the same batch are held pending in a queue. Incoming payments are added to the funds, as a result of which further batches can be processed.

The processing of batches is not continuous. Batches received before 10 p.m. CET are processed in the first run within the next hour, while those received later are processed in the second run just after 2 a.m. CET.

The operator clears the transactions and creates output files in electronic batches. These files are usually sent to participants between midnight and 1 a.m. CET (although the official dispatch time is 6 a.m. CET). Normally, the operation is finished with settlement in the books of the MNB at around 7 a.m. CET.

If some transaction batches remain queued after the overnight processing, a second processing cycle is run from 9.30 a.m. CET on the next day, provided that by that time at least one or more of the failing banks have raised liquidity for all of their remaining debit items. Once the liquidity has been transferred to the MNB's account in VIBER, a new clearing cycle can start. The intraday settlement position report is produced by around 11 a.m. CET, and the position is settled in VIBER soon after. If a bank cannot raise the required liquidity in time, its queued batches are cancelled and the bank can re-enter the transactions the next day or, in the case of important or urgent payments, transfer them through VIBER. Output files are forwarded to the participants concerned between 11 a.m. and 12 p.m. CET.

#### **3.4.2.5 Transaction processing environment**

The means of communication is GIRO's proprietary network. In order to limit the risk of failure, the network has appropriate backup, duplication of communication lines and fault-tolerant configurations. Physical transportation of magnetic data media is used only in

emergency situations. Direct participants are equipped with computer terminals which are owned by the clearing operator and deployed at the head offices of participating institutions. Participants use their own software interfaces to convert transactions into GIRO format from their accounting system formats.

A live system and a remote hot backup system are available at GIRO. Both systems operate separately, but only the primary system may send output to participants. The system can process 8 million transactions per hour. On peak days, 3.1 million transactions are cleared.

#### **3.4.2.6 Settlement procedures**

The MNB receives a settlement position report from GIRO. Settlement takes place at around 7 a.m. CET for the first cycle and at around 11 a.m. CET for the second cycle. There is certainty of settlement for cleared transactions, since, in the first cycle, settlement is carried out promptly and with finality before the opening of VIBER. The settlement obligations in the second cycle are pre-funded (see Section 3.4.3.4).

#### **3.4.2.7 Credit and liquidity risks**

As the ICS settles on a gross basis in the MNB's accounting system, participants are not exposed to credit and liquidity risks regarding the batches settled.

The risk of batches remaining unprocessed owing to a lack of liquidity is relatively low because of the relatively high level of required reserves (5% of liabilities) that can be used for payment purposes, the availability of intraday credit from the MNB and also that of the second clearing cycle when the money market is open. Nevertheless, fewer liquidity management tools are available in the ICS than in VIBER. Participants cannot cancel or modify transaction batches, rearrange queues, change limits or receive position information during processing. However, there are some ways to help smooth the flow of payments. First, participants can decide to route large-value transactions through

VIBER. Incoming funds received from a partner could also serve the purpose of making further payments. Participants may also pursue a prudent batching strategy: creating more output files with relatively low totals in each transaction batch helps to avoid gridlock. It is equally important to pledge as much collateral overnight as possible, since this entails less opportunity cost than daytime pledging. Throughout the ten-year history of the system, gridlock has never occurred.

#### 3.4.2.8 Pricing

ICS participants pay flat transaction fees, which also cover the cost of communication. The ordering bank pays the fee, except in the case of multiple direct debits where the initiator (beneficiary's bank) pays it. A fee is charged for all transactions. Participants pay a fee of HUF 20 (€0.08) per clearing transaction. Non-clearing transactions (e.g. the initiation of collections) are subject to a lower fee of HUF 5 (€0.02) per transaction. Return payments are processed free of charge.

GIRO charges participants with low turnovers a monthly minimum fee of HUF 140,000 (€556.06), which covers the cost of communication.

The pricing policy is revised yearly. Fees tend to cover operational costs and the investments of GIRO, plus a return on capital for shareholders.

#### 3.4.2.9 Statistical data

In 2006 the number of transactions in the ICS averaged around 17 million per month, with a monthly turnover of HUF 5.157 billion (€19.51 billion), which corresponded to some 2.63 times GDP in 2006. The historical peak in daily volume was 3.1 million transactions in March 2005. The average transaction value in the ICS is HUF 303,000 (€1,147), with the median being around HUF 30,000 (€114).

## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

#### 4.1.1 THE BUDAPEST STOCK EXCHANGE

##### 4.1.1.1 Institutional aspects

The BSE was re-established in 1989 as a private sector institution by enterprises providing investment services at that time. When founded, the BSE was a *sui generis* association, and it was transformed into a joint stock company in 2002.

In 2005 the BSE merged with the Budapest Commodity Exchange, retaining its original name.

The three largest shareholders of the BSE are UniCredit Bank Hungary Zrt. (25.22%), Österreichische Kontrollbank AG (12.5%) and Wiener Börse AG (12.5%). The MNB holds 6.95% of the shares.

The Capital Markets Act and the BSE's internal regulations constitute the legal framework within which the BSE operates. Membership criteria are laid down by the aforementioned Act, which stipulates that no applicant may be refused entry if it meets the public membership criteria and that the number of members may not be limited. At present, the BSE has 38 members, which are banks, investment firms and commodity traders.

The BSE is subject to HFSA market surveillance and prudential supervision.

##### 4.1.1.2 Operational aspects

Trading on the BSE is conducted in four sections: the equities, debt securities, derivatives and commodities sections. Shares, investment notes and compensation notes are traded in the equities section, while government bonds, discount Treasury bills, corporate bonds and mortgage bonds are bought and sold in the debt securities section. The derivatives section offers equities and currency futures and options, indexes and spread contracts. In the commodities

section different grain spot, futures and options contracts are traded, and in April 2006 gold futures contracts, and in December 2006 BUX ETF, were introduced as new products.

In the framework of the agreement concluded between the BSE and Deutsche Börse AG, the BSE, in its capacity as a so-called multi-member service provider, provides technical access to the XETRA trading system.

In accordance with the Capital Markets Act, the purchase and sale of listed securities on behalf of the general public is only permitted if performed through the stock exchange. Since 1 January 2002 only dematerialised securities can be issued publicly, except for government debt securities, which remain in paper form. Securities issued in physical form before 1 January 2002 had to be dematerialised by 31 December 2004 at the latest.

There is an electronic remote trading system for the cash market, whereby exchange members trade directly via workstations in their offices. The cash market is order-driven without market-makers, and there is an automated order matching and trade execution system. The trading system uses two basic order-matching algorithms in the course of normal trading.

When using the equilibrium price-based matching algorithm, the system takes the orders entered during the order collection sub-session and identifies the market depth at which trades may be concluded for the highest quantity of securities, and trades will be executed at that price.

When the continuous matching algorithm is used, the order book keeps orders in the sequence of execution (ranked according to price and time). A new order entering the order book will be matched with an order of the opposite type that has the best price and that matches it in every respect (overlapping or identical prices and quantities). The price of the deal is determined by the price of the order that entered the order book earlier. In the event that

a newly entered order cannot be matched or can only be matched partially with orders in the order book, it will be held in the order book according to the priorities of order execution.

Trading includes several sessions or periods in the equities section; the opening period is based on the equilibrium (single) price-matching algorithm, while the “free period” uses continuous order matching to conclude trades (trading in the government securities section consists of a free period only).

The BSE introduced auction orders to allow traders to conclude extraordinary high-volume “block” deals in the secondary market, both in the equities and in the government securities sections. Auction orders facilitate the buying and selling of exchange-listed securities in quantities over a specific high volume.

One of the most important trading rules provides that no exchange deals may be withdrawn or revoked for reasons of invalidity. All orders entered into the trading system are matched according to pre-determined rules, and matching takes no account of the party that made the order (i.e. the system is anonymous, any member of a section may conclude a deal with any other member and no one can tell in advance who the other party to a trade will be, except in cases where certain special order methods are used). All in all, this means that risks are shared by section members. The MMTS (Multi-Market Trading System) I, the trading system of the cash market, was implemented to offer a full range of trading services and support to trading firms in the equities and debt securities sections of the BSE.

Trading hours match those in London and New York and the trading platform handles transactions by continuous order matching according to price and time priorities between 9 a.m. and 4.30 p.m. CET. In addition, participants may place orders in the equity market before 9 a.m. each day, which in turn will be processed, matched into trades and published by another algorithm of the system

based on the equilibrium price at 9 a.m. CET. The BSE publishes each equilibrium price as the opening price of the corresponding equity.

The trading system supports market-making, and this function is performed by specialist members of the debt securities section, who ensure that there is a liquid market for securities by maintaining continuous quotes for government securities and a few corporate bonds during periods of the trading day announced in advance.

The MMTS I also includes a primary auction module which has been used by the Government Debt Management Agency (ÁKK) for many years to issue government securities on the primary market. This module also allows parties to sell share packages of larger value in the equities section under the rules provided in the Code of Trading.

In order to ensure compliance with the trading rules and to avoid any violation of investor interests, a market surveillance terminal has been established at the HFSA, enabling it to monitor the market in real time.

Taking into account the requirements of market participants and international trends, the MMTS II, a derivatives trading system modelled on the specialised equity and government securities market functions of the MMTS I, was launched in October 2000. With the MMTS II in place, the BSE could consistently apply a more secure and controlled trading technique in the futures and options markets as well. Furthermore, new technical solutions for derivatives trading were added, including a "request for quote" function, advanced market-maker functions, spread trading (synthetic orders and direct use of spread orders), real-time position management and monitoring, and risk management functions such as "close out" status and the configuration of order rules at the instrument level, both of which enhance transparency and flexibility in trading.

Trading hours in the futures and options markets match those in the cash market, allowing these markets to operate concurrently. In these markets, equilibrium price trading also precedes the free trading period, which starts at 9 a.m. CET. By this time the system has generated an opening price from the orders queued in the system, and the algorithm uses that price to match trades. Section members may apply the same technique to enter a closing session in the futures and options markets once trading in the cash market has closed. Real-time and continuous data transfer between the BSE and KELER enables the derivatives market to continue trading if a firm fails to maintain proper margins, while only the firm with the shortage of funds is suspended from trading.

The MMTS I and II have technical features that bear international comparison. One of the most important system features is robustness, which is achieved by having at least two of each software and hardware component of the system. Whenever an error occurs, the system automatically switches to the components that function correctly. Another advantage is scalability: if the number of users increases (by a factor of five even), only new hardware components need to be purchased. Lastly, the speed of the system deserves a mention, as the MMTS is capable of processing incoming orders at a rate of 450 transactions per second.

In the commodity section deals are made on the basis of standardised agreements (contracts) and regulations. Contracts allow both parties to agree upon the price, quantity and delivery date. Delivery months are also fixed, although there can be variations depending on the product.

All transactions traded on the BSE are cleared and settled by KELER, which has an automated electronic connection to the BSE.

#### 4.1.3 THE OTC MARKET

There is no organised trading platform for the OTC market. Deals are concluded on a bilateral basis using telecommunication lines and the

Reuters dealing system. Although government securities are also traded on the BSE, the OTC market has a much higher share in terms of turnover. OTC derivatives play a key role in banks' risk management.

KELER can settle OTC securities contracts for its customers upon request. Two main types of transaction on the OTC securities markets are public issues of government or private securities and secondary market transactions. Primary issuance of government securities takes place through the primary dealing system. There is a group of around ten primary dealers appointed by the ÁKK with an obligation to act as market-makers.

The activity of the market players is regulated by the Capital Markets Act and supervised by the HFSA. The banks make the majority of the deals, although some investment firms are also very active.

#### 4.2 CLEARING

There is no independent clearing house in Hungary. KELER plays the role of both clearing house and settlement agent for both securities and derivatives.

#### 4.3 SETTLEMENT

##### 4.3.1 INSTITUTIONAL AND LEGAL ASPECTS

The Capital Markets Act regulates the clearing and settlement of securities and derivatives in Hungary. The Act specifies the following clearing and settlement services: clearing, cash settlement, securities and commodities settlement, the provision of settlement guarantees and the operation of a securities lending system. A clearing house operating as a specialised credit institution may offer all of these services, while an exchange may only perform the functions of clearing, securities and commodities settlement and securities lending. The current business model of KELER is based on the previous legislation allowing any clearing house including central

counterparties to also perform central securities depository functions. However, with effect from 1 January 2006 the Capital Markets Act was amended in order to create the legal preconditions for the organisational separation of the central securities depository and CCP functions. The new legislation grants a three-year grace period for KELER to carry out the separation.

KELER, established in 1993, is a company limited by shares. It is jointly owned by the MNB (53.3%) and the BSE (46.7%). Currently KELER, the Hungarian CSD, is the sole provider of clearing services in Hungary. It acts as a CCP for both the spot and the derivatives markets. There are a number of different systems operated by KELER. Membership criteria for each system differ, as do the methods used for risk management.

KELER opens and keeps securities accounts for those entities listed in the Capital Markets Act as being eligible to hold such an account with it. These entities are investment firms, credit institutions, foreign custodians, commodity traders, issuers (with respect to their own securities), the MNB, the State Treasury and the ÁKK.

KELER handles two basic types of securities account for its participants. The first is a depository account available to all participants, and the second is a settlement account for stock exchange clearing members. While a depository account can be divided into an unlimited number of sub-accounts (to segregate the activities of the participant and those of its customer groups or individual customers), the settlement account only has two sub-accounts: the participant's own sub-account and an omnibus customer sub-account.

The terms of participation for the settlement of exchange-traded products depend on the market sections of the BSE, as detailed under point 4.1.1.2.

Three categories of membership have been defined:

General clearing members can participate directly in the system and may grant access to sub-members.

Individual clearing members can participate directly in the system, but may not grant access to sub-members.

Sub-clearing members are entitled to conclude deals on the exchange, but are obliged to settle via a general clearing member. A sub-member, although recognised by the rules of the system, does not have a contractual relationship with KELER and does not contribute to the collective guarantee funds.

Direct clearing membership is established by concluding a contract with KELER, before which the following conditions should be met:

- a licence for trading in the relevant section should be obtained from the HFSA;
- the capital requirements as laid down in the General Terms of Business of KELER should be met;
- the required accounts should be opened; and
- the applicant should undertake to report regularly to KELER in the required format.

The capital requirements in the various sections are as follows:

(HUF millions)	Derivatives		Spot	
	Commodity section	Other	T+3 market	T+2 market
Individual clearing members making clearing transactions on behalf of their customers only	10	20	20	20
Individual clearing members making clearing transactions on their own and their customers' behalf	20	100	100	100
General clearing members	500	500	500	500

KELER provides OTC DvP services to the MNB, credit institutions and investment firms, provided that the cash settlement account of the respective institution is held with the MNB or KELER.

The rules and regulations of KELER governing operational procedures are approved by the HFSA in conjunction with the Governor of the MNB.

#### 4.3.2 OPERATIONAL ASPECTS

KELER operates an integrated IT system for the provision of its services. Its system is composed of a number of elements which are integrated by middleware technology. KELER operates different settlement patterns for BSE cash market trades, block trading and off-exchange transactions. While BSE cash market transactions are settled on a multilateral net basis (with a T+3 cycle for equities and a T+2 cycle for bonds), block trades and off-exchange transactions are settled on a gross basis.

##### 4.3.2.1 BSE securities

###### *BSE securities clearing*

The BSE carries out trade matching on day T. It provides a detailed list of matched trades to KELER in real time and at the end of the trading day also sends aggregated trading data. Each trade is marked as a “customer” or “for own book” transaction. KELER performs multilateral netting for cash as well as for securities. In the morning of T+1 KELER sends net position reports to participants for information and reconciliation purposes. KELER does not

require confirmation of these net positions from participants.

KELER acts as a CCP in respect of securities transactions on the spot market, guaranteeing the settlement of the net positions calculated after multilateral netting.

To manage risks, KELER continuously monitors the open positions of its clearing members. In the event of severe fluctuations in the market, intraday clearing can be effected for the whole market or for a specific segment (e.g. a member, product, group of products or a certain maturity) without interrupting dealing.

KELER sets daily margin requirements for its clearing members on a marked-to-market basis on the price movements of the daily matched trades (i.e. both initial and variation margins are calculated), which must be settled by 8.45 a.m. CET on the next business day. The SPAN risk management system, developed by the Chicago Mercantile Exchange, is used to determine the daily initial margin commitments to be provided by a clearing member.

Negotiated block trades and auction trades are not netted. They are matched item by item on a gross basis.

#### ***BSE securities settlement***

Net sellers must place in their accounts the net amount of securities sold on their own and their customers' (omnibus) accounts by 11.30 a.m. CET at the latest on the settlement day (T+2 or T+3), and the same applies for the cash leg. Segregation of sellers' and their customers' securities accounts is mandatory. Settlement takes place on a DvP basis. Securities are first blocked in the accounts of the net sellers and then KELER carries out the cash settlement. Cash accounts may be held in the books of KELER or in the RTGS system of the MNB (VIBER). In the latter case, KELER can debit and credit the accounts of the participants in VIBER. After completion of cash settlement, securities are delivered to the buyers. Finality is achieved at the same time for cash and

securities at the point when they are credited to the respective accounts.

If a net seller does not have the securities sold at its disposal, KELER initiates automatic borrowing. If KELER does not find a lender for the type of security concerned, it may take the collateral of the member and initiate a forced buy-in. In this case, KELER buys the securities using the collective guarantee fund. Should KELER be unable to find a seller, it deletes the transaction and recalculates positions. KELER informs the BSE and the participants of every forced buy-in.

In the event of a cash shortage, KELER provides liquidity to the participant in the form of a repurchase agreement or takes the buyer's collateral and draws cash from the collective guarantee fund. Subsequently, KELER periodically attempts to debit the cash account of the buyer.

KELER informs the BSE of cases of non-delivery, and the BSE may decide to suspend the trading rights of the member concerned. Cash entering the buyer's account is used to replenish the collective guarantee fund.

Block trades and auction trades are settled on a trade-by-trade (gross) basis.

#### ***4.3.2.2 Exchange-traded derivatives***

##### ***Exchange-traded derivatives clearing***

KELER fulfils the role of a central counterparty for the BSE derivatives markets. Parties to futures and options deals become counterparties of KELER when the latter confirms the deals. Members must distinguish between their own and their customers' deals. KELER manages positions at an individual customer level.

In order to limit its exposure to the financial risk of a member, KELER sets trading limits such as a maximum daily trading volume, a market share limit or a capital-based limit, or requires the naming of customers placing large orders. The breaching of limits entails the obligation to

pledge additional collateral. KELER reserves the right to carry out on-site inspections on the premises of its clearing members.

Traders on the BSE use an automated trading system, and transaction data are forwarded to KELER continuously in real time. Members can enquire about their positions online through the KIS (KELER Internetwork System). KELER officially notifies members of their positions by means of a daily position report sent at the end of the day. KELER continuously monitors open positions. In the event of severe fluctuations in the market, intraday clearing can be effected for the whole market or for a specific segment (e.g. a member, product, group of products or a certain maturity) without interrupting dealing.

The margin requirements are calculated for each customer of the members. During the batch processing conducted in the evening, positions are updated and marked to market based on the price movements of the daily matched trades (i.e. both initial and variation margins are calculated) and the settlement procedure is carried out.

#### ***Exchange-traded derivatives settlement***

Since KELER acts as a CCP, the settlement of derivatives transactions has the highest priority and is carried out ahead of the settlement of other types of transaction at the beginning of the business day.

In order to ensure orderly variation margin settlements on time and by any means, KELER not only operates a robust guarantee system, but also provides its members with a full range of banking services, ranging from account-keeping to overnight repo facilities. Thanks to the comprehensive approach taken by KELER, the clearing system, other KELER systems and VIBER are interlinked so that daily profits and losses are immediately credited and debited to members' accounts. Initial margin funds can be used by KELER for final variation margin settlements on day T, but these initial margin funds must be replenished by paying in cash or depositing government debt securities before

trading starts on T+1. If a member fails to do so, KELER advises the BSE to suspend its trading rights, and the BSE makes the decision on whether to do so. KELER then closes and liquidates the positions of this member and transfers the performing account positions to a sound clearing member. After three days of non-performance, an institutional receivership procedure is initiated. KELER requires members to set aside cash in a collective guarantee fund. The purpose of the fund is to eliminate, or at least mitigate, the consequences of the failure of one member to pay on time. The members and KELER jointly own the funds, while KELER sets up the funds, manages them and decides on drawings and replenishment.

In order to avoid a significant build-up of credit and liquidity risks, KELER has also introduced an intraday settlement facility. In the event of extreme price movements, when preset limits are breached trading is suspended until the exchanges have transferred trades, and KELER blocks intraday margin amounts in the accounts concerned. As a rule, this procedure takes no longer than 20 minutes.

KELER uses its SPAN system to determine the daily initial margin commitments to be provided by a member. KELER's SPAN system handles positions on each account as if they constituted a separate portfolio within the member's structure of accounts. Individual account level requirements for customers are produced and aggregated in an omnibus customer account. These figures, together with any requirements for positions on the member's own account, are shown in the daily statements of account. In line with a member's risk factor, or on reaching certain limits, KELER requires additional margins to be deposited.

#### ***4.3.2.3 Settlement of OTC transactions***

All investment firms and credit institutions which hold securities accounts with KELER and cash accounts with either the MNB or KELER are allowed to participate in the settlement system for OTC transactions.

Settlement instructions are submitted directly by KELER participants via the KIS.

KELER matches trades and checks securities and cash balances trade by trade. After matching, KELER informs the counterparties of any unmatched trades in order to give them an opportunity to amend instructions.

For matched instructions, KELER checks securities and cash balances, settles the trade in real time and sends confirmations to all participants concerned. As credit institutions have their settlement accounts at the MNB, KELER uses its online real-time link to VIBER for the cash settlement of trades involving at least one bank. Auction trades and negotiated block trades are settled using this mechanism.

KELER does not provide any support mechanism for the settlement of OTC transactions. If one of the counterparties lacks securities or cash, the trade fails.

As the settlement of OTC derivatives trades is not supported by KELER, the parties to a trade in such an instrument should decide on how to settle it.

#### **4.3.2.4 International securities settlement**

KELER has a bilateral link with Clearstream Banking Luxembourg, allowing settlement in foreign securities. This connection enables KELER to offer DvP settlement to its members. To this end, KELER holds both securities and foreign exchange cash accounts for its customers. KELER keeps a nominee account for Clearstream, enabling it to settle trades in Hungarian securities efficiently.

Through the cooperation of the BSE and the Deutsche Börse AG it is possible for BSE members to acquire Deutsche Börse membership at rather advantageous terms, and, at the same time, to trade directly in the XETRA trading system. In this connection, KELER has established a direct account relationship with Clearstream Banking Frankfurt (the institution

responsible for the settlement of deals as a central clearing house), as well as with Citibank Frankfurt, a custodian and clearing service provider executing clearing and settlement services as an intermediary for KELER. With the cooperation of its German partners, KELER offers direct services to its customers regarding the clearing and settlement of securities deals concluded on XETRA.

#### **4.3.2.5 The use of the securities infrastructure by the central bank**

The MNB uses the securities settlement system for two main purposes:

- For open market operations in the form of repurchase agreements. KELER delivers the securities involved on a real-time DvP basis.
- For the pledging of collateral to obtain central bank credit. KELER manages this process. The MNB determines the haircut and the collateral value of eligible securities on a daily basis. The pledging of securities can be initiated with a message to KELER. On the basis of the collateral value supplied by the MNB for each security accepted as collateral, KELER calculates the total value of collateral pledged by each participant and reports it to the MNB. Collateral blocked throughout the day is valued and reported by KELER and thus the limit of each participant can be adjusted. Collateral releases are validated by the MNB prior to the actual release of securities. A pledged security can also be withdrawn. To do so, the participant must first notify KELER of this wish, and it is KELER's task to calculate the corresponding credit amount. Upon receiving KELER's notification, the MNB checks the availability of the credit limit and reduces the limit accordingly, as well as notifying KELER of the acceptance of the limit change. In its system, KELER blocks and releases securities on the accounts of the participant and does not transfer them to the account of the MNB. In the case of

intraday credit, an initial credit limit may be set, and this limit can be changed at any time during VIBER operating hours.





# MALTA

## CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>222</b>
<b>INTRODUCTION</b>	<b>223</b>
<b>1 INSTITUTIONAL ASPECTS</b>	<b>224</b>
1.1 The general institutional framework	224
1.2 The role of the Central Bank of Malta	225
1.3 The role of other private and public sector bodies	227
<b>2 PAYMENT MEDIA USED BY NON-BANKS</b>	<b>227</b>
2.1 Cash payments	227
2.2 Non-cash payments	228
2.3 Recent developments	229
<b>3 INTERBANK PAYMENT SYSTEMS</b>	<b>230</b>
3.1 General overview	230
3.2 The RTGS system: the Malta Real-time Interbank Settlement System	230
3.3 The retail payment infrastructure	232
<b>4 SECURITIES TRADING, CLEARING AND SETTLEMENT</b>	<b>234</b>
4.1 Trading	236
4.2 Clearing	236
4.3 Settlement	236

## LIST OF ABBREVIATIONS

MFSA	Malta Financial Services Authority
MaRIS	Malta Real-time Interbank Settlement System
MATS	Malta Automated Trading System
MSE	Malta Stock Exchange
PSUG	Payment Systems Users' Group

## INTRODUCTION

When compared with other financial systems, the number of participants in Maltese payment systems and the volumes that flow through them are relatively small. The payment channels in the Maltese financial system have therefore tended to develop around standard technology without the need for a separate retail payment system for low-value credit transfer orders. Much of the focus when upgrading the payments infrastructure has thus been devoted to increasing the efficiency of the system via the dematerialisation and electronic transmission of payment instruments.

As far as large-value interbank payments are concerned, the limited number of credit institutions operating domestically – two institutions account for 89% of the payments market – necessarily conditions the flow of payments between banks. Both the value and volume of payments tend to be lower than in comparable countries. Consequently, systemic exposure cannot be fully mitigated by payment system design alone, and adequate participant supervision is just as important as a sound legal infrastructure if the systemic implications of participant failure are to be kept to a minimum.

The local real-time gross settlement system, the Malta Real-time Interbank Settlement System (MaRIS), started operating on 26 August 2002. During 2006 it processed approximately 202 messages per day, which typically comprised around 50 large-value payments (of over MTL 50,000) and around 152 low-value payments (of under MTL 50,000).

Payment by cheque is still very common in Malta and, although both the Central Bank of Malta and credit institutions are promoting more efficient payment instruments, cheques are still the most widely used payment instrument. Cheques are truncated at the bank on which they are drawn, with paid cheques being retained by the paying branch instead of being forwarded to customers along with statements. The paying bank creates an

electronic claim for each cheque and forwards that, together with the actual physical cheque, for payment through the clearing system. Settlement is effected on a daily basis, with each bank settling on a gross basis the total value of cheques presented by the other participants.

It is, however, encouraging to note that rapid progress is being made in the use of other forms of payment, such as credit transfers. The use of credit and debit cards is also increasing, and this is helping to achieve greater flexibility in the way that retail payments are handled. ATM and POS networks give retail customers 24-hour access to banks operating in Malta.

The volume of business passing through the Malta Stock Exchange (MSE) generates approximately 55 deals per day. The system settles the net obligations of its participants through settlement agents participating in MaRIS in a single daily settlement cycle. Securities traded on the MSE are dematerialised and recorded in a central register held at the exchange.

## I INSTITUTIONAL ASPECTS

### 1.1 THE GENERAL INSTITUTIONAL FRAMEWORK

The Banking Act (Chapter 371 of the Laws of Malta) and the Financial Institutions Act of 1994 made the Central Bank of Malta responsible for licensing credit and financial institutions. Since 1 January 2002 this function has been transferred to the Malta Financial Services Authority (MFSA). In this role, the MFSA is responsible for issuing banking directives and ensuring that credit and financial institutions comply with legislative provisions and the conditions of their licences. Such directives have the force of law, and any infringement can result in penalties. The various banking directives have, over time, brought the prudential supervision of banks in Malta into line with EU requirements. Banking directives imposing an obligation or requirements on the general public can be issued only by the Minister for Finance through regulations passed under the Banking Act.

The banking sector is at the centre of the money transmission system. According to Chapter 371 of the Laws of Malta, a “bank” or “credit institution” means any person engaged in the business of banking. The “business of banking” is, in turn, defined as the business of a person which accepts deposits of money from the public that may be withdrawn or repaid on demand or after a fixed period of notice, or which borrows or raises money from the public (including the borrowing or raising of money by means of the issuing of debentures or debenture stock, or of other instruments creating or acknowledging indebtedness), in either case for the purpose of employing such money in whole or in part by lending to others or otherwise investing on the account and at the risk of the person accepting such money.

The Central Bank of Malta Act (Chapter 204 of the Laws of Malta) provides that the national central bank has as one of its objectives the promotion of, and participation in the establishment of, a sound and efficient payment

system. In the event of participant failure, the application of the zero-hour rule in Maltese law is implicitly provided for in the Companies Act. This Act stipulates (in Article 223) that the date of dissolution in the event of a court winding-up order must be deemed to be the date that the winding-up application is filed. This is interpreted as meaning that dissolution is effective as from midnight on that date. A corresponding provision governs the case of the voluntary winding-up of a company: Article 226 of that Act states that the date of dissolution must be deemed to be the date specified in the resolution for dissolution and subsequent winding-up, or, if no date is mentioned, the date that this resolution is passed. Furthermore, Directive No 2: Payment and Securities Settlement Systems, which is based on Directive 98/26/EC on settlement finality in payment and securities settlement systems, specifies that for a credit or financial institution which participates in a system in respect of which insolvency proceedings have been commenced upon the order of the competent authority, the moment at which insolvency proceedings are opened must be the moment when the competent authority issues an order requiring the credit or financial institution to wind up its business or to wind up its business in Malta.

Additional legislation has given other regulatory powers to the MFSA in its role as the competent authority. Of particular note is Article 29 of the Banking Act, which allows the MFSA to adopt various measures if a bank has become unable to meet its obligations. Measures range from giving directions to the bank to appointing a person to control or liquidate the bank’s assets. Any winding-up order issued by the MFSA under this provision will be governed by the specialist procedures established under the Controlled Companies (Procedure for Liquidation) Act of 1995, which was introduced with the specific purpose of winding up the affairs of a bank while avoiding recourse to the law courts.

Furthermore, in 2003 the Banking Act introduced the Depositor Compensation Scheme

Regulations, with the MFSA as the authority competent to regulate the scheme. The objective of the scheme is to provide a means of protecting private depositors within the framework of these regulations.

The soundness of the banking system is further ensured by the application of other laws, including the Prevention of Money Laundering Act of 1994, the Insider Dealing Act of 1994 and the Professional Secrecy Act of 1994.

## 1.2 THE ROLE OF THE CENTRAL BANK OF MALTA

### 1.2.1 GENERAL RESPONSIBILITIES

The Central Bank of Malta Act assigns to the national central bank the primary objective of maintaining price stability. In addition, the NCB must also promote orderly and balanced economic development. The NCB is responsible for: (a) influencing the volume and conditions of the supply of credit; (b) managing and maintaining external reserves, so as to safeguard the international value of the currency; (c) ensuring the stability of the financial system; (d) promoting, and participating in the establishment of, a sound and efficient payment system; (e) issuing national currency banknotes and coins; (f) advising the government generally on financial and economic matters; (g) compiling and publishing such statistics as may be necessary to carry out its tasks under the provisions of the Act and those of any other legislation; and (h) performing any other functions assigned to it by law.

### 1.2.2 PAYMENT SYSTEMS OVERSIGHT

Under Article 36 of the Central Bank of Malta Act, the Central Bank of Malta is responsible for overseeing and regulating the operation of, and participation in, domestic payment systems, as well as any form of cash or security transaction, whether domestic or cross-border, that may be involved therein, and may itself establish and operate such a payment system. Furthermore, the organisation, establishment and operation of a domestic payment system – as well as participation therein – is prohibited

unless that system has been approved and authorised by the national central bank.

Article 36(6) of the Central Bank of Malta Act also states that “payments, set-off or netting made through or within a payment system, including any collateral given by a participant in connection with any such system, shall, notwithstanding any other law relating to bankruptcy or insolvency or to the regulation and enforcement of collateral or otherwise regulating the validity of such payments, set-off or netting and the giving of collateral, be final and binding on all parties thereto and may not be attacked or impugned in any court of law”.

In addition to the above, the Central Bank of Malta has also been given the power to issue directives on the regulation of clearing houses, settlement agents and participants in payment systems, as well as on the legal enforceability of payments made through such systems and the collateral provided in connection with the operation of such payment systems.

The Central Bank of Malta also has the power to issue directives for the purpose of adopting the EC directives on settlement finality in payment and securities settlement systems, on cross-border credit transfer services and on electronic payment services (including the provision of debit and credit cards and electronic money services).

### 1.2.3 OPERATIONAL ROLE

The Central Bank of Malta Act empowers the NCB to act as a banker to credit and financial institutions in Malta and to open accounts for them and accept deposits on their behalf. The NCB provides settlement account services to five licensed credit institutions and the Malta Stock Exchange. Through these accounts, the institutions settle their obligations in the Malta Clearing House, provide settlement services to members of the Malta Stock Exchange and effect interbank transactions and other transactions directly with the Central Bank of

Malta. Payments passed through MaRIS are settled on a gross basis in real time.

The Central Bank of Malta Act, as amended in 2002, entrusts the NCB with the task of operating the real-time gross settlement system MaRIS, which entered service on 26 August 2002. All credit institutions providing services to residents in the domestic currency are participants in MaRIS.

In its role as banker to the government, the Central Bank of Malta maintains accounts for various government departments both in Maltese liri and in foreign currency. In addition, the NCB holds other accounts for parastatal corporations and other entities. An increasing number of payments are effected through these accounts on an almost daily basis. The bulk of government salaries, wages and social benefits are paid by credit transfer through the Central Bank of Malta. All foreign exchange transactions undertaken by the government are likewise effected through the NCB.

The NCB may trade in government stocks and Treasury bills. In practice, it has refrained from purchasing such securities directly from the government and has limited its trading to the secondary market.

#### **1.2.4 ACTIVITIES IN THE AREA OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

As stated above, Article 36(1) of the Central Bank of Malta Act empowers the Central Bank of Malta to oversee and regulate the operation of, and participation in, any form of cash or security transaction, whether domestic or cross-border. Furthermore, the Central Bank of Malta may also issue directives on the regulation of settlement agents and participants in payment systems, as well as on the legal enforceability of payments made through such systems and the collateral provided in connection with the operation of such payment systems.

The Central Bank of Malta uses the securities infrastructure to receive collateral for monetary policy operations through repurchase

agreements, and to receive collateral for payment systems credit operations with commercial banks through pledged securities for the advance of intraday credit and overnight loans.

All trading on the Malta Stock Exchange is settled on a net basis through MaRIS in central bank money.

#### **1.2.5 COOPERATION WITH OTHER INSTITUTIONS**

Since 1 January 2002 the MFSA has been the authority, under the Banking Act and the Financial Services Act, which is competent to supervise credit and financial institutions, the stock exchange and stockbrokers. This change has therefore required the Central Bank of Malta, as the regulator and oversight authority for payment systems, to cooperate closely with the MFSA in the field of systemically important payment systems and in the area of securities settlement.

Cooperation and the exchange of information between the Central Bank of Malta and the MFSA is covered by the provisions of the Central Bank of Malta Act and the Malta Financial Services Authority Act, subject to the requirements of confidentiality. A memorandum of understanding on the sharing of information has been drawn up between the Central Bank of Malta and the MFSA.

During 2000 the Central Bank of Malta, together with the commercial banks represented in the Malta Bankers' Association, set up the Payment Systems Users' Group (PSUG). The Group then drew up the rules and regulations for MaRIS, which started operating on 26 August 2002. The PSUG meets on a regular basis in connection with issues concerning the various payment instruments and payment systems in Malta.

## 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

### 1.3.1 THE MALTA BANKERS' ASSOCIATION

The Malta Bankers' Association represents the interests of all licensed credit institutions. The objectives of the Association are:

to identify and discuss matters of common interest to its members, and to implement, or organise the implementation of, the relevant solutions;

to pursue and maintain harmony and coherence in policies on issues of common interest to its members, and to lobby and negotiate with the authorities and other relevant bodies in support of that objective;

to discuss developments in the banking and financial services sector;

to encourage, promote, sponsor or assist in any manner research on matters relating to banking and finance;

to strive to enhance the public image of the banking industry in Malta; and

to take all other steps which may be incidental, ancillary or conducive to the attainment of the above objectives.

### 1.3.2 THE PAYMENT SYSTEMS USERS' GROUP

The Payment Systems Users' Group is composed of the Central Bank of Malta and five licensed credit institutions providing services to residents. The Group has to date discussed the various EC directives on payment and securities settlement systems, electronic payment instruments and cross-border payments in view of their implementation in Malta. Discussions have also covered the European Code of Conduct for electronic payments, finality and other issues related to the field of payments, as well as the introduction of the IBAN. The PSUG has also been instrumental in drafting the operating rules of the local RTGS system

MaRIS and is presently discussing issues related to the SEPA and the euro changeover.

### 1.3.3 FINANCIAL INTERMEDIARIES THAT PROVIDE PAYMENT SERVICES

In 2005 there were 19 credit institutions and 13 financial institutions licensed in Malta. All credit and financial institutions are supervised by the MFSA and classified as such under appropriate legislation, together with various related supervisory and regulatory directives.

A variety of payment services are provided by the credit and financial institutions through their network of 154 branches/offices (i.e. one branch per 2,700 inhabitants). The majority of these branches are owned by the two larger credit institutions, which together hold almost 93% of all current accounts.

One credit institution lends solely for housing activities and was licensed to engage in deposit-taking activities in 1995. It is owned by one of the major credit institutions and on 21 April 2006 merged its operations with those of its parent institution. In fact, it had not taken on any new business since September 2001.

Maltapost plc is not a credit institution. It offers a limited payment service to its customers, in the sense that it sells/purchases postal and money orders through its nationwide branch network. It also offers its customers a service allowing them to pay bills to a select number of institutions.

Access (MasterCard/Eurocard) and Visa are the main credit card brands used in Malta and are issued by credit institutions.

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

Currency in circulation at the end of 2005 totalled MTL 498.92 million (€1,160.52 million), representing approximately 25.7% of GDP. This is equivalent to MTL 1,235 (€2,873)

per inhabitant, which is one of the highest figures in Europe.

The Central Bank of Malta Act gives the NCB the exclusive right to issue national currency banknotes and coins in Malta. The unit of currency is the Maltese lira. Banknotes come in the following denominations: MTL 2, MTL 5, MTL 10 and MTL 20. Coins are issued in the following denominations: MTL 1, 50 cents, 25 cents, 10 cents, 5 cents, 1 cent, 5 mils, 3 mils and 2 mils (MTL 1 = 100 cents; 1 cent = 10 mils). Coins are acceptable as legal tender up to the following amounts:

1 cent coins:	25 cent coins:
MTL 0.20	MTL 10.00
2 cent coins:	50 cent coins:
MTL 1.00	MTL 10.00
5 cent coins:	MTL 1 coins:
MTL 10.00	MTL 20.00
10 cent coins:	
MTL 10.00	

Article 42(4) of the Central Bank of Malta Act empowers the Central Bank of Malta to withdraw currency banknotes and coins from circulation once notice has been given by the Minister for Finance. At the end of this notice period the currency banknotes and coins concerned will cease to be legal tender, but may be redeemed at the Central Bank of Malta on demand and at par for ten years from the end of that period.

## 2.2 NON-CASH PAYMENTS

### (a) Credit transfers

Customers make extensive use of standing orders to effect regular payments to specific payees, such as the payment of premiums to insurance companies and the payment of rent or instalments for the purchase of goods or services.

Paperless credit transfers are also often used for paying wages, salaries and benefits. In fact, all public sector employees receive their monthly salary by means of a credit transfer. This method

of payment is also very popular in the private sector. The customer making the payment gives the order to the bank either in paper form or in an electronic format. In 2005 approximately 3.77 million credit transfers were effected, with a total value of MTL 5.9 billion (€13.72 billion).

### (b) Cheques

The use of cheques as a means of payment is governed by the provisions of the Commercial Code. However, this contains few provisions specifically regulating cheques and, for the most part, simply includes them under the detailed provisions on bills of exchange.

Cheques are still the most widely used means of payment in Malta. It is estimated that 12.18 million cheques were drawn in 2005, the equivalent of 30 cheques per person for that particular year. The total value of these cheques was MTL 5.6 billion (€13.03 billion), while approximately 806,000 cheques were drawn on the Central Bank of Malta, with a total value of MTL 482 million (€1,121 million).

Cheques drawn on the Central Bank of Malta can be cashed at the Central Bank of Malta or can be paid in over the counter at credit institutions. Since the Central Bank of Malta does not have any branches, an agreement exists with the credit institutions to negotiate cheques drawn on the Central Bank of Malta but paid in over the counter at credit institutions. As many of the cheques still represent payments of a repetitive nature, banks, together with the Central Bank of Malta, are trying to promote the greater use of credit transfers and other alternative forms of payment.

For domestic systems, commercial bank charges are limited to the cashing of cheques. The two largest commercial banks charge customers a fee of MTL 0.75 (€1.75) for cashing cheques drawn on another bank. However, one of them waives this fee if the cheque is deposited in the account of the drawing customer.

### (c) Direct debits

Direct debits were introduced in Malta around six years ago and are still gaining in popularity with selected utilities providers. Both the NCB and credit institutions are discussing the development of direct debits, so as to familiarise customers with this method of payment. It is hoped that interbank clearing facilities will be implemented as part of the national SEPA project at the beginning of 2008.

### (d) Payments by card

Credit and debit cards have both gained in popularity over the past ten years as a means of payment in Malta. There are now approximately 427,000 cards in circulation, an average of more than one card per inhabitant, with the younger generation holding the majority of them.

Credit cards issued by banks give holders a credit facility, the size of which depends on the customer's standing. A customer's credit account is kept distinct from other accounts (i.e. current and savings accounts), and the cardholder receives a monthly statement showing any outstanding balances on the credit card account. It is up to the customer to decide whether to settle the full amount in one transaction or to take advantage of the credit period allowed by the bank issuing the card. Interest must be paid if use is made of the credit period. Until a few years ago Maltese law capped the interest charged on these balances at 8% and, naturally enough, many people chose to take full advantage of this restriction. This provision has since been abolished, allowing banks to charge higher rates of interest on outstanding balances.

The use of credit cards has been increasing over the past four years, and 1.85 million transactions were made using this type of card in 2005, with a total value of MTL 70.78 million (€164.64 million).

Debit cards are payment cards issued by banks which allow customers to effect transactions directly on their current or savings accounts.

Customers therefore have the option of withdrawing funds from these accounts or making payments directly to suppliers of goods and services.

The debit card is more popular than the credit card in Malta, as is the case in most countries. In fact, while at the end of 2005 there were around 345,000 debit cards in circulation, the figure for credit cards was around 120,500. Approximately 3.5 million transactions were effected by means of debit cards in 2005, with a total value of around MTL 72.47 million (€168.57 million).

Bank customers currently have access to the following services through the ATM network: cash withdrawals, cash deposits on their own or third-party accounts, service payments, balance enquiries, requests for cheque/deposit books, funds transfers, PIN number changes, requests for statements and details of recent transactions. Some debit cards can also be used at ATMs in other countries. The various ATM networks are interoperable for cash services.

At end-2005 there were 154 ATMs in Malta, and their use is gaining in popularity every year. There were also 9,095 POS in Malta in that year. Approximately 9 million transactions (i.e. cash withdrawals) were effected using ATMs in 2005, with a total value of approximately MTL 363.69 million (€845.97 million).

## 2.3 RECENT DEVELOPMENTS

The use of single-purpose prepaid cards on which value is held and used to pay for the issuer's services is at present limited to the telephone card. A reloadable card with a purse function was issued a couple of years ago by the local transport association, but its introduction was unsuccessful. The number of retailer cards and cheque guarantee cards is modest and limited to a handful of corporate customers.

Electronic (i.e. internet or PC-based) banking is gaining ground as a result of the introduction of web/remote account access by various credit institutions. This service allows customers to access account-related information and send payment instructions. Take-up of the service has been increasing over the past couple of years.

### 3 INTERBANK PAYMENT SYSTEMS

#### 3.1 GENERAL OVERVIEW

Transfers of funds denominated in Maltese liri between banks in Malta are effected through the real-time gross settlement system MaRIS, which started operating in 2002.

In the retail payments area, the most widely used instruments are cheques and debit cards. While cheque instruments are cleared through the Malta Clearing House, retail credit transfers and ATM and POS transactions are cleared through separate arrangements, and obligations are settled through MaRIS.

In 2001 it was felt that the main interbank payment system in Malta should be upgraded, in order to increase the efficiency of the payment systems and to continue to ensure the stability of the financial system in Malta. The system was developed in compliance with the recommendations for systemically important payment systems drawn up by the Committee on Payment and Settlement Systems of the Bank for International Settlements.

A Payment Systems Users' Group was set up to embark on the implementation of the Malta Real-time Interbank Settlement System. MaRIS started operating on 26 August 2002. It was agreed that the expenses incurred in establishing MaRIS should be shared equally by all participants.

#### 3.2 THE RTGS SYSTEM: THE MALTA REAL-TIME INTERBANK SETTLEMENT SYSTEM

##### *Introduction*

MaRIS is the domestic currency payment system used for same-day real-time gross settlement of interbank obligations. It is operated by the Central Bank of Malta and managed by an Association of Participants.

MaRIS operates on all days except Saturdays, Sundays and all official bank, national and public holidays in Malta, which are: 1 January, 2 January, 10 February, 19 March, 31 March, Good Friday, 1 May, 7 June, 29 June, 15 August, 8 September, 21 September, 8 December, 25 December and 26 December.

##### 3.2.1 OPERATING RULES

The MaRIS Operating Rules, which are approved by all participants, give a detailed explanation of what is expected of participants. The Operating Rules, which can be found on the NCB's website, relate mainly to membership criteria, operating hours, the timetable for the business day, message standards, and the responsibilities and obligations of participants. The administration of MaRIS is entrusted to the Association of Participants, which must meet at least once every six months and which is also responsible for the arbitration of all disputes.

##### 3.2.2 PARTICIPATION IN THE SYSTEM

To participate in MaRIS, an institution must be a member of SWIFT, have a live SWIFT TID and have a settlement account with the Central Bank of Malta.

The institutions must have the appropriate technical capabilities and have in place adequate contingency plans, so as not to hinder the smooth operation of the system. Furthermore, each participant in MaRIS must pay the entry costs and ongoing transaction and transmission fees and charges, as determined by the Association of Participants. There are seven participants in MaRIS, including the Central Bank of Malta.

### 3.2.3 TYPES OF TRANSACTION HANDLED

Customer payment orders and payments are effected through MaRIS, together with any interbank obligations and monetary policy operations, provided that the order is unconditional and irrevocable. This includes the settlement of obligations arising from participation in the Malta Clearing House and the Malta Stock Exchange. All payment messages for inclusion in MaRIS must be for same-day value only and must be in Maltese liri. Any payment message with a value date earlier than the date of transmission will be effected on the date it is transmitted, and future-dated transactions will be rejected, with a message to this effect sent by the Central Bank of Malta to the sending participant. All payments are automated, and paper-based payment instructions are accepted by the Central Bank of Malta only as part of a contingency arrangement.

### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

The Central Bank of Malta is responsible for the smooth operation of settlement systems and the finality of payments, as provided by Article 36 of the Central Bank of Malta Act, together with the management and monitoring of day-to-day business operations and settlement accounts. Furthermore, it is also responsible for sending on messages, providing management information and matching bilateral positions, invoking contingency arrangements and ensuring conformity with the recommendations set out by the European Central Bank.

### 3.2.5 TRANSACTION PROCESSING

The main advantage of MaRIS is that it offers payment finality (i.e. any payment instruction which is passed through the RTGS is deemed to be unconditional and irrevocable at the time when the sending participant's account is debited in the Central Bank of Malta's Settlement Accounting System). A payment is deemed final when the receiving participant's account is credited. MaRIS also guarantees the same-day delivery of funds and the mitigation of systemic risk.

MaRIS uses SWIFT FIN services as its messaging solution and has automated message processing, queue resolution and collateral use facilities. The system directly updates the books of the Central Bank of Malta in real time and provides web-enabled liquidity and settlement account management information. Payment instructions should comply with the SWIFT format rules for MT 103 single customer payment instructions and MT 202 single bank-to-bank payment instructions. The central operating unit works using an Oracle database and is directly interfaced to the Central Bank of Malta's Core Accounting system.

### 3.2.6 SETTLEMENT PROCEDURES

One of the main features of MaRIS is that it only allows same-day value payments through settlement accounts at the Central Bank of Malta, in real time, on an irrevocable settlement basis. All payments are unconditional and must be in local currency. Payments are settled only if sufficient funds are available; otherwise, they are queued until sufficient funds become available. The queuing resolution is automated, with servicing on a first-in, first-out basis. Any outstanding payments are rejected two hours after the time of acceptance or at the end of the business day. Settlements at the Malta Clearing House and the Malta Stock Exchange occurring before 10 a.m. CET have no priority or preference over other payments made through the system.

### 3.2.7 CREDIT AND LIQUIDITY RISK

MaRIS settlements are effected in central bank money, and all payments are settled immediately, thereby preventing participants from being exposed to credit and liquidity risks with regard to settled payments.

Minimum reserves are available to allow commercial banks to meet their intraday liquidity requirements. Intraday credit is advanced on the understanding that it will be settled by the end of the day through interbank lending or through the use of overnight credit facilities available with the Central Bank of Malta. Credit extended is fully collateralised.

The intraday and overnight credit facility is, however, seldom used by credit institutions, since the level of reserves, at 4% of customer deposit liabilities, is relatively high compared with daily payment needs. The Central Bank of Malta conducts auctions of deposits with a term to maturity of two weeks in order to temporarily remove liquidity from the banking system, while it uses repos, generally with the same term to maturity, to inject liquidity.

### 3.2.8 PRICING

The system's participants agreed to share all of the initial system development and operating costs. Thus, each participant pays the same joining fee, plus a standard yearly membership fee and a transaction fee of MTL 0.10 (€0.23).

### 3.2.9 STATISTICAL DATA

During the first full year of operation, i.e. 2003, a total of 37,282 messages were processed by MaRIS, with a total value of approximately MTL 14.217 billion. These comprised 25,304 messages with a value of under MTL 50,000 and 11,978 messages with a value of over MTL 50,000.

During 2006 MaRIS processed a total of 49,826 messages, with a total value of MTL 19.97 billion (€46.45 billion). Of these, 37,446 were messages with a value of under MTL 50,000 and 12,380 were messages with a value of over MTL 50,000.

## 3.3 THE RETAIL PAYMENT INFRASTRUCTURE

### (a) Card-based schemes

The banks currently issue the standard types of credit card provided by Visa and MasterCard. They accept payments by means of their networks for a number of international card issuers, namely Visa, MasterCard, Cirrus, American Express, JCB, Maestro and Diners Club. Each bank has individual arrangements with the issuers of these cards and uses satellite links or direct leased lines to exchange payment and settlement information.

Three credit institutions issue debit cards, which are used for retail payments and at ATMs. Both of the larger credit institutions have a POS network for their own cards, although other credit institutions' cards can also be used. They provide access to a third commercial bank that issues debit cards. The cards of the different network operators are now partially interoperable for cash services. Transactions at the point of sale are performed online, with either dial-up, ADSL or cable network technology being used.

### (b) Retail credit, debit and cheque transfer systems

The only retail system in Malta is the Malta Clearing House, which clears cheques and money orders across the banking system. This system is described in sub-section (c). The role of the clearing house is to establish an interbank agreement for the cashing, exchange and clearing of cheques between participants. The implementation of the agreement is handled by all participants, with the settlement of obligations effected through MaRIS.

The payment arrangements for debit and credit transfers are presented in sub-sections (d) and (e) respectively.

### (c) Malta Clearing House Operating rules

There is no specific legislation governing the clearing process for cheques in Malta. The system is based entirely on agreements, rules and regulations established by the Malta Clearing House. These specify the participants, the decision-making mechanism and associated voting rights, and the operational rules for the clearing of cheques drawn on the respective banks. The Central Bank of Malta has, under the provisions of the Central Bank of Malta Act, the authority to promote the establishment of a bank clearing system and to provide facilities for that system. The Malta Clearing House was set up in the early 1970s, and its running costs are minimal. The tasks involved in the processing of cheques through the clearing house are shared between the

participating institutions, with the clearing house only facilitating the exchange of the instruments and the associated electronic information.

#### ***Participation in the system***

The five credit institutions participating in the Malta Clearing House are members of MaRIS, which is operated by the Central Bank of Malta. Should a bank decide not to become a member of the clearing house, it may appoint one of the existing members as its agent, with settlement then taking place through that agent's call account. The other participating banks would treat this bank as another branch of the agent bank. Participation is open to all credit institutions and to financial institutions providing related services. All credit institutions operating cheque issuing accounts denominated in Maltese liri are eligible to join the Malta Clearing House.

#### ***Types of transaction handled***

This system handles cheque payments and money orders.

#### ***Operation of the system***

The Malta Clearing House meets at 7 a.m. CET every day (Monday to Friday) at the Central Bank of Malta for the exchange of cheques and data diskettes. The cheques and corresponding electronic details are immediately delivered to each bank's respective clearing centre for processing. By 10 a.m. CET each bank sends a SWIFT payment message to the Central Bank of Malta to settle those cheques which were drawn on it but negotiated by the other participants. This system is based on gross bilateral settlement through MaRIS.

#### ***Transaction processing environment***

Institutions at which cheques have been presented create electronic representations of those cheques. These electronic claims are delivered to the paying participants the next morning on diskettes, together with the cheques themselves, and processing is then handled by the paying institutions.

For cheque clearing through the one-day cycle, the instrument is presented to the issuer over the counter, with the issuer then settling the obligation individually through MaRIS.

#### ***Settlement procedures***

The system has procedures in place for two types of clearing cycle: one of three business days, and another of one business day for cheques whose value exceeds MTL 100,000 (€232,606).

The three-day clearing cycle:

Day one: customers deposit cheques at bank branches. In the afternoon these cheques are presented to the clearing data centre of the bank in question.

Day two: cheques are presented and exchanged at the Malta Clearing House. Settlement accounts at the Central Bank of Malta are debited/credited accordingly.

Day three: cheques received by a particular bank are delivered to its various branches and customers' accounts are debited with same-day value. Cheques that are not accepted by the issuer are not paid.

#### ***Unpaid cheques***

Day four: any cheques returned unpaid are exchanged at the Malta Clearing House. This must be carried out within two business days of their presentation at the Central Bank of Malta.

Day five: the unpaid cheques are received by the branch where they were originally deposited. A claim for their value is issued to the presenting bank. The claim is settled on the day it is presented, with the funds being returned to the rejecting bank.

Since the clearing cycle is somewhat long, banks advise their customers not to draw cheques against cheques still in the clearing cycle unless they have credit facilities at their

disposal, usually an overdraft. However, discussions are currently taking place to consider reducing the clearing cycle.

The one-day clearing cycle:

This is also referred to as "special clearing". Cheques in excess of MTL 100,000 (€232,606) may, exceptionally, be presented by the collecting bank to the drawee bank until 12.30 p.m. CET from September to July and until 12 noon CET in August in order to obtain same-day value. Settlement of this clearing is effected by SWIFT.

All settlement is effected through MaRIS, which is operated by the Central Bank of Malta using the SWIFT MT 202 payment instruction on a gross basis.

#### **(d) Direct debits**

There is no interbank clearing of direct debits. The service providers using the facility have an account with each participating credit institution through which all claims in respect of the customers of that institution are settled.

#### **(e) Retail credit transfers**

Developments in this area mainly concern the introduction of a new standard for the exchange of credit transfers in electronic format between the domestic credit institutions. That standard was implemented in December 2001 and is used by six participants: the five credit institutions offering retail services to residents, and the Malta Stock Exchange. It allows the exchange of SWIFT MT 103-formatted instructions in batch electronic credit transfer files delivered in electronic format. These files are encrypted and settled individually via the participant's account held at the Central Bank of Malta on the day the transfers are due. This standard has also been implemented by the Malta Stock Exchange for the payment of dividends to individual beneficiary accounts. The system allows each bank to create any number of batches for any value on a daily basis. There is also no limit to the value of the transactions processed. Access criteria and operating times

have yet to be formalised. The current participants do not levy a charge for processed transfers.

MaRIS also provides facilities for the clearing of customer credit transfers.

## **4 SECURITIES TRADING, CLEARING AND SETTLEMENT**

The Malta Stock Exchange was established in 1991 under the provisions of the Malta Stock Exchange Act of 1990 and is owned by the Maltese government. It is licensed by the Malta Financial Services Authority to operate an investment exchange as established by the Financial Markets Act (Chapter 345 of the Laws of Malta). It supports listing and trading by providing administrative facilities, including a settlement procedure and central registry functions. 12 stockbroking firms have a member's licence granted by the MSE and are licensed, under the Investment Services Act, to carry out the functions of a stockbroker for the purchase and sale of securities quoted on a recognised investment exchange.

Legislation passed in 2002 transferred the regulatory competence for the local capital market from the Malta Stock Exchange to the MFSA. The MFSA has now also taken over the licensing function. Under this regime, the MFSA has also become responsible for the supervision of the MSE and the stockbrokers. The MFSA is responsible, through the Listing Authority, for authorising new listings on the recognised investment exchanges.

In 2005 the following securities and equities were listed on the MSE: 13 equities, 26 corporate bonds, 41 government stock issues, 1 closed-ended collective investment scheme, 70 primary listed open-ended collective investment schemes and 129 secondary listed open-ended collective investment schemes.

The MSE maintains the central registry for each security, ensures custody services and deals

with all communications for holders, including the dispatch of dividend and interest payments, as well as performing all of the other functions that are customarily performed by a recognised investment exchange.

#### **Securities**

By far the most prevalent of the securities not listed on the MSE are the Treasury bills. Under the provisions of the Malta Treasury Bill Act of 1952, the Maltese government is authorised to issue short-term debt in the form of bills maturing within one year. To date, the Treasury has issued bills with maturities of 28, 91, 182, 273 and 364 days, with the 91-day bill being the benchmark issue. These bills are issued by the Treasury on a weekly basis through an auction-based system in which both resident and non-resident persons/institutions can submit tenders. Market participants are given prior notice of the maturity of bills to be issued through a calendar published monthly in the Government Gazette. Bidders must submit their offer by 10 a.m. CET every Tuesday, and successful bidders are advised by the Treasury (normally on the Tuesday or Wednesday) of the amount allotted to them. The transaction must then be settled by 10 a.m. CET on the Friday (the issue date).

#### **Central securities depository**

Following a recommendation by the G30, the MSE established a central securities depository (CSD) and thus the dematerialisation of certificates for listed securities.

This system allows investors to hold and transfer listed securities without the need for physical certificates or special transfer forms. Each listed security is represented by a computerised register of accounts which is updated following settlement to reflect the day's transactions. The CSD also provides for the settlement of off-market transactions and has been designed to be fully compatible with the trading, clearing and settlement systems used in the exchange.

There were approximately 169,000 accounts held in the central securities depository in 2005, representing 61,998 individual investors.

#### **Compliance Office**

The Compliance Office was established to liaise both with the MFSA with regard to the regulation of its members (in particular in relation to trading activity) and with the Listing Authority with regard to the monitoring of the continuing obligations of listed companies.

During 2005 Compliance Office procedures changed with regard to reporting to the competent authority. In accordance with the new reporting requirements introduced by the Prevention of Financial Markets Abuse Act, the delegation by the Listing Authority to the MSE in respect of the collation and monitoring of certain information was no longer applicable. The Compliance Office now reports directly to the Securities Unit at the MFSA.

The Compliance Office did not carry out any on-site inspections during 2005, although it did carry out 23 investigations, largely as a result of price fluctuations on the market or changes in trading patterns. All investigations carried out were reported to the competent authority, and no investigations were still pending at the end of the year.

#### ***The use of the securities infrastructure by the Central Bank of Malta***

The Central Bank of Malta uses the securities infrastructure to receive collateral for both monetary policy operations and payment system credit operations with commercial banks. For monetary policy operations, collateral is the object of repurchase agreements, while for payment system needs it is pledged as security for the advance of intraday credit and overnight loans. Each participant in the payment system individually pledges eligible collateral to the MSE in favour of the Central Bank of Malta in order to have access to liquidity in the system.

## 4.1 TRADING

### *Listed securities*

The Malta Automated Trading System (MATS) went live on 24 July 1996 with floor trading, and the trading floor was completely replaced with remote trading on 10 September 2001. The MATS is an order-driven system which integrates the whole trading, clearing, settlement and registry cycle by using “pre-validation” with the CSD. Therefore, when a member (a stockbroker licensed by the MSE to place orders on the system) places a sell order onto the market, the system checks in the central registry in real time before executing the trade, in order to ascertain whether the securities are actually available in the seller’s account, and blocks those amounts to prevent any further sales. The trading system does not, therefore, allow short-selling, while the settlement cycle is T+3 and based on gross securities and net cash settlement. The system supports trading in equities and bonds denominated in various currencies, which currently includes securities denominated in Maltese liri, US dollars and euro.

A key feature of the Maltese market-place is the “put-through” market or agency crosses. The “put-through” market is where a stockbroker has both buying and selling clients for the same security at the same price and with the same size. These are entered during a special session prior to the market opening session. In the “put-through” stage, any broker may challenge the original bid or offer prices. If a challenge is placed, the original broker has the option of reviewing its original orders. The MSE takes a very strong view on the best method of execution on the market floor, and trading rules insist on the market testing trades to ensure that both parties to a transaction get the best possible consideration for their transaction.

The securities currently traded on the MATS are fixed income securities issued by the government and by corporations, as well as equities issued by listed companies.

### *Non-listed securities*

The Treasury bill is the only major investment instrument in Malta which is still certificate-based. Given that the Treasury bill has not, to date, been listed on the MSE, it can be freely traded over the counter in the secondary market. The Central Bank of Malta performs the role of market-maker for Treasury bills in the secondary market, quoting bid and offer prices on a daily basis to the major market players and on Reuters. The Central Bank of Malta, through its Money and Capital Markets Office, provides an OTC facility for secondary market trading, which is available every day (Monday to Friday). Dealing in Treasury bills is carried out both at the retail level (for amounts up to MLT 49,999 (approximately €116,466)) and at the wholesale level (for amounts equal to or in excess of MLT 50,000).

## 4.2 CLEARING

There is no clearing house for the securities market.

## 4.3 SETTLEMENT

### *Listed securities*

The settlement of financial instrument transactions in MaltaClear is effected on a gross, trade-by-trade basis on the settlement day within security accounts held at the MSE’s CSD, or on financial instrument accounts held at the other CSDs where specific agreements have been concluded between the relevant CSDs.

Each MaltaClear participant must maintain one or more active accounts denominated in Maltese liri with one or more banks, into which funds are deposited by either the participant or the MSE for the sole purpose of the settlement of MaltaClear transactions. The appointed banks must be participants in MaRIS and must comply with the eligibility criteria and other conditions as outlined in the Operating Rules of MaRIS.

The MSE also participates in MaRIS and has a MaltaClear settlement account within MaRIS

for the sole purpose of depositing and withdrawing funds in respect of the settlement of MaltaClear transactions denominated in Maltese liri.

The settlement of funds between participants in MaltaClear transactions is deemed to be final upon the transfer, within MaRIS, of the relevant funds between the settlement accounts held in MaRIS by the executing banks and the MSE.

Participants must ensure that funds deposited in their settlement account(s) are cleared by the cut-off time on the settlement day, such that transfers to the MSE's MaRIS settlement account can be effected.

#### ***Settlement of foreign currencies***

The MSE maintains multiple MaltaClear settlement accounts with the Central Bank of Malta for those currencies other than the Maltese lira in which the settlement of MaltaClear transactions is effected.

The settlement of funds in the relevant currencies between participants in MaltaClear transactions is deemed to be final upon confirmation of receipt of the relevant funds in the settlement account(s) held by the MSE at the Central Bank of Malta.

#### ***Non-listed securities***

Treasury bills are still in certificate form, and trading entails the actual physical delivery of a certificate to the buyer. Physical delivery should take place on T+0 and is handled by the Central Bank of Malta. Payments are processed through Central Bank of Malta accounts where credit institutions are the counterparties, while for individuals the cash leg transaction is effected by means of a cheque payment (typically settled on T+3).

On the Treasury bill secondary market, trading outside the Central Bank of Malta's OTC facility may be carried out by any party, although in practice trading is conducted mainly between credit institutions and the Treasury. In such a situation, since credit institutions all

have an account with the Central Bank of Malta, settlement instructions for the cash leg are sent to the NCB via SWIFT. Information regarding the issue, maturity, transaction date, yields and prices is reported by the selling party to the Central Bank of Malta for statistical purposes.

The registration of outstanding Treasury bills is carried out directly by the issuer (i.e. the Treasury). However, the Treasury is actively looking into the possibility of dematerialising the Treasury bill instrument in order to allow its registration in book-entry form. Consultations with the Central Bank of Malta, the MSE and other major market players are currently under way in this regard with a view to dematerialising the Treasury bill in the near future.

#### ***Delivery versus payment***

Since April 2006 all transfers of MaltaClear transactions have been effected on a delivery-versus-payment (DvP) basis, where the final settlement of financial instruments occurs once the final settlement of funds has taken place.

#### ***Settlement cycle***

All MaltaClear transactions settle on a rolling settlement cycle in which funds must be settled by the end of the third business day following the trading day. Shorter settlement periods may be employed where the transacting parties and the MSE agree to this.





# POLAND

## CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>240</b>
<b>INTRODUCTION</b>	<b>242</b>
<b>1 INSTITUTIONAL ASPECTS</b>	<b>244</b>
1.1 The general institutional framework	244
1.2 The role of Narodowy Bank Polski	247
1.3 The role of other private and public sector bodies	249
<b>2 PAYMENT MEDIA USED BY NON-BANKS</b>	<b>249</b>
2.1 Cash payments	249
2.2 Non-cash payments	250
2.3 Recent developments	252
<b>3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS</b>	<b>253</b>
3.1 General overview	253
3.2 The real-time gross settlement system	254
3.3 Retail payment systems	261
3.4 Future developments	265
<b>4 SECURITIES SETTLEMENT SYSTEMS</b>	<b>265</b>
4.1 Trading	265
4.2 Clearing	270
4.3 Settlement	270
4.4 Use of the securities infrastructure by Narodowy Bank Polski	277

## LIST OF ABBREVIATIONS

BGF	Bank Guarantee Fund
BRIR	Regional branch of KIR
DOK	Domestic Operations Department of Narodowy Bank Polski
DSP	Payment Systems Department of Narodowy Bank Polski
DSPW	Dealers of Treasury Securities
ELIXIR	System for the exchange of electronic payment orders in PLN operated by KIR
EuroELIXIR	System for the exchange of electronic payment orders in euro operated by KIR (launched in March 2005)
GPW	Warsaw Stock Exchange
IRIP	Derivatives Clearing House
KDPW	National Depository for Securities
KIR	National Clearing House
KPWiG	Polish Securities and Exchange Commission
KNF	Polish Financial Supervision Authority <sup>1</sup>
KSR	Special settlement system for payment card transactions, operated by PolCard
MF	Minister of Finance
MTS-CeTO	Off-exchange regulated securities market
NBP	National Bank of Poland – <i>Narodowy Bank Polski</i>
PGF	Polish Financial Exchange
RWKB	Bank Card Issuers Board
RPW	Securities Register

<sup>1</sup> The Polish Financial Supervision Authority initiated its activity on 19 September 2006, i.e. on the day when the Act of 21 July 2006 on supervision of the financial market entered into force. The new supervisory body took over the tasks of the Insurance and Pension Funds Supervisory Commission and the Securities and Exchange Commission (KPWiG). As from 1 January 2008, the scope of financial supervision of the Polish Financial Supervision Authority will also include banking supervision and the supervision of electronic money institutions, tasks which are currently performed by the Banking Supervisory Commission.

SEBOP	Book-entry system for NBP bills
SEPA	Single Euro Payments Area
SKARBNET	Book-entry system for Treasury bills
SORBNET	System for servicing banks' accounts at the head office of Narodowy Bank Polski (RTGS system in PLN)
SORBNET-EURO	System for servicing banks' accounts at the head office of Narodowy Bank Polski (RTGS system in euro – launched in March 2005)
SYBIR	System for the exchange of paper-based payment orders operated by KIR (closed in July 2004)
ZBP	Polish Bank Association
ZUS	Social Insurance Institution

## INTRODUCTION

In 1989 Poland experienced major political changes which were followed by a transformation from a centralised to a market economy. Its payment systems also underwent substantial transformation.

During the period in which Poland had a centrally planned economy, the system for interbank settlements was based on the exchange of paper documents. There was no clearing house to intermediate in the exchange of payment orders between banks. Branches of commercial banks held current accounts with regional branches of Narodowy Bank Polski (National Bank of Poland; NBP). Settlement documents were sent between banks by post, and copies were then submitted separately to Narodowy Bank Polski's regional branches for the purpose of updating the banks' accounts. Debiting of the current accounts of sending banks and crediting of the current accounts of receiving banks was not performed on the same day.

In the light of the move towards a market economy, it became obvious that the old payment systems would have to be changed. The first stage, which was completed in the first half of 1992, focused on the consolidation of banks' current accounts. Since then each bank operating in Poland can only have one current account in zloty with Narodowy Bank Polski.

New, uniform principles for interbank settlements in zloty became effective on 5 April 1993. At first these were only binding on shareholders of the National Clearing House (KIR), i.e. on 17 banks, but, since 1 July 1994, they have applied to all banks operating in Poland. Since then zloty payments in Poland have been processed by two different systems: large-value payments by the RTGS system of Narodowy Bank Polski and retail payments in KIR.

In April 1993 Narodowy Bank Polski introduced a real-time gross settlement system (SORB) for large-value interbank transactions. The new version of the RTGS system, SORBNET, was launched in March 1996, and the electronic exchange of orders and other messages among banks and Narodowy Bank Polski was implemented by the end of 1998. The system fulfils the requirements for a modern RTGS system, i.e. payments are processed electronically in real time on a gross basis and, once settled, are final and irrevocable. SORBNET processes large-value payments, including interbank money market payments, the payment leg of the transactions cleared by the National Depository for Securities (KDPW) and large-value customer payments.

In the light of Poland's accession to the EU and banks' increased needs with regard to euro settlements, the SORBNET-EURO system was launched in Narodowy Bank Polski on 7 March 2005. At the same time, Narodowy Bank Polski became a member of the TARGET system. The SORBNET-EURO system enables banks to settle domestic and cross-border euro payment orders with banks located in the EU, without the use of correspondent banks. Since 7 March 2005 there has been a link between the SORBNET-EURO system and the EuroELIXIR system, which enables settlement of domestic retail transactions in euro; in addition, thanks to Narodowy Bank Polski's joining the cross-border systems EURO1 and STEP2 on 30 May 2005, the EuroELIXIR system may also be used for cross-border payments. Through the launch of euro settlement systems in Poland, the domestic payment infrastructure has been linked to the European systems for both large-value payments (TARGET) and retail payments (STEP2).

In retail payments, cash still plays the central role, although the use of payment cards has increased dramatically. Credit transfer orders are still the predominant form of non-cash payment. Cheques have never been a popular payment instrument in Poland. The use of the direct debit has been on the rise since June

1998; this has been the case particularly in recent years, thanks to the promotion of the direct debit in the media and the activities of the “Coalition for the Direct Debit”, which was set up by the Polish Bank Association (ZBP), the KIR, several large banks and the main creditors in 2003.

The securities market has grown very rapidly over the past fifteen years. There are currently two central securities depositories in Poland. They are operated by Narodowy Bank Polski and the KDPW.

The further development of the Polish payment system infrastructure is inextricably linked with Poland's membership of the EU. The most important activities in this regard are: joining the TARGET2 system; entry to the euro area; and the transposition into Polish law of the draft Directive of the European Parliament and of the Council on payment services in the internal market, amending Directives 97/7/EC, 2000/12/EC and 2002/65/EC.

## I INSTITUTIONAL ASPECTS

### 1.1 THE GENERAL INSTITUTIONAL FRAMEWORK

For the functioning of the payment and settlement systems the most important bodies are:

- Narodowy Bank Polski – Poland's central bank;
- the KIR – responsible for the clearing of retail payments;
- the KDPW – responsible for registering securities and clearing securities transactions; and
- the Polish Financial Supervision Authority (KNF) – responsible for the supervision of the financial market.<sup>1</sup>

The Banking Act of 29 August 1997 regulates, for banks operating in Poland, the principles for conducting banking activities, establishing and organising banks and exercising banking supervision; in addition, it establishes procedures relating to rehabilitation, liquidation and bankruptcy proceedings. The most recent amendment to the Banking Act, of 23 August 2001, introduced regulations on payment instruments and rules for the execution of cross-border credit transfers. Banks are also subject to other commonly binding regulations, such as the Code of Commercial Companies, the Bankruptcy and Rehabilitation Act, and the Labour Code, which cover aspects not encompassed by the Banking Act.

The basic tasks and structure of Narodowy Bank Polski are set out in the Act on the National Bank of Poland of 29 August 1997. Both the Banking Act and the Act on the National Bank of Poland empower the President of Narodowy Bank Polski and/or the Management Board of Narodowy Bank Polski to establish detailed regulations within their scope of competence.

As regards payment systems, the President of Narodowy Bank Polski determines, by way of a regulation, the manner of interbank settlements (Regulation No 6/2004 of 20 April 2000, as amended by the following regulations: No 18/2004 of 17 September 2004, No 2/2005 of 2 February 2005, and No 5/2005 of 23 February 2005). The regulation specifies the principles of settlement of interbank payments in złoty and euro, and the basic terms and conditions governing the activities of settlement agents, etc. Moreover, under Article 51.2 of the Act on the National Bank of Poland, the Management Board of Narodowy Bank Polski passed Resolution No 20/2004 of 22 April 2004 on the terms and conditions of opening and maintaining a bank account with Narodowy Bank Polski (as amended by the following resolutions: No 49/2004 of 1 October 2004, No 5/2005 of 1 February 2005, No 11/2005 of 22 February 2005, and No 5/2006 of 15 March 2006). Details relating to the servicing of the current accounts of banks are specified in a standard bank account agreement concluded with all the banks – participants of the SORBNET system. A specimen of such an agreement in relation to the SORBNET-EURO system was introduced by means of Resolution No 12/2005 of 22 February – issued under Article 109.1.1 of the Banking Act by the Management Board of Narodowy Bank Polski – on the introduction of a specimen agreement on opening and maintaining an RTGS account in the SORBNET-EURO system (as amended by the following resolutions: No 65/2005 of 7 December 2005 and No 4/2006 of 13 March 2006).

In respect of the mode of numbering of bank accounts maintained with banks, Narodowy

<sup>1</sup> The Polish Financial Supervision Authority initiated its activity on 19 September 2006, i.e. on the day when the Act of 21 July 2006 on supervision of the financial market entered into force. The new supervisory body took over the tasks of the Insurance and Pension Funds Supervisory Commission and of the Securities and Exchange Commission (KPWiG). As from 1 January 2008 the scope of financial supervision of the Polish Financial Supervision Authority will also include banking supervision and the supervision of electronic money institutions, tasks which are currently performed by the Banking Supervisory Commission.

Bank Polski's President issued Regulation No 5/2002 of 6 May 2002. Under the provisions of this Resolution, the use of bank account numbering in line with the Bank Account Number standards (for accounts used for domestic settlements) and the International Bank Account Number (for accounts used for cross-border settlements) has been obligatory since 1 July 2004.

The Banking Act also authorises the Minister of Finance to determine the format of paper-based payment documents used by the banks.

Under Article 67 of the Banking Act, banks may establish clearing houses in order to exchange payment orders and keep records of mutual claims and liabilities arising from such orders. Rules governing the exchange of payment orders via the KIR are set out in the by-laws on clearing procedures performed by the KIR. These by-laws determine the mutual obligations of KIR and the banks, as well as the time schedules for the exchange of payment orders in the ELIXIR and EuroELIXIR systems operated by the KIR.

The principles governing the cooperation between banks and their customers, in particular with regard to the settlement of payment orders, are regulated in bank account agreements. By contrast with the regulations that existed under the centralised system, banks are free to establish their relations with customers, provided that the provisions of relevant agreements do not breach superior laws (acts and resolutions).

The development of new, electronic services by banks in Poland, as well as the need to harmonise the Polish legal system with European Union laws, led to the passing of the Act on electronic payment instruments<sup>2</sup> of 12 September 2002. This law introduces into the Polish legal framework Commission Recommendation 97/487/EC of 30 July 1997 concerning transactions carried out by electronic payment instruments and in particular the relationship between issuer and holder, as well as Directive

2000/46/EC of the European Parliament and of the Council of 18 September 2000 on the taking up, pursuit of and prudential supervision of the business of electronic money institutions. The law specifies the rules on issuing and using electronic payment instruments, including electronic money instruments, the rights and obligations of parties to agreements on electronic payment instruments, and the rules on setting up, organising, operating, supervising and liquidating the institution of electronic money institutions. Its objective is also to protect holders of electronic payment instruments.

One section of the Banking Act relates to bankruptcy on the part of banks, while matters not regulated by the Banking Act are governed by the provisions of the Bankruptcy and Rehabilitation Act of 28 February 2003.

Under Article 52 of the Bankruptcy and Rehabilitation Act, the date of bankruptcy is the date of the court decision declaring the bankruptcy. However, under Polish law this decision is the final stage in bankruptcy proceedings and has no effect on the payment system. Such an effect results from an order of the Commission for Banking Supervision to suspend the bank's operations, as, pursuant to Article 159.1.1 of the Banking Act, the bank cannot settle its liabilities while its operations are suspended. Once the decision on suspension has been issued at the beginning of the day, the bank concerned cannot send payments to the RTGS system. In the case of retail payments, the suspended bank is in practice excluded from settlement the day after the suspension, because all payments sent by this bank to KIR before the point at which KIR is informed by the NBP about suspension should be settled. During a suspension, the suspended bank may only execute payments which have been approved by the Commission for Banking Supervision.

Special provisions relating to insolvency proceedings are contained in the Act on

<sup>2</sup> O.J. No 169, item 1385

settlement finality in payment and securities settlement systems and on the rules of oversight of these systems of 24 August 2001 (the Act on settlement finality), as well as in the Bankruptcy and Rehabilitation Act of 28 February 2003. These regulations ensure that the zero-hour rule does not apply to the payment systems within the scope of their effect. The zero-hour rule implies that the decision on declaring bankruptcy of a participant of these systems takes effect as of midnight on the day of declaring bankruptcy. According to both of the above-mentioned acts, the decision on declaring bankruptcy of a participant in these systems takes effect as of the moment Narodowy Bank Polski receives notification on this bankruptcy declaration. Moreover, the bankrupt estate of a payment system participant does not include the property of the bankrupt within the scope necessary to perform the obligations resulting from the participation in the system that have arisen before the bankruptcy is declared. The above-mentioned acts transpose Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement the finality in payment and securities settlement systems into Polish law.

The body responsible for the supervision of the capital market is the KNF. The objective of the supervisory tasks performed by the KNF is to ensure the proper operation of the capital market – in particular with regard to the security of trading, the protection of investors and other market participants and compliance with the principle of fair trading. The KNF supervises institutions operating on the capital market (i.e. investment firms and their agents, custodian banks, trust banks, companies operating the stock exchange and off-exchange markets, companies operating securities depositories, issuers, investment funds, management companies, commodity exchanges, commodities brokerage houses, power companies keeping accounts or registers of commodities, and exchange clearing houses).

Poland has binding regulations on consumer protection in relation to trade and services,

which have only recently become effective in respect of the banking and finance sector. Banks' customers are protected by the provisions of the following legal acts:

- the Banking Act (e.g. the protection of banking confidentiality rule);
- the Civil Code (inter alia, by defining unlawful contractual provisions);
- the Act of 2 March 2000 on the protection of certain consumer rights and on the liability for damage caused by hazardous products;
- the Act of 15 December 2000 on consumer and competition protection;
- the Act of 20 July 2001 on consumer credit;
- the Act of 12 September 2002 on electronic payment instruments;
- the Act of 14 December 1994 on the Bank Guarantee Fund. Under the latter, funds in bank accounts up to the zloty equivalent of €1,000 have been 100% guaranteed by the Fund since January 2003, while funds up to the zloty equivalent of €22,500 are covered by a 90% guarantee.

Narodowy Bank Polski is participating in the work on drafting the proposed Directive of the European Parliament and of the Council concerning payment services within the internal market, amending Directives 97/7/EC, 2000/12/EC and 2002/65/EC; once passed by the European Parliament and Council, the proposed Directive will be transposed into Polish law. The objective of this Directive is, first and foremost, to create a common legal basis for the functioning of payment markets throughout the territory of the EU and, hence, to establish the conditions for the integration of domestic payment systems. The Directive also aims at establishing a legal basis for the SEPA by creating common "templates" for the

functioning of payment products and enabling mergers of domestic payment infrastructures within the euro area.

## 1.2 THE ROLE OF NARODOWY BANK POLSKI

Narodowy Bank Polski's functions in the field of payment systems are specified in Articles 3.2.1 and 3.2.6 of the Act on the National Bank of Poland. They comprise the organisation of money settlements and the establishment of the conditions necessary for the development of the banking system.

### 1.2.1 PAYMENT SYSTEMS OVERSIGHT

Narodowy Bank Polski's responsibility for the oversight of payment systems in Poland is stated in the Act on settlement finality. Pursuant to this Act, the operation of payment systems and the introduction of changes to the rules governing their functioning requires the consent of the President of Narodowy Bank Polski. The criteria applied by Narodowy Bank Polski when assessing the rules governing payment systems include:

- 1) compliance with Polish law;
- 2) the safety of the system; and
- 3) the efficient operation of the system.

When assessing the efficiency and safety of a given system, the President of Narodowy Bank Polski also has regard to compliance with the criteria specified in the "Core principles for systemically important payment systems" (issued by the Bank for International Settlements) and the "Oversight standards for euro retail payment systems" (issued by the European Central Bank). The provisions concerning the oversight of payment systems contained in the Act on settlement finality and the provisions of Article 67.2 of the Act of 12 September 2002 on electronic payment instruments are also applicable to authorisation and clearing systems operated by non-bank acquirers.

Within the framework of conducting oversight, Narodowy Bank Polski collects statistical data on payment systems and information on incidents which have arisen in the payment system from payment systems operators and banks. The reporting requirements vis-à-vis Narodowy Bank Polski under the provisions of the Act of 12 September 2002 on electronic payment instruments also encompass payment card issuers, acquirers and electronic money institutions.

Detailed information on the oversight of the Polish payment systems is available on Narodowy Bank Polski's website (see "The Role of the National Bank of Poland in the Oversight of Payment Systems").

### 1.2.2 THE OPERATIONAL ROLE OF NARODOWY BANK POLSKI

Narodowy Bank Polski's main function in relation to payment services is to service the current accounts of banks and, in particular, to settle interbank payments.

Narodowy Bank Polski is the owner and operator of the SORBNET and SORBNET-EURO systems, which settle, on a gross basis, all credit transfers that the banks submit to Narodowy Bank Polski in electronic form. The SORBNET system also performs the settlement of cash liabilities resulting from transactions on securities deposited with the Securities Register (RPW) and the KDPW. The SORBNET-EURO system, on the other hand, thanks to its link to the TARGET system, enables euro settlement of both domestic and cross-border payments.

Narodowy Bank Polski also offers the settlement service for the KIR systems. Net claims and liabilities of banks resulting from the exchange of payment orders via the KIR are cleared in złoty or euro by SORBNET or SORBNET-EURO respectively during settlement sessions held within the hours agreed upon with Narodowy Bank Polski.

Narodowy Bank Polski is also a direct participant in the KIR. It transfers to and receives from the KIR payments of budgetary units whose accounts are operated by Narodowy Bank Polski branches.

In servicing the accounts of its customers, Narodowy Bank Polski executes payment orders, provided that the accounts contain sufficient funds to cover the settlement (no overdraft facilities are provided).

### **1.2.3 ACTIVITIES IN THE AREA OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

#### ***Operational role***

Narodowy Bank Polski plays an important role in securities clearing and settlement systems. First, it is the owner and operator of the securities depository and settlement system RPW, which manages two operating systems, namely the SKARBNET system (for Treasury bills) and the SEBOP system (for Narodowy Bank Polski bills). The RPW has also adopted procedures for gross settlement, both in securities and cash, of transactions in Treasury bills and Narodowy Bank Polski bills in compliance with DvP Model 1. It has contributed to the creation of a highly liquid market for these securities.

Cash settlement of transactions related to trading in Treasury securities, registered at the RPW, takes place in central bank money held in banks' current accounts maintained by Narodowy Bank Polski's Payment Systems Department (DSP). Moreover, since July 1999 Narodowy Bank Polski has been the settlement agent for the KDPW, which registers and settles transactions on other securities. This means that the cash legs (zloty and euro) of KDPW securities transactions are settled on current accounts maintained with Narodowy Bank Polski.

#### ***Oversight role***

Narodowy Bank Polski also performs the oversight of securities settlement systems, primarily on the basis of its proprietary rights.

Indeed, Narodowy Bank Polski is the owner of the RPW and co-owner of the KDPW (in which, like the State Treasury and the Warsaw Stock Exchange, it has a 33.3% shareholding). Apart from these, Narodowy Bank Polski also uses oversight tools such as cooperation with the KNF, contractual arrangements in respect of the services performed for the KDPW (Narodowy Bank Polski performs the function of settlement bank) and utilisation of the KDPW's services (participation in the securities settlement system), as well as public statements and prestige-based moral suasion by the central bank.

### **1.2.4 COOPERATION WITH OTHER INSTITUTIONS**

In the field of payment systems Narodowy Bank Polski cooperates with the following domestic institutions:

- the ZBP – Narodowy Bank Polski is represented in a number of working groups of the ZBP, which is consulted on all payment systems regulations;
- the Ministry of Finance – cooperation is focused on legal issues, especially the drafting of regulations governing the banking system;
- the KNF – cooperation is focused on issues related to overseeing securities settlement systems.

Moreover, on 1 July 1998 the Payment System Council (Council) was established to act as an advisory body of Narodowy Bank Polski. The Council comprises the Vice-President of Narodowy Bank Polski (Chairman), the Director of the Payment Systems Department of Narodowy Bank Polski, the presidents of four or five commercial banks, and representatives of the ZBP, the Ministry of Finance, the KIR, the KDPW, the KNF, PolCard (see Section 3.3.1) and the Polish Post Office.

The tasks of the Council include the analysis and evaluation of the Polish payment system

and the formulation of proposals for bringing the system into line with EU requirements.

In the field of payment systems Narodowy Bank Polski cooperates primarily with the following foreign institutions:

- the ECB – Narodowy Bank Polski asks for opinions concerning draft legal acts on the payment system, while representatives of Narodowy Bank Polski participate in many working groups operating within the European System of Central Banks.
- the European Commission – cooperation focuses on legal issues linked to transposing the EU's legal acts into Polish law.

### 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

Other entities which participate in payment services in Poland include:

- the KIR, which is responsible for clearing retail payments; it was established in November 1991 as a company with equity capital by 17 commercial banks, the ZBP and Narodowy Bank Polski;
- the KDPW, a central depository and clearing institution for public trading in securities; under the Act on trading in financial instruments of 29 July 2005 it is authorised to manage a securities depository, to perform clearing and settlement of securities transactions, to operate a system ensuring settlement liquidity and to maintain the system of registration, clearing and settlement of financial instruments other than securities;
- the ZBP, which plays an important role as a coordinator of standardisation and regulatory work. Moreover, numerous working groups operate under the auspices of the ZBP; they address, *inter alia*, issues relating to payment cards, electronic banking and direct debits;

- the Bank Card Issuers Board (RWKB), established in April 1994 by the ZBP. Most Polish banks issuing payment cards are members of the RWKB, which was established with the aim of supporting card issuing banks in their relations with linking organisations such as Visa and MasterCard, cooperating with the state administrative bodies on legal regulations relating to payment card activities in Poland, and cooperating on card development and promotion as well as on the establishment of the uniform technical infrastructure necessary for card operations.

Simultaneously, two other organisations linking banks with other members of international organisations were established: Visa Forum Poland and Europay Forum Poland (now MasterCard Forum Poland). Their tasks are, *inter alia*, to exchange experience and prevent unfair or harmful competition.

## 2 PAYMENT MEDIA USED BY NON-BANKS

Pursuant to Article 63 of the Banking Act, a payment can be effected either in cash or using non-cash instruments (in particular credit transfers, settlement cheques, direct debits and payment cards). The Act also distinguishes between a cashier cheque and a settlement cheque; the former is classified as a cash payment and the latter as a non-cash payment.

### 2.1 CASH PAYMENTS

The Polish zloty (PLN) has the following denominations:

- banknotes: PLN 10, PLN 20, PLN 50, PLN 100 and PLN 200;
- coins: PLN 0.01, PLN 0.02, PLN 0.05, PLN 0.10, PLN 0.20, PLN 0.50, PLN 1, PLN 2 and PLN 5.

At present banknotes account for approximately 97% of the total value of currency in circulation.

No data are available on the number and value of cash payments. The holding of a bank account, especially among older people, is not common: hence, a large number of pensions and disability allowances are paid in cash. The situation on the cards acceptance market has been improving steadily, owing to the strong growth in the number of POS terminals. Nevertheless, a large number of shops and services outlets, particularly those outside the big cities, still do not accept non-cash forms of payment.

## 2.2 NON-CASH PAYMENTS

Non-cash payments encompass, in particular, credit transfers, settlement cheques, direct debits and payment cards.

The Banking Act does not specify value dates for the performance of customers' orders. Under Article 54.2 of the above-mentioned Act, issues concerning execution time for customer payments should be specified in the bank account agreement concluded by the customer and the bank maintaining its account. The bank is obliged to include in this agreement provisions which, *inter alia*, state the conditions for the execution of orders placed by the account holder, the scope of the bank's responsibility for their timely and proper processing, and the amount of compensation due in the event of a failure to execute the account holder's order within the specified deadline.

The existing system for the settlement of customers' transactions in zloty via the KIR enables credit transfers between customers of two different banks to be settled on the same day using the electronic system ELIXIR. Moreover, the EuroELIXIR system, which performs retail transactions denominated in euro, has been in operation since 7 March 2005 for domestic trading, and since 30 May 2005 for cross-border trading.

The Act on freedom of economic activity of 2 July 2004 imposes an obligation on economic entities to hold a bank account and perform

non-cash settlements when effecting/accepting – in the context of the conduct of an economic activity – payments with a one-off transaction value exceeding an equivalent of €15,000 (irrespective of the number of payments resulting therefrom).

### 2.2.1 CREDIT TRANSFERS

Credit transfers (an instruction from the debtor to debit its account with a specified amount and credit the account of the creditor with the corresponding amount) are the main instrument for non-cash payments made in Poland. They account for approximately 99% of all transfers processed by the KIR in terms of volume (including cash payments to bank accounts).

### 2.2.2 CHEQUES

As a payment medium, cheques are subject to the Cheque Law of 28 April 1936. They have never been widely used for payment purposes in Poland, and their importance has diminished further in the wake of the rapid developments which have taken place in the payment card market in recent years.

A cashier's cheque is an instruction given by the issuer to the drawee to debit its account with the amount stated on the cheque and to pay out this amount to the bearer of the cheque or the person named on it. The role of cheques as a payment instrument has been progressively diminishing, especially in the case of cheques linked to savings accounts, which are used primarily to make cash withdrawals at the bank's cash desk. The functions of this instrument, both in relation to payments and cash withdrawals, are being taken over by payment cards, which are safer, more convenient and, above all, cheaper than cheques. A settlement cheque provides exclusively for transfers between a debtor's account and the account of the bearer of the cheque or the person named on it, with no possibility of a cash withdrawal. While the settlement cheque exists as a payment medium, its importance is negligible as compared with credit transfers. A cheque can be presented to any bank, but it must be delivered to the drawee.

It should be noted here that the realisation of cheques in interbank trading was, until mid-2004, performed by using the SYBIR system within the KIR and lasted three working days. Now that the SYBIR system has been discontinued as a result of the move away from paper-based forms of settlement by the banks, cheques linked to saving accounts with a value of up to PLN 1000 are realised by using the electronic ELIXIR system within the KIR on the basis of a relevant interbank agreement. Other cheques are sent between banks by post, i.e. outside of the settlement system, while the transfer of funds is performed through a bank transfer in the ELIXIR system.

### 2.2.3 DIRECT DEBIT

The direct debit (an instruction issued by the creditor to debit the bank account of the debtor with a specified amount) was introduced by Narodowy Bank Polski in October 1997, and the first transactions were effected in July 1998.

Under the Banking Act, settlements by direct debits are permissible provided that:

- both the creditor and the debtor hold a bank account with banks which have entered into a direct debit agreement;
- the debtor has authorised the creditor to debit its account on an agreed payment date and in connection with specified liabilities; and
- the debtor and the bank have entered into a direct debit agreement.

This form of payment is used for payments not exceeding an equivalent of €1,000 where the debtor is a person that does not conduct economic activity, or not exceeding €50,000 in the case of other debtors.

The settlement of direct debits is performed exclusively via the electronic ELIXIR system in the KIR. As at the end of December 2006 46 banks had signed the direct debit agreement.

As compared with other countries, direct debits are not widely used in Poland. However, despite the current relatively low level of use of the direct debit instrument, statistical data for 2006 indicate that the rate of growth of this product has increased substantially as compared with previous years.

### 2.2.4 PAYMENT CARDS

The most rapid increase in non-cash payments in Poland has been in the use of payment cards. In recent years there has been a considerable increase in the number of cards in circulation and the number of transactions made. As at the end of December 2006 the number of payment cards in circulation was 23.8 million. In terms of the number of transactions, payment cards already account for 27% of all non-cash payments in Poland. Marketing initiatives organised by banks in conjunction with international organisations with the aim of raising customer awareness and encouraging them to make non-cash payments have proved to be a success. Statistical data collected by Narodowy Bank Polski indicate that the behaviour of cardholders is gradually changing: cards are increasingly being used for non-cash payments. In 2006 38.9% of the number and 19% of the value of transactions performed with payment cards were non-cash transactions, whereas in 2004 the corresponding figures were 30.6% and 16.1% respectively.

Cards issued by Polish banks usually bear the logo of international organisations, i.e. Visa or MasterCard, which facilitates wider acceptance of cards both within the country and abroad.

#### a) Debit cards

Debit cards account for the majority of payment cards issued by banks operating in Poland. At the end of December 2006 the banks in Poland had issued 16.9 million debit cards.

#### b) Credit cards

Credit cards are becoming more and more popular with customers, with 6.3 million credit cards having been issued by the end of December 2006. The majority of these belong

to international credit card brands; however, a significant number – some 1.6 million – are cards issued by banks in cooperation with retail networks (e.g. supermarkets).

#### c) ATMs and POS networks

When ATMs were first introduced, banks established their own ATM networks and issued cards for cash withdrawals at their own ATMs only. This policy resulted in the establishment of more than a dozen separate ATM networks, with customers being able to use only their bank's network. In June 1997 a group of domestic banks entered into an agreement on the provision of services to domestic cardholders in the interbank online network and introduced a "domestic switch" serviced by PolCard. These banks were subsequently joined by other banks, and the agreement now extends to nearly all banks operating ATMs, enabling the mutual recognition of cards in the vast majority of ATMs installed throughout the country.

Alongside the ATM networks owned by banks there is an ATM network set up by the Euronet Polska company. The latter company also provides outsourcing services in the field of ATM servicing and transaction processing. As at the end of December 2006 the total number of ATMs in Poland was 9,938.

The infrastructure for performing non-cash transactions by means of payment cards is offered by acquirers. The following acquirers operate in Poland: PolCard SA, CardPoint SA, Bank PeKaO S.A., Bank PKO BP S.A. and eCard S.A. At the end of December 2006 there were more than 140,000 POS terminals operating on the market. According to data submitted to Narodowy Bank Polski by acquirers, a total of almost 144 million non-cash transactions with a total value of over PLN 17.8 billion were performed in retail and services outlets throughout Poland in the second half of 2005. This constitutes an increase of 35.1% and 28.2% respectively as compared with the corresponding period of the previous year.

#### 2.2.5 POSTAL INSTRUMENTS

The Polish Post Office is authorised to perform a number of banking activities, including postal transfers, payments via the Post Office to bank accounts and payments of pension and disability allowances.

The basic postal network included some 8,389 post offices at the end of 2006. Only the larger post offices have accounts with banks, and they supervise the use of payment instruments in a number of smaller offices.

Postal transfers are used for transferring money between individuals who do not have bank accounts. In such instances, one post office accepts a cash payment (against a fee) and another pays the corresponding amount to the receiver. The operation is performed outside the banking system. In the case of payments to bank accounts, the post office sends a transfer order for the total sum of all instructions received to the branch of the bank with which it holds its current account. The bank performs the payment order via the KIR, as in the case of any other bank customer.

For pensions and disability allowance payments, those regional branches of Narodowy Bank Polski which hold current accounts of the Social Insurance Institution (ZUS) transfer adequate funds via the KIR to the accounts of regional post offices. The ZUS provides the post office directly with individual documents for beneficiaries; thus the post office can immediately begin making the relevant payments once it has received the requisite information from the ZUS.

#### 2.3 RECENT DEVELOPMENTS

Alongside the development of electronic trading, new payment services have appeared whereby payment can be made online for products and/or services in online shops and auctions (Allegro, eBay, etc.). Online payments are usually effected using electronic transfers from bank accounts which a customer can access online, with payment cards and via other

innovative methods (e.g. pre-paid internet accounts with service providers, pre-paid cards and text messaging).

Payment cards are the most dynamically developing form of non-cash settlement. Every year the number of cards and units accepting cards exhibits substantial growth. Card-issuing banks have already started preparations for the SEPA, *inter alia* by issuing EMV-compliant smart cards, which will considerably enhance the security of cards and expand their functionality.

### 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

#### 3.1 GENERAL OVERVIEW

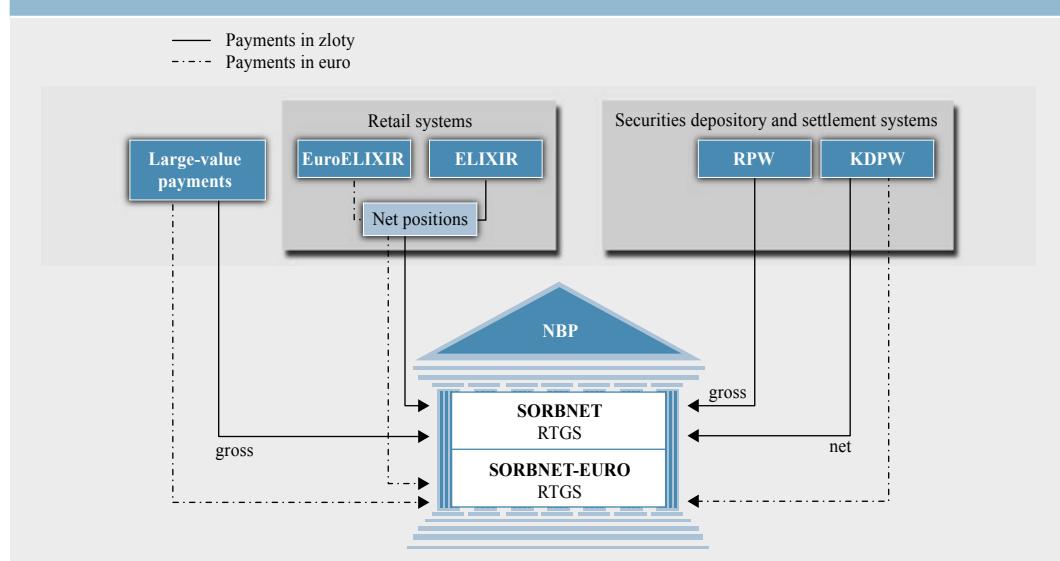
The rules on interbank settlements are specified in the above-mentioned Regulation No 6/2004 of the President of the National Bank of Poland of 20 April 2004 on the manner of performing interbank settlements (as subsequently amended). The Polish banks effect payment orders relating to large-value payments (i.e. mainly money market, foreign exchange market and securities market transactions) directly through Narodowy Bank Polski, while payment

orders related to retail payments are effected via the KIR. The latter, acting as a clearing house, records mutual claims arising from such orders and submits payment orders in respect of banks' net positions in zloty and in euro to Narodowy Bank Polski.

Since all banks operating in Poland are members of the KIR, either directly or indirectly, most interbank transactions (in terms of quantity) are settled through this clearing house. The KIR operates two retail net settlement systems: ELIXIR – an electronic system for zloty payments and Euro-ELIXIR – an electronic system for euro payments. Detailed descriptions of these systems are provided in Sections 3.3.3 and 3.3.4 respectively.

Interbank settlements take place on the banks' current accounts held with Narodowy Bank Polski. Narodowy Bank Polski operates two RTGS systems used for processing large-value interbank payments: the SORBNET system for zloty payments and the SORBNET-EURO system for euro payments. These systems are also used to settle the net positions received from three clearing systems, namely two systems operated by the KIR and one operated by the KDPW, as well as the gross positions received from the KDPW.

Chart 1 Interbank clearing and settlement systems in Poland



The KDPW submits zloty payment orders relating to transactions in securities conducted on the Warsaw Stock Exchange (GPW), the off-exchange regulated securities market (MTS-CeTO) and the interbank market. The final settlement arising from the above systems is performed at Narodowy Bank Polski in the SORBNET system. The KDPW system is equipped to place euro payment orders (for settlements in SORBNET-EURO) in a situation where transactions on euro-denominated securities are commenced on the GPW or the CeTO.

### 3.2 THE REAL-TIME GROSS SETTLEMENT SYSTEM

Narodowy Bank Polski operates two RTGS systems: the SORBNET system for zloty payments and the SORBNET-EURO system for euro payments.

SORBNET was launched in March 1996, replacing SORB, which had been in operation since April 1993. Although SORB fulfilled the basic requirements of an RTGS system, it was not a fully efficient system, since banks could submit their payment orders only on paper or a floppy disk. Since December 1998 all banks have been able to transfer their orders electronically.

The SORBNET-EURO system was created by way of a decision, of 10 July 2003, of the Management Board of Narodowy Bank Polski concerning the further development of the SORBNET system from the point of view of clearing euro payments and the possibilities for linking it with the TARGET system.

When making the decision to set up the SORBNET-EURO system, Narodowy Bank Polski also took into consideration the opinions of Polish banks, the KIR and the KDPW, which pointed to the need for the rapid creation of a euro RTGS system in Poland that would enable euro settlement of domestic and cross-border payments.

The SORBNET-EURO system was launched on 7 March 2005. Linked with the TARGET system via the Banca d'Italia and the Italian RTGS system (BI-REL), the SORBNET-EURO system has become an integral part of the European infrastructure for euro settlements.

#### 3.2.1 THE SORBNET SYSTEM

##### 3.2.1.1 Operating rules

The Operating rules for the SORBNET system are specified in the resolutions of Narodowy Bank Polski's Management Board and in the bank account agreement concluded between Narodowy Bank Polski and the individual banks which have their settlement accounts with Narodowy Bank Polski's head office in the SORBNET system. The resolutions cover access criteria, the types of payment to be processed and the general prerequisites concerning the technical infrastructure and fees, while the provisions of the agreement, which are identical for all banks, regulate the operating times and other operational details.

##### 3.2.1.2 Participation in the system

As at 31 December 2006 there were 55 banks participating in the SORBNET system. The requirements for banks wishing to become participants in SORBNET are specified in Resolution No 20/2004 of the Management Board of Narodowy Bank Polski of 22 April 2004 on the terms and conditions for opening and maintaining banks' accounts with Narodowy Bank Polski, as amended in 2004 and twice in February 2005. Banks applying to open a current account with Narodowy Bank Polski must meet the following requirements:

- the bank must have conducted operational activities for at least six months;
- the financial standing of the bank must be deemed satisfactory by Narodowy Bank Polski;
- the bank must meet the prescribed technical requirements for the electronic exchange of payment order messages and other

information between the bank and Narodowy Bank Polski, and it must receive a positive rating from Narodowy Bank Polski in tests conducted in this regard.

In addition, in the SORBNET system bank accounts are maintained for two clearing agents, namely the KIR and the KDPW.

#### **3.2.1.3 Types of transaction handled**

SORBNET settles banks' payment orders relating to the interbank money market, foreign exchange and securities market transactions and transactions between banks and Narodowy Bank Polski. The SORBNET system can be used to process payment orders sent by banks on their own behalf or on behalf of their customers (for large-value and/or urgent payments). The original requirement that the minimum value of a customer payment order be PLN 1 million (EUR 261,028) was lifted with effect from 1 July 2000, thus making the SORBNET system available for the settlement of all interbank customer orders, regardless of their amount. With effect from 1 January 2003, an obligation was introduced to direct to the SORBNET system all large-value customer payment orders, i.e. those with a value equivalent to PLN 1 million or above. The system is also used for settling banks' liabilities arising from clearing systems: net positions arising from clearing of retail payments in the KIR, and net positions arising from capital market transactions cleared with the KDPW.

#### **3.2.1.4 Operation of the transfer system**

In general, participants may access the system between 7.30 a.m. and 6 p.m. CET, while customer payment orders may be sent by 4 p.m. CET. An exception are customer payment orders sent by banks participating in the Interbank Agreement on the Rules of Cooperation between Correspondent Banks, which may be sent by 5 p.m. CET. After 6 p.m. CET payment messages are no longer accepted.

Messages transferred between banks and Narodowy Bank Polski are encrypted for

confidentiality purposes, and an electronic signature is used to ensure authenticity, integrity and non-repudiation.

#### **3.2.1.5 Transaction processing**

The flow of information between banks and SORBNET is V-shaped. Banks send payment orders to the central bank, which informs the sending and receiving banks of the settlement. The system operates in the UNIX environment; messages are created in accordance with the EDIFACT standard.

In order to enter messages concerning payments, the system users (banks and the KDPW) use the SORBNET\_BW bank module, which is uniform for both the SORBNET and SORBNET-EURO system, i.e. it allows the placing of payments in both złoty and euro. The SORBNET\_BW module is connected to the middleware application – the SWAT module (Quick Transporting Layer) at Narodowy Bank Polski – by means of a permanent connection to the TCP/IP network operated by EXATEL SA. From the SWAT module, payments are routed to the central module of a relevant system (SORBNET or SORBNET-EURO).

In the event of any failure of the system, banks' payment orders may be submitted 1) via the SORBNET internet portal established for this purpose, 2) on floppy disk, or 3) in paper-based form (including fax). Paper-based orders must be registered with Narodowy Bank Polski. In an emergency, customer payment orders may also be transferred via the SORBNET portal or on a secured floppy disk.

#### **3.2.1.6 Settlement procedures**

SORBNET provides for real-time gross settlement via banks' current accounts with Narodowy Bank Polski. The system processes payment orders presented by banks, Narodowy Bank Polski, the KDPW and the KIR. Banks may only make credit transfers by sending orders to debit their own accounts, whereas Narodowy Bank Polski, the KDPW and the KIR are all authorised to send credit transfers debiting the banks' accounts. Payment orders

submitted by the KIR have the highest priority; next in the order of priority are the orders submitted by Narodowy Bank Polski, followed by the orders of the KDPW. The orders presented by banks have the lowest priority.

Payment orders are processed according to the order numbers assigned by senders. Orders are processed provided that a bank has a sufficient balance on its account.

Narodowy Bank Polski's own orders relating to the sale of banknotes and coin, to interest and fee payments and to orders of the KDPW issued on behalf of banks and on its own behalf are processed in the same way as any other transaction. The net balances arising from the different clearing schemes in the KIR are settled in the SORBNET system in three settlement sessions during the day (see Section 3.3. for further details). The net balances arising from the KDPW are settled in the system in five settlement sessions during the day (see Section 4.3.2.1 for further details).

Depending on the balance available in a bank's account, orders are executed immediately or placed in a central queue until sufficient funds are available to execute the queued payments. Where funds are available, the payer's account is debited and the beneficiary's account is credited simultaneously. The payer receives confirmation of the transaction, while the beneficiary receives confirmation that its account has been credited. Banks may ask Narodowy Bank Polski for information regarding the balances on their accounts and their payment orders pending. They can only obtain detailed information on outgoing payment orders, and have the option of cancelling queued payments before they are settled. The queued payments are settled automatically when liquidity is available, in accordance with the order numbers and the FIFO principle. The queue optimisation mechanism has been implemented in the SORBNET system. Payment orders waiting in the queue at the end of the day are rejected

automatically and the senders are informed accordingly.

At the end of the day the system automatically prepares and sends settlement account statements to the banks.

### 3.2.1.7 Credit and liquidity risk

Being an RTGS system, the SORBNET system provides for credit risk minimisation.

Banks have access to liquidity through the intraday use of their minimum reserve requirements. Moreover, Narodowy Bank Polski grants free intraday credit against collateral. Banks must conclude intraday credit agreements in advance. Currently, Treasury bills and Treasury bonds are eligible as intraday credit collateral (the latter as of 2003).

The main rules governing the granting of intraday credit are as follows:

- On all operating days banks may obtain intraday credit if they transfer adequate Treasury securities to Narodowy Bank Polski's securities account (on an intraday repo basis). At 5.30 p.m. CET the SORBNET system generates credit repayment orders.
- In the event that the bank cannot refund the credit, this automatically turns into an overnight credit with interest being charged at the Lombard rate.
- If the bank fails to provide the funds necessary for repayment of the credit together with the interest due by the specified time (10.30 a.m. CET) on the next operating day, Narodowy Bank Polski will sell the securities in order to cover the bank's debt.
- If the bank fails to repay the intraday credit by 6 p.m. CET twice in any given month, it will lose the right to obtain intraday credit from Narodowy Bank Polski for the next 30 days.

Banks may also obtain secured loans at the Lombard rate from Narodowy Bank Polski. The secured Lombard facility can be drawn upon throughout the day. In order to minimise the time required for the fulfilment of all the formalities related to the Lombard loan, loan agreements are concluded in advance and the loan can be drawn whenever the need arises. Treasury bills and Treasury bonds are used as collateral for Lombard loans.

### 3.2.1.8 Pricing

Narodowy Bank Polski charges fees for the maintenance and servicing of banks' current accounts within the SORBNET system according to the table of bank fees and commissions which forms an annex to Resolution 35/2004 of the Management Board of the National Bank of Poland of 9 July 2004.

According to this fee structure, banks pay a one-off admission fee of PLN 25,000 (EUR 6,525.71) to join the SORBNET system. A quarterly fee of PLN 4,000 (EUR 1,044.11) is charged for the maintenance of accounts. Fees for the performance of payment orders in the SORBNET system have been unified, and the current rate is PLN 5 (EUR 1.31) for the execution of a single order.

In 2006 the revenue (i.e. the fees charged in SORBNET and SORBNET-EURO)-to-cost ratio amounted to 113.07%. This means that Narodowy Bank Polski does not subsidise the operations of these systems.

### 3.2.1.9 Statistical data

In 2005 1,092,636 orders were processed on the banks' zloty-denominated current accounts at the Head Office of Narodowy Bank Polski, with a total value of PLN 30.3 trillion (EUR 7.53 trillion). In 2006 1,269,427 orders were executed in the system, with a value of PLN 36.9 trillion (EUR 9.47 trillion). This constitutes an increase of 176,791 in the number of realised transactions (i.e. around 16 %), and an increase of PLN 6.6 trillion (EUR 1.69 trillion) in terms of value (i.e. some 22%) as compared with 2005.

The average number of payments processed in the SORBNET system per month was 91,053 and 105,785 in 2005 and 2006 respectively. The average monthly value of trades on bank accounts was PLN 2.53 trillion (EUR 0.63 trillion) in 2005 and PLN 3.08 trillion (EUR 0.79 trillion) in 2006. In 2005 the average daily number of transactions was 4,319, and the average daily value of transactions was PLN 119.8 billion (EUR 29.8 billion); in 2006 the corresponding figures were 5,037 and 146.5 billion (EUR 37.6 billion) respectively.

### 3.2.2 THE SORBNET-EURO SYSTEM

The SORBNET-EURO system fulfils the tasks related to servicing bank accounts maintained at Narodowy Bank Polski (including domestic and cross-border interbank settlement via banks' current accounts in euro). It effects settlement of the EuroELIXIR system operated by the KIR and performs the servicing of the intraday credit facility in euro, as well as carrying out all other orders by banks and other system participants on euro accounts maintained at Narodowy Bank Polski.

#### 3.2.2.1 Operating rules

Like those of the SORBNET system, the rules of operation of the SORBNET-EURO system are specified in Regulation No 6/2004 of the President of the National Bank of Poland of 20 April 2004 on the manner of performing interbank settlements, and in Resolution No 20/2004 of the Management Board of the National Bank of Poland on the terms and conditions for opening and maintaining bank accounts with the National Bank of Poland. The above-mentioned legal acts regulate the access criteria, the types of payment processed, the general prerequisites concerning the technical infrastructure and the pricing policy.

The legal documentation regulating the principles of operation of the SORBNET-EURO system also includes the resolution of the Management Board of the National Bank of Poland on the introduction of a specimen agreement on opening and maintaining an RTGS account in the SORBNET-EURO system

(Regulation No 12/2005 of 22 February 2005). The opening and maintaining by Narodowy Bank Polski of euro accounts for banks, the KDPW and the KIR in the SORBNET-EURO system are regulated in detail in agreements concluded between Narodowy Bank Polski and those entities.

### **3.2.2.2 Participation in the system**

Narodowy Bank Polski's participation in the TARGET system, based on the so-called full option 4, is regulated by the TARGET Agreement. This form of participation requires the fulfilment by the SORBNET-EURO system of requirements specified by the ECB for RTGS systems which are components of the TARGET system (excluding solutions concerning the connection to the TARGET system within the framework of Interlinking), while at the same time allowing Narodowy Bank Polski to grant intraday credit in euro to Polish banks. Participation within the framework of this option is possible thanks to the NBP's correspondent account in the Banca d'Italia.

The NBP's settlement account, through which all cross-border payment orders entering and leaving the SORBNET-EURO system are executed, is maintained at the Banca d'Italia and is a correspondent account in nature. It has been placed on the same platform as the Italian RTGS system (BI-REL), thus allowing it to be serviced in a similar way to accounts maintained directly in the BI-REL system.

The participants in the SORBNET-EURO system, i.e. entities entitled to hold an account in this system and place payments are as follows:

- 1) Narodowy Bank Polski;
- 2) domestic banks, credit institutions, branches of credit institutions and branches of foreign banks;
- 3) the KDPW; and
- 4) the KIR.

The terms and conditions governing banks' participation in the SORBNET-EURO system are specified in Resolution No 20/2004 of the Management Board of the National Bank of Poland of 22 April 2004 on the terms and conditions of opening and maintaining bank accounts with the National Bank of Poland, and are identical to those for the banks participating in the SORBNET system; accordingly, banks applying to open a euro current account in the SORBNET-EURO system must fulfil the conditions specified in Section 3.2.1.2 and, additionally, submit an opinion on their legal capacity to Narodowy Bank Polski.

As at 31 December 2006, there were 39 institutions operating in the system, i.e. 37 banks, the KIR and the KDPW.

### **3.2.2.3 Types of transaction handled**

As in the SORBNET system, banks place only credit transfers – both domestic and cross-border, on their own behalf or on behalf of their customers – that debit their own account in the system. Additionally, Narodowy Bank Polski, the KIR, and the KDPW, apart from placing orders that debit their own accounts, are authorised, on the basis of relevant bank authorisations, to place, on behalf of the banks, payment orders that debit their current accounts, within the scope specified in the authorisations.

The following types of payment order are processed in the SORBNET-EURO system:

- 1) domestic interbank and customer orders in euro, placed by banks;
- 2) cross-border interbank and customer orders in euro, placed by banks;
- 3) payment orders resulting from settlement of domestic retail payments in euro in the EuroELIXIR system (aggregate net positions);
- 4) payment orders resulting from cross-border euro payments, routed from EuroELIXIR to

STEP2 (aggregate gross positions) via Narodowy Bank Polski;	confidentiality purposes and an electronic signature is used to ensure authenticity, integrity and non-repudiation.
5) payment orders resulting from cross-border euro payments, routed from STEP2, to EuroELIXIR via Narodowy Bank Polski, arising from payments directed to Polish banks participating in STEP2 (aggregate gross positions);	
6) domestic and cross-border payment orders resulting from transactions in securities; and	
7) transactions related to the granting and repayment of intraday credit in euro.	

#### 3.2.2.4 Operation of the transfer system

The SORBNET-EURO system operates between 7 a.m. and 6 p.m. CET, i.e. during the hours of operation of the TARGET system. Individual types of payment order may be placed during the following hours:

- 1) in the case of domestic payments:
  - a) between 7 a.m. and 5 p.m. CET (customer payments)
  - b) between 7 a.m. and 6 p.m. CET (interbank payments)
- 2) in the case of cross-border payments:
  - a) between 7 a.m. and 4.52:30 p.m. CET (customer payments)
  - b) between 7 a.m. and 5.52:30 p.m. CET (interbank payments).

The operating days for the SORBNET-EURO system, as in the case of the TARGET system, are all calendar days excluding Saturdays and Sundays, New Year's Day, Good Friday, Easter Monday, 1 May, Christmas Day and 26 December.

Messages transferred between banks and Narodowy Bank Polski are encrypted for

#### 3.2.2.5 Transaction processing

As mentioned in Section 3.2.1.5, system users make use of SORBNET\_BW, a uniform bank module for both the SORBNET and SORBNET-EURO systems, which serves to introduce messages concerning payments both in zloty and in euro. Banks and the KDPW (the users of the module SORBNET\_BW) are connected to the middleware application – the SWAT (Quick Transporting Layer) module at Narodowy Bank Polski – by a permanent connection to the TCP/IP network operated by EXATEL. From the SWAT module, payments are routed to the central module of a relevant system (SORBNET or SORBNET-EURO).

Payment orders are sent to the central SORBNET\_BW module in the form of messages in the EDIFACT standard. From the very establishment of the system it has been possible to submit euro payment orders from banks' internal systems to the bank module in the form of SWIFT messages or through the power network with the use of system tables. Communication between SORBNET-EURO and the Banca d'Italia is based solely on the SWIFT system.

In an emergency situation in which payment orders cannot be sent by means of the electronic data exchange, banks' payment orders may be sent 1) via the SORBNET internet portal created for this purpose, 2) on a floppy disk, or 3) in paper-based form (including fax). Paper-based orders must be registered with Narodowy Bank Polski. In an emergency, customer payment orders may also be also transferred 1) via the SORBNET internet portal, 2) on a secured floppy disk, or 3) using the EuroELIXIR system as an intermediary.

#### 3.2.2.6 Settlement procedures

The settlement procedures binding in the SORBNET-EURO system are similar to those binding in the SORBNET system, with the

exception of cross-border transactions. Interbank and customer settlements are executed through banks' current accounts maintained in the SORBNET-EURO system. Banks are only entitled to place payment orders to debit their own accounts, while Narodowy Bank Polski, the KDPW and the KIR are authorised to credit transfers debiting banks' accounts.

Orders on current accounts may be executed only up to the amount of funds available on the account (this rule also applies to Narodowy Bank Polski). Orders which cannot be executed on account of insufficient funds are held in a central queue of orders which is periodically optimised. Banks can cancel a queued order either electronically or by fax. The following priorities apply to the execution of orders: payment orders submitted by the KIR have the highest priority; next in order of priority are the orders submitted by Narodowy Bank Polski, the KDPW and banks. Banks using the electronic route have ongoing access to information on their account balance (monitoring), and they also receive account statements in this way.

Domestic orders are executed in the same manner as in the SORBNET system. Cross-border payment orders sent to the SORBNET-EURO system debit the bank's account and credit the NBP's intermediary account, and subsequently debit the NBP's settlement account with the Banca d'Italia and credit the account of the respective bank in the BI-REL system or another RTGS system participating in the TARGET system. Cross-border payment orders entering the SORBNET-EURO system trigger off a reverse action in the TARGET system and the Banca d'Italia, i.e. they debit the appropriate bank account in the BI-REL system or another RTGS system participating in the TARGET system and credit the NBP's settlement account with the Banca d'Italia. The execution of every single order on the NBP's settlement account is confirmed by a message from the Banca d'Italia to the SORBNET-EURO system. In the case of cross-border payment orders entering the SORBNET-EURO

system, the NBP's intermediary account is debited and the account of the relevant bank in the SORBNET-EURO system credited, with subsequent submission of the relevant message to this bank. Thanks to the tools made available by the Banca d'Italia, Narodowy Bank Polski can monitor its settlement account balance with the Banca d'Italia.

#### **3.2.2.7 Credit and liquidity risk**

Narodowy Bank Polski supports the liquidity of settlements in the SORBNET-EURO system by granting intraday credit in euro to banks. The introduction of this mechanism was conditional not only on Narodowy Bank Polski receiving a pool of euro funds in an amount corresponding to the limit assigned by the ECB, but also on entering into a relevant agreement with a selected commercial bank from the euro area, which grants the relevant credit to Narodowy Bank Polski. The credit obtained is distributed among the banks participating in the system on a daily basis, in accordance with the amounts (limits) allocated to each bank. Specific principles with respect to limiting the credit amount and securing its repayment, and to drawing and repaying the euro intraday credit are specified in the agreement between Narodowy Bank Polski and the banks on the terms and conditions for opening and maintaining an RTGS account in the SORBNET-EURO system.

The intraday credit is extended in accordance with rules corresponding to those governing the SORBNET system. Such credit must be collateralised with Treasury Bonds, the market value of which is determined on MTS-CeTO.

#### **3.2.2.8 Pricing**

The structure of fees charged for transactions in the SORBNET-EURO system corresponds to that applied in the SORBNET system. Three basic categories of fees are charged in the system: a one-off fee for joining the system, a flat fee (charged on a quarterly basis) for maintaining the account, and a fee (charged on a monthly basis) for the execution of payment

orders (in respect of both domestic and foreign payments).

The amounts charged to SORBNET-EURO system participants are as follows:

**Table I**

Type of fee	Amount	
	PLN	EUR
1. One-off entry fee (SORBNET system participants are not charged)	25,000.00	
2. Quarterly fee for maintaining an account	4,000.00	
3. Fees for the execution of payment orders (per single payment order in any given month)		
– domestic payment order	3.0	
– cross-border payments <sup>1</sup> :		
– for the first 100 transactions in any given month		1.75
– for the following 900 transactions in any given month		1.00
– for all transactions over and above 1,000 transactions in any given month		0.80

1 In accordance with the requirements of the TARGET system, fees for cross-border euro payments are charged in euro in the amount specified by the European Central Bank in the TARGET System Guideline.

The above-mentioned fees do not include the costs to be paid by the banks to Narodowy Bank Polski for access to the euro intraday credit facility. The costs of intraday credit are charged only to those banks that actually draw the credit up to the limit assigned by the ECB. The fees for the credit drawn are charged on a quarterly basis.

### 3.2.2.9 Statistical data

In the period from the launch of the system on 7 March 2005 to 30 December 2005, the number of euro transactions executed through the SORBNET-EURO system totalled 54,411, corresponding to a daily average of 257 orders. The actual value of payments settled through the SORBNET-EURO system, i.e. after

deducting the value of transactions linked to intraday credit, was EUR 11.24 billion, which translates into an average daily value of around EUR 53 million, and an average individual order value of EUR 206,500.

In the second year of the functioning of the SORBNET-EURO system, i.e. in 2006, the number of euro transactions executed through the system totalled 99,964, corresponding to a daily average of 392 orders. The annual value of payments settled through the SORBNET-EURO system, i.e. after deducting the value of transactions linked to intraday credit, was EUR 34.2 billion, which translates into an average daily value of around EUR 134 million and an average individual order value of EUR 342,200. This constitutes an increase of 45,553 in the number of realised transactions, i.e. around 184 %, and an increase of EUR 23 billion in term of value, i.e. a threefold increase as compared with 2005.

## 3.3 RETAIL PAYMENT SYSTEMS

### 3.3.1 CARD-BASED SCHEMES

In the case of payment cards, the settlement mechanism is similar for debit, charge and credit cards. Data on the transaction are submitted by the retail and services outlet to the acquirer with which it has signed an agreement, either electronically via the POS terminal or in paper form. Depending on the bank's decision (as the card issuer), the transaction is subsequently routed to one of the settlement systems used for processing card transactions. Currently, the services of three such systems are offered to Polish banks: the KSR, operated by PolCard, the PNSS, operated by Visa, and the GCMS, operated by MasterCard. All of these are net systems; the final multilateral balances of all the participating banks are settled by the settlement agent via the SORBNET system. The settlement agent for all these systems is one of the Polish commercial banks.

### 3.3.2 RETAIL CREDIT, DEBIT AND CHEQUES CLEARING SYSTEMS

#### 3.3.2.1. Organisational set-up

The KIR is the only clearing house in Poland. It is a joint stock company established in 1991. Its shareholders are Narodowy Bank Polski, the ZBP and 12 commercial banks (with some of the initial shareholders having merged over the past few years). The Supervisory Board comprises representatives of the shareholders, each holding one vote. The KIR's activities are directed by its Management Board.

The KIR's organisational structure comprises the head office in Warsaw and 17 regional clearing houses (BRIRs) located in Poland's major cities. Every branch of a participant is connected to one BRIR. Thanks to such a structure, the KIR links all bank branches operating throughout the country. The KIR operates two different electronic systems, ELIXIR and EuroELIXIR, whose operating principles are specified in the KIR regulations.

#### 3.3.2.2 Participation in the system

Each bank applying for participation in the exchange of payment orders performed through the KIR must be licensed to perform banking activities in Poland, obtain the approval of the KIR's Supervisory Board, enter into a bank account agreement with Narodowy Bank Polski and meet the technical requirements specified by the KIR. In order to obtain the approval of the Supervisory Board, a bank must also meet certain financial criteria. The above requirements and criteria, which are uniform for all banks, are set out in the KIR by-laws.

### 3.3.4 THE ELIXIR SYSTEM

#### 3.3.4.1 Types of transaction handled

The ELIXIR system settles credit and debit orders transferred by branches of banks via teletransmission. It settles both transfer orders and cash payments (credit transfers), cheques drawn on savings accounts covered by the interbank agreement (since 1 January 2001) and direct debit transactions.

#### 3.3.4.2 Transaction processing environment

The exchange of information is made by means of telecommunication networks (Frame Relay, always-on connections, X.25) provided by EXATEL and Telekomunikacja Polska SA. Security is guaranteed through quality software and cryptography equipment using the RSA algorithm for electronic signature. The algorithm uses asymmetric keys. Each participant has a private key for use with the decryption algorithm and a public key for use with the encryption algorithm. The public key of the sending participant is available to anyone wishing to communicate with the former.

#### 3.3.4.3 Settlement procedures

The ELIXIR system (the Electronic Clearing House system) exchanges electronic payment orders between banks, registers the resulting mutual liabilities, and exchanges electronic messages between the system's participants. It is a net settlement system, in which payment orders placed by the KIR with Narodowy Bank Polski for booking on recognised banks' accounts result from netting mutual liabilities of banks on the basis of individual customer orders. This is an interbank settlement system, in which the transfer of paper documents has been eliminated, and the settlement cycle – thanks to the three settlement sessions at the National Bank of Poland – is short and closes within one day. The settlement sessions are performed in the SORBNET system at Narodowy Bank Polski's Head Office during the following hours: 10.30 a.m. to 11 a.m. (morning session), 2.30 p.m. to 3 p.m. (afternoon session) and 5 p.m. to 5.30 p.m. (evening session).

In November 2004 the KIR introduced a settlement guarantee mechanism, thanks to which a bank or banks which fail to gather sufficient funds to execute the settlement are no longer excluded from settlements via the KIR. In such a case, Narodowy Bank Polski notifies the KIR of balances on accounts of the banks that have failed to ensure sufficient funds, and blocks the funds available on the accounts. In the case of banks which have ensured sufficient

funds, the amounts resulting from the KIR's primary calculation are blocked. On the basis of information received from Narodowy Bank Polski, the KIR withdraws the orders of those banks that have failed to ensure sufficient funds on their accounts, adjusting the settlement results to the amounts blocked by Narodowy Bank Polski. Thanks to this process, the second payment order sent by the KIR to Narodowy Bank Polski is final. The withdrawn orders are returned by the KIR to the relevant banks. The introduction of settlement guarantee by the KIR has eliminated, *inter alia*, the systemic risk posed by the possibility of a bank's withdrawal from settlement.

#### **Credit transfers**

- Credit transfers, cleared by the ELIXIR system, are money transfer orders (including cash payments directed to bank accounts) which are transferred to the KIR in the form of electronic messages or recorded on magnetic media (floppy disks, transmission file).

#### **Debit transfers**

- Debit transfers, settled by ELIXIR, are direct debits and cheques drawn on savings accounts up to an amount of PLN 1,000 (EUR 261). They are processed according to the schedule agreed upon in advance by banks pursuant to an interbank agreement.

Processing a direct debit takes places in accordance with a special schedule set forth in an interbank agreement, concluded in accordance with the provisions of the Banking Act. The creditor's bank transfers debit orders to the KIR via a special message to the first settlement session, and then the order reaches the branch of the debtor's bank, which may, by 4 p.m. CET, refuse to pay. If the KIR does not receive a return message from the debtor's bank to the effect that it refuses to make the payment in question, the direct debit is executed on a net basis and paid for by banks during the evening settlement session of the KIR.

Cheques from saving accounts are held in paper form at the branch of the bank in which they were presented for execution. On the basis of a special interbank agreement, the issuing bank receives an electronic message in the ELIXIR system and pays the cheque by placing its own payment instruction.

#### **3.3.4.4 Pricing policy**

Banks are charged according to the list of fees determined by the KIR. In ELIXIR, the message is the basis for charging any fee. However, the fee amount depends on the message type, transmission media and the time of delivery of files to the KIR. The KIR promotes early transmission by charging higher fees for files sent shortly before the submission deadline within a given session.

The fee is charged only to the sending bank.

#### **3.3.4.5 Statistical data**

ELIXIR processed 815.7 million and 932.2 million transactions in 2005 and 2006 respectively. This corresponds to an overall transaction value of PLN 2,089 billion (around EUR 519 billion) in 2005 and PLN 2,385 billion (around EUR 612 billion) in 2006. In 2006 the value of transactions increased by around 14 % as compared with 2005.

In 2006 the average daily transaction volume was 3,669,997, and the average daily value of transactions was PLN 9,390.7 million (around EUR 2,410.5 million).

It is worth noting that the average value of a transaction in the ELIXIR system has decreased significantly, largely on account of two factors. The first was the introduction, in January 2003, of the mandatory transfer by banks of orders with a value exceeding PLN 1 million directly to the SORBNET system. The other reason for the decrease in the average value of a single transaction was the takeover by the ELIXIR system of low-value retail orders, previously settled by the SYBIR system.

### 3.3.5 THE EUROELIXIR SYSTEM

#### 3.3.5.1 Types of transaction executed

EuroELIXIR is an interbank settlement system which was launched in March 2005 by the KIR. It allows banks to settle both domestic and cross-border electronic euro payments within the territory of the EU.

#### 3.3.5.2 Transaction processing environment

The exchange of information is made by means of telecommunication networks (Frame Relay, always-on connections, X25) provided by EXATEL and Telekomunikacja Polska SA. After being processed, the data are sent through the SWIFT network to the EBA STEP2 system. Security is guaranteed through quality software and cryptography equipment using the RSA algorithm for electronic signature. The algorithm uses asymmetric keys. Each participant has a private key for use with the decryption algorithm and a public key for use with the encryption algorithm. The public key of the sending participant is available to anyone wishing to communicate with that participant.

#### 3.3.5.3 Settlement procedures

The EuroELIXIR system settles two categories of euro retail transaction:

- domestic; and
- cross-border.

The daily schedule of the EuroELIXIR system's operations provides for two sessions: the morning session (11 a.m. to 11.30 a.m. CET) and the afternoon session (4.45 p.m. to 5.15 p.m.). In the case of domestic transactions, there are two similar settlement sessions, while in the case of cross-border transactions, there is one session for incoming orders (4.30 p.m. to 5 p.m. CET) and one for outgoing orders (5.30 p.m. to 6 p.m.).

#### *Domestic euro payment orders*

In respect of domestic settlements the EuroELIXIR system operates in a similar manner to the ELIXIR system, on the basis of

net settlement – i.e. multilateral netting of the mutual positions of participants. The calculation of net balances on the accounts is done by the KIR at the end of the settlement session. In the EuroELIXIR system, domestic settlements are based on the SWIFT MT 103 communication standard and all cost options (BEN – costs paid by the beneficiary; SHA – costs paid by the debtor and beneficiary; and OUR – costs paid by the debtor) can be used, with no limits as to the maximum amount of an individual order.

#### *Cross-border euro payment orders*

The method of cross-border transaction settlement is shaped to a considerable extent by the rules governing a pre-fund participant in the STEP2 system, which, formally, is what Narodowy Bank Polski is. Here separate settlement cycles for outgoing and incoming orders are required. Payment orders to be sent abroad are submitted to the KIR by banks by 3 p.m. CET on the day preceding the settlement in the STEP2 system. By 4.45 p.m. CET the KIR notifies Narodowy Bank Polski of the value of orders placed by individual banks in the STEP2 system at the end of the operating day in the SORBNET-EURO system. The NBP blocks funds on banks' accounts in an amount corresponding to the value of orders sent by the banks and notifies the KIR thereof. The KIR transfers bank orders to the STEP2 system, while Narodowy Bank Polski transfers the corresponding funds to the EBA account (the operator of the STEP system) on the following morning through the TARGET system.

Incoming orders from abroad are directed to the KIR from the STEP2 system at around 9 a.m. CET on the settlement day in the STEP2 system. The KIR instantly transfers the order files to banks, while corresponding funds are made available to them shortly before the second session for domestic orders upon receipt by Narodowy Bank Polski of funds from the EBA company.

In cross-border settlements the only admissible cost option is the SHA option, while the value of cross-border payment orders directed to the

EuroELIXIR system may not, since 1 January 2006, exceed €50,000.

#### 3.3.5.4 Pricing policy

Participants in the ELIXIR system join the EuroELIXIR system free of charge, while other banks are charged a one-off fee.

In the case of domestic orders, charges are applied only for outgoing orders. There is no fee for receiving domestic orders, with the exception of a returned domestic message.

In the case of cross-border orders received from the STEP2 system, a fee is charged for every transaction, while the level of the fee for outgoing orders depends on the number of orders sent in a given month: for the first 10,000 orders the fee per transaction is higher, while over and above this level it is lower.

#### 3.3.5.5 Statistical data

The domestic version of the EuroELIXIR system has been in operation since 7 March 2005, and the cross-border version since 30 May 2005.

In 2006 EuroELIXIR processed a total of 1,573,871 payment orders with a value of €7,676 million, of which 52% were cross-border payments received, 26 % were domestic payments and 22 % were cross-border payments sent.

### 3.4 FUTURE DEVELOPMENTS

In the area of settlement products, the KIR aims to become a pan-European clearing house and one of the pillars of the Single Euro Payments Area. The KIR will become a pan-European, commercial entity, open for cooperation with non-banking entities too.

In addition, new products in the field of settlements will ensure that the KIR occupies a key position in executing mass payments and servicing online payments. The KIR is also considering engaging in the setting up of a domestic electronic money system to service

micro-payments and assuming some of the functions currently performed by banks' back offices.

## 4 SECURITIES SETTLEMENT SYSTEMS

There are two separate depository and settlement systems in Poland: the RPW and the KDPW. The former services transactions on Treasury bills and NBP bills concluded on the primary and secondary markets (MTS-CeTO and the interbank market). The latter services transactions in other securities concluded on the GPW stock exchange market, the off-exchange regulated securities market (MTS-CeTO) and the interbank market. All securities deposited in the RPW and the KDPW are dematerialised. In the RPW, the settlement is carried out in real time on a gross basis (DvP Model 1). In the KDPW, however, the settlement is carried out primarily within the settlement sessions on a net basis in cash and on a gross basis in securities (DvP Model 2), as well as in the RTGS system, i.e. both cash and securities leg settlement is carried out in real time on a gross basis. Cash settlement of both systems is carried out in central bank money.

### 4.1 TRADING

#### 4.1.1 LEGAL BASIS

The legal basis for the operations of the main institutions of the capital market is established by the Acts of 29 July 2005 on: trading in financial instruments; capital market supervision; and public offering, conditions governing the introduction of financial instruments to organised trading, and public companies.

Transactions in securities are also subject to the Currency Act of 27 July 2002 in respect of cash transfers to and from Poland related to the purchase or sale of securities. The Act of 26 October 2000 on commodity exchanges applies to transactions concluded on commodities stock exchanges. The following legal acts are also applicable: the Act of 27 May 2004 on

investment funds, the Act of 28 August 1997 on the organisation and operation of pension funds, the Act of 22 May 2003 on insurance business, the Banking Act of 29 August 1997, the Commercial Companies Code of 15 September 2000, the Act of 15 April 2005 on supplementary supervision of credit institutions, insurance companies and investment firms in a financial conglomerate, the Act on settlement finality, the Act of 2 April 2004 on selected types of financial security, and the Act of 29 June 1995 on bonds.

Trading in securities may take place both on the organised market (regulated market – which includes the GPW, the MTS-CeTO and alternative trading systems), as well as outside this market (by way of the so-called direct transactions concluded by investment firms and by way of civil and legal transactions). Trading in shares and standardised derivatives (futures and options) is performed primarily on the GPW, while trading in Treasury securities takes place primarily on the MTS-CeTO and on the interbank market.

#### 4.1.2 INSTITUTIONAL FRAMEWORK

The Act on supervision of the financial market, the Act on capital market supervision and the Act on trading in financial instruments assign to the KNF complete supervision of the GPW, the MTS-CeTO and the KDPW. The interbank market for trading in Treasury bills is supervised by Narodowy Bank Polski.

##### a) The Securities and Exchange Commission

The KNF is responsible for the supervision of the Polish capital market. The objective of this supervision is to ensure proper operation of the capital market, the safety of trading, the protection of investors and other market participants and, in particular, compliance with the principles of fair trading. The tasks of the KNF include initiating actions aimed at proper operation of the capital market, supervision of the supervised entities' activities (including the GPW, the MTS-CeTO and the KDPW), performing activities related to education and information on the functioning of the capital

market, and drafting legal acts related to the capital market. The KNF's supervisory activity in respect of admission to trading on the regulated market consists primarily in approving issue prospectuses, conducting information campaigns and maintaining a list of qualified investors. Supervision of the activities of capital market entities consists primarily in issuing licenses for the conduct of a specific type of activity.

The KNF is also the supervisory authority for financial instruments which are subject to certain authorisation requirements prior to being traded in the financial market. The scope of the Commission's supervisory responsibility covers: entities which conduct activities on the capital market on the basis of authorisations issued by the Commission or another competent administrative authority; and other entities, to the extent that they are subject to the obligations related to participation in such market, as specified in other regulations.

##### b) The Warsaw Stock Exchange

The GPW was founded under the Act on public trading in securities. It commenced its operations in 1991 as a single member joint stock company controlled by the State Treasury. Currently, the GPW's main shareholder is the State Treasury; the remaining shareholders are largely banks and brokerage houses.

The legal acts regulating the GPW's operations are its Articles of Association, its Rules and Regulations and the Detailed Exchange Trading Rules.

The GPW organises secondary market trading in securities and derivatives and performs activities related to education on and promotion of such trading. The GPW's Supervisory Board performs ongoing supervision of the company's activities, adopts the GPW's Rules and Regulations, approves the company's financial plans and reports on their implementation. It also admits domestic and foreign investment firms to trading on the GPW.

### c) The MTS-CeTO

The basic scope of the activity of the off-exchange regulated securities market (MTS-CeTO) is managing regulated and non-regulated trading in securities and property rights, and performing complementary activities that support the functioning of the relevant markets. Currently, the MTS-CeTO specialises in managing the market for Treasury and non-Treasury debt instruments, in the form of:

- the organised market for Treasury securities (MTS Poland), managed under the agreement with the MF; and
- the regulated off-exchange market (the CeTO Securities Market (CeTO)), subject to the supervision of the KNF.

The MTS-CeTO (formerly the CeTO) was set up as a joint stock company by 48 banks and brokerage houses in 1996. In 2000 the GPW became the CeTO's main shareholder (53.28%). In May 2004 the CeTO established a strategic alliance with the MTS Group, which resulted in the change of the company's name to the MTS-CeTO. Currently, the GPW holds 31.1% of shares in the MTS-CeTO, while the Italian company MTS SpA owns 25%. The remaining stake belongs to banks (30.95%), their subsidiaries (6.25%), brokerage houses (6.24%) and other shareholders (0.40%).

The MTS Poland Market is a wholesale market for Treasury bills and bonds, both in the form of cash market outright transactions and contractual transactions of the repo and buy/sell back types. The MTS Poland Market is an integral part of the Primary Dealers System (DSPW)<sup>3</sup>, a counterpart of the primary dealers systems operating on the developed debt markets worldwide. The participants in the MTS Poland Market are domestic and foreign banks; these may operate as market-makers – participants placing their own buy and sell offers for Treasury securities with a specified minimum unit of quotation and a spread, and as market-takers – participants solely placing

orders accepting market-makers' offers (in whole or in part).

The CeTO is a regulated off-exchange market supervised by the KNF. Trading is carried out through members, i.e. investment firms as specified in the Act on trading in financial instruments. Participation in trading may also be extended to other entities admitted to operating on the market which act solely in their own interest and on their own account. CeTO market trading primarily covers bonds issued by banks, municipal bonds, corporate bonds, mortgage bonds and Treasury bonds, as well as investment certificates and shares.

### d) The National Depository for Securities

The KDPW acts as a clearing house and depository for securities listed on the GPW, the MTS-CeTO and on the interbank market. The KDPW sends payment orders for cash settlements which take place on banks' current accounts held with Narodowy Bank Polski. The KDPW is owned by the GPW, the State Treasury and Narodowy Bank Polski in equal shares. Its main activities encompass maintaining a depository of securities, clearing and settling transactions in securities, and managing a system ensuring the liquidity of settlements. In addition, it ensures that the volume of issues registered by the KDPW corresponds to the number of securities in circulation, as well as providing a range of services to issuers.

### e) Narodowy Bank Polski

In respect of securities trading Narodowy Bank Polski:

- 1) is the agent for Treasury bill issues;
- 2) issues NBP bills;
- 3) organises auctions for Treasury bonds;

<sup>3</sup> Primary Dealer in Treasury Securities – an entity that has entered into an agreement with the MF granting the right to place offers in all kinds of auctions.

- 4) is the owner and operator of the RPW;
- 5) is a co-owner of the KDPW; and
- 6) acts as a cash settlement agent for transactions settled via the RPW and the KDPW.

**f) The Minister of Finance**

The Minister of Finance is the issuer of Treasury securities.

**g) Other institutions**

The Acts of 29 July 2005 – on trading in financial instruments; capital market supervision; and public offering, conditions governing the introduction of financial instruments to organised trading, and public companies – regulate the operations of companies dealing on the stock exchange, of companies and banks engaged in brokerage activities (i.e. entities acting as intermediaries in the primary and secondary markets) and of public companies participating in securities issuance.

Commodity exchanges are regulated by the Act on commodity exchanges.

#### 4.1.3 OPERATIONAL ASPECTS

##### 4.1.3.1 The GPW

The stock exchange manages a fully automated system of trading in financial instruments, based on the order-driven system. Transactions are concluded automatically through the WARSET system, to which the client systems of exchange market members are connected. The WARSET system is used to conduct quotations both in continuous trading (where the vast majority of transactions are concluded) and in the single-price auctions system with quotations conducted twice a day (used for less liquid shares). The system is also used for block transactions, i.e. large transactions concluded between predefined parties. In order to ensure the liquidity of settlements, the GPW also offers repurchase transactions, allowing the purchase of securities with an early transaction settlement

date, thanks to which the exchange market members are able to efficiently purchase papers in the event that they lack the relevant securities at a given point in the transaction settlement. The GPW also enables the conclusion of transactions connected with IPOs and/or of redistribution transactions which make it possible to sell (redistribute) a large block of securities outside the trading system.

The financial instruments quoted on the GPW include shares, Treasury and corporate bonds, and derivatives, including futures (index, stock, currency or Treasury bond-based) and index and share options. These instruments are quoted on the primary market (where the requirements for issuers are higher) or on the parallel market (with lower requirements for issuers).

Directly after the conclusion of a transaction, the GPW prepares agreement cards and transfers them in real time to the parties to the transaction (transactions concluded in the continuous and single-price auction systems are anonymous, i.e. the parties are not aware of each other's identity). Information on the transactions concluded is made available – also in real time – to the KDPW.

Exchange market members may access the stock exchange system through a number of client applications available on the market which use MMTP and FIX communication protocols.

##### 4.1.3.2 The MTS-CeTO

##### The MTS Poland Market

Since its inception in November 2004 the MTS Poland Market has become part of the pan-European platform for Treasury debt trading, operating on the basis of the Telematico system which replaced the ERSPW, the IT system for the wholesale Treasury securities market. The system is characterised by a high level of openness, i.e. market data may be downloaded and processed by applications used by participants and then transferred back to the market. A typical example of such an application

is autoquoting, in which price setting occurs automatically and quotations are ensured on an ongoing basis. Since September 2005, conditional transactions have been concluded within the new MMF (Money Market Facility) market, which operates on the basis of the new TradeImpact system, which replaced the Telematico system used hitherto. Work on migrating the cash market to the new system was completed in the second half of 2006. The new TradeImpact technology is characterised by a high level of modularity and flexibility, which will ensure the development of new functionalities in the future and thus enable market participants to obtain optimal solutions. Transactions concluded on the MTS Poland are settled through the KDPW in respect of operations on bonds and through Narodowy Bank Polski (the RPW) in respect of operations on Treasury bills.

#### **The electronic trading system RPW CeTO**

The CeTO trading system enables its participants to use automatic matching of orders in line with the algorithm which takes into account the price and time of placing the offers. Trading on the market is concluded in the continuous quotation system. Market participants carry out trading through terminals integrated within the transaction system of the CeTO. Market-makers which place buy and sell offers and conclude buy and sell transactions on their own account in line with the offers placed also operate on the market. The starting point for concluding a transaction are market-makers' and members' offers, placed on the basis of customer orders. Offers are placed and transactions concluded in trading units or multiples thereof. Transactions concluded on the market are automatically confirmed, and information on concluded transactions is submitted to the parties to the transaction. Transactions concluded on the CeTO are settled through the KDPW. Apart from standard "session-based" transactions, the system also enables the conclusion of block, negotiated and internal transactions.

#### **4.1.4 FUTURE DEVELOPMENTS**

##### **4.1.4.1 The GPW**

Within the scope of the operational functions related to trading, the GPW aims at, *inter alia*:

- continuously increasing the system's accessibility to client systems used by investment firms;
- increasing the efficiency of the system in order to maintain its high level of reliability;
- introducing additional solutions in respect of quoting techniques;
- introducing solutions that allow increased use of electronic trading by domestic institutional investors;
- adjusting the GPW system to the changes in the depository accounts system prepared by the KDPW;
- introducing new solutions in respect of information distribution (in cooperation with stock exchange members);
- operational and cost-based optimisation of the access of stock exchange members to the transaction systems of the GPW and the MTS-CeTO.

A number of other actions are planned, which are designed to increase the competitiveness of the GPW on the domestic and European markets.

##### **4.1.4.2 The MTS-CeTO**

The strategy implemented by the MTS-CeTO provides for the company's specialisation in the establishment of debt instruments markets as the optimal means for its development.

The envisaged actions planned in respect of the development of the MTS Poland Market over the next few years relate to activities in the area of organisation and technology, resulting in

increased liquidity as well as transparency of the secondary market for Treasury securities, including *inter alia*:

- further widening of the group of participants in the MTS Poland Market, in particular as a result of the subsequent participation of foreign entities that have experience in fulfilling the function of primary dealers on the developed European markets;
- actions in the area of developing the B2C segment that allows non-bank institutional customers to join the market, especially financial investors participating in wholesale trading in Treasury papers, i.e. pension funds, investment funds, insurance companies and asset management companies;
- actions aimed at offering a wide array of instruments and products (e.g. deposit products) used on the developed financial markets;
- actions allowing for simultaneous listing on the MTS Poland Market of Polish euro-denominated Treasury securities, which are traded on other markets of the MTS Group;
- actions allowing participants of the MTS Poland Market to access other markets of the MTS Group within the scope of transactions in Polish Treasury securities.

In the area of the Securities Market the CeTO company will focus its actions on the segment of instruments issued by banking institutions (including mortgage banks), corporate bonds, and papers issued by local government units. The MTS-CeTO assumes that the increase in the interest of the banking sector in using bonds and mortgage bonds will become the most important financing source, alongside deposits, for extending credits. In the segment of corporate bonds the main factor of development will be further economic growth and the related demand for financing the growth of economic entities. In the product area, the MTS-CeTO

intends to intensify its actions in respect of developing products and transactions beyond simple cash transactions in debt instruments. In order to meet the expectations related to the improvement of market conditions for issuing debt instrument on the CeTO, the MTS-CeTO will perform actions in the regulatory and technological areas that will enable modifications of the hitherto-existing, and, implementation of new, functionalities.

## 4.2 CLEARING

There is currently no separate entity acting as a clearing house. Clearing services are performed in the SSSs described in Sections 4.3.2.1 and 4.3.2.2 respectively.

## 4.3 SETTLEMENT

### 4.3.1 LEGAL BASIS

The clearing and settlement of securities are regulated by the following legal acts: the Act of 29 July 2005 on trading in financial instruments and on capital market supervision, the Act of 24 August 2001 on settlement finality in payment and securities settlement systems and on the rules of oversight of these systems, the Bankruptcy and Rehabilitation Act of 28 February 2003, the Act of 26 October 2000 on commodity exchanges and the Act on the National Bank of Poland of 29 August 1997.

### 4.3.2 PROVIDERS OF SECURITIES SETTLEMENT SERVICES

#### 4.3.2.1 The KDPW

The KDPW is a depository and settlement institution within the scope of transactions executed on the GPW, the MTS-CeTO and the interbank market, with the exception of transactions in Treasury bills and NBP bills. Within the KDPW a separate organisational unit, the Clearing House for Derivatives (IRIP), has been established to deal with the clearing of transactions on the derivatives market.

The operations of the KDPW are regulated by the following legal acts: the Statute of the

KDPW, the Rules of the KDPW and Detailed Rules of the KDPW, the KDPW Registration Procedures, the Settlement Guarantee Fund Rules, the Rules on Transfer Payments Between Open Pension Funds, and the Rules of Operation of the Compensation Scheme. The regulations mentioned above specify, *inter alia*, the rights and obligations governing KDPW participants, the functioning of the system for the clearing and settlement of transactions on financial instruments and the system supporting liquidity for settlement purposes.

The entities admitted to participation in the KDPW include entities authorised to maintain securities accounts, issuers of securities, entities authorised to perform brokerage activities, and other institutions, such as banks, Narodowy Bank Polski, insurance companies, pension companies and investment firms, which deposit funds on the securities market on their own account. Participation may also be extended to foreign legal persons or other organisational entities performing tasks in relation to the central registering of securities or settling transactions concluded in trading in securities, or to foreign investment firms and legal persons conducting brokerage activities on the territory of the Republic of Poland.

The KDPW has set up FOP-based links with the following foreign depository and settlement institutions: Clearstream Banking SA Luxembourg, Euroclear Bank (Belgium), KELER (Hungary), OeKB (Austria) and SDCP (Slovakia). The first link between the KDPW and the OeKB was set up in October 2003. These connections enable trading in foreign financial instruments on the Polish capital market using dual listing.

#### 4.3.2.2 Narodowy Bank Polski

Narodowy Bank Polski is the owner and operator of the RPW, the depository and settlement system for Treasury bills and NBP bills. The RPW manages two operating systems: the SKARBNET (for Treasury bills) and the SEBOP (for NBP bills).

The RPW was set up in 2003 as a result of a merger of the CRBS and the RBP, the two depository and settlement systems. The rules governing the RPW's operations are specified in the Rules on the maintenance by the National Bank of Poland of accounts and depository accounts for securities and on the handling of operations on securities and their registration on accounts and depository accounts. The RPW maintains accounts and depository accounts for its customers.

#### 1) Treasury bills

Accounts and depository accounts at the RPW may be held by: Narodowy Bank Polski; domestic banks and branches of foreign banks operating in Poland which hold current accounts with the Payment Systems Department of Narodowy Bank Polski; the KDPW; the BGF; and foreign entities operating as dealers of Treasury securities. In the case of RPW Treasury bills, accounts may also be maintained for foreign depository and settlement institutions.

In addition, the RPW maintains an issue account for the Ministry of Finance, the issuer of Treasury bills.

#### 2) NBP bills

The following entities can hold NBP bill accounts and deposit accounts with the RPW: domestic banks and branches of foreign banks which maintain current accounts with the DSP; the BGF; and Narodowy Bank Polski. The RPW maintains an issue account for Narodowy Bank Polski, the issuer of NBP bills.

In addition, Narodowy Bank Polski is co-owner of the KDPW and the settlement agent for the RPW and the KDPW.

#### 4.3.3 OVERSIGHT

The principles for conducting the oversight of securities settlement systems are regulated in two acts of 29 July 2005, namely the Act on capital market supervision and the Act on trading in financial instruments, as well as in the Act of 24 August 2001 on settlement finality

in payment and securities settlement systems and on the rules of oversight of these systems.

Under the Act on capital market supervision and the Act on trading in financial instruments, the KNF supervises the KDPW and the exchange clearing houses.

Under the Act on settlement finality in payment and securities settlement systems and on the rules of oversight of these systems, the operation of the securities settlement systems and the introduction of changes to the rules governing their operation requires the consent of the KNF, following prior consultation of the President of Narodowy Bank Polski. This Act does not cover securities settlement systems operated by Narodowy Bank Polski, the KDPW and the exchange clearing houses.

With very limited legal instruments at its disposal as regards conducting the oversight of the securities settlement systems, Narodowy Bank Polski primarily takes advantage of the competences arising from its proprietary rights, in addition to using other oversight tools such as: the informal cooperation with the KNF, agreement-based relations in respect of providing services to the KDPW (with Narodowy Bank Polski performing the function of a cash settlement agent) as well as using the services of the KDPW (participation in the securities settlement system), public statements, and moral suasion based on the central bank's prestige.

#### 4.3.4 OPERATIONAL ASPECTS

##### 4.3.4.1 The KDPW system

###### Types of transaction handled

The KDPW registers different types of transaction, which can be divided into two major groups:

- transactions resulting in payments (DvP) – e.g. transactions effected on the regulated stock exchange and off-exchange market (both cash and derivatives market) and

transactions concluded outside the regulated market; and

- transactions which do not require payments (FOP) – e.g. transfers of customer portfolios, conversion of registered shares into bearer shares, registration and withdrawal of foreign securities, and operations related to the realisation of issuers' liabilities towards shareholders.

###### Transaction processing environment

Information is transmitted directly between the GPW and the KDPW via the telecommunications network. To communicate with the KDPW, participants can use the electronic system for the distribution of information (ESDI).

Communication with foreign depository and settlement institutions on the basis of links is effected through the SWIFT network in line with the ISO 15022 standard.

###### Settlement procedures

For the majority of cash market instruments the settlement cycle for transactions concluded on the regulated market is three days (T+3). In the case of transactions in Treasury bonds the settlement cycle is two days (T+2). For derivatives, the settlement of transactions is performed on the transaction date (T+0), while for block transactions (concluded outside the order book), transactions on the interbank Treasury bond market and transactions concluded outside the regulated market the settlement is performed on the date agreed upon by the parties to the transaction (T+X, X≥0).

Each counterparty which intends to deal in the capital market must hold a cash account and a securities account with a brokerage house or a bank. Each GPW or MTS-CeTO participant dealing in a given market must have a deposit account with the KDPW and a cash account with the DSP or its settlement bank, which, in turn, must have a bank account with the DSP. The KDPW, acting as a clearing house, holds a technical account with the DSP in zloty and euro.

The KDPW executes settlements in a multibatch system and in the RTGS. There are currently seven daily batches processed in the KDPW, four of which are earmarked solely for FOP transactions. The KDPW provides for the possibility of increasing or decreasing the number of batches, depending on the needs and capabilities of its participants. Real-time settlements are performed between batches from 8 a.m. to 5 p.m. CET.

The settlement of payments arising from transactions and operations handled by the KDPW is effected through the SORBNET and SORBNET-EURO systems in compliance with DvP Model 2 (net settlement in cash and gross settlement in securities) or with DvP Model 1 (gross settlement in cash and gross settlement in securities). Cash leg settlement in Narodowy Bank Polski is performed on the basis of an order from the KDPW sent upon prior blocking of securities in KDPW participants' accounts. Following the cash leg settlement in the DSP, the KDPW performs securities leg settlement in its participants' accounts.

On the basis of agreements between the KDPW, Narodowy Bank Polski and banks, the KDPW is authorised to transfer payment orders relating to transactions in securities electronically to the DSP on behalf of banks via a special application developed by Narodowy Bank Polski.

The Clearing House for Derivatives (IRIP) was established by the KDPW to clear derivatives transactions. Its main function is to calculate the amounts of margin required to cover open positions of investors, as well as to clear derivatives transactions based on individual accounts maintained with the IRIP, where the investors' positions are registered and cash settlements and derivatives settlements are effected. In operating terms the KDPW is the counterparty of each derivatives transaction. The second counterparty is the participant that clears transactions effected on its own account or on the account of its customers.

### Risk management

Pursuant to the Act on trading in financial instruments, the KDPW is obligated to operate and manage the settlement guarantee fund to ensure proper settlement of transactions concluded on the regulated market. Participants in the KDPW are obligated to make contributions to the settlement guarantee fund, which they jointly co-own. The fund consists of functionally separated parts that guarantee the settlement of specific types of transaction concluded on the regulated market. In the event that the funds are insufficient to cover the participants' liabilities, the participants are obliged to make replenishment contributions.

Participants with clearing member status are additionally obliged to make a margin deposit in the case of transactions involving derivatives. Margin deposits take the form of either an initial margin, whose placement is a precondition for the commencement of trading on the derivatives market, or a proper margin deposit placed individually for every position opened in the course of a transaction concluded on the derivatives market.

Apart from those mentioned above, the KDPW uses a number of other tools for the management of the risks related to its activities. In order to prevent or eliminate the suspension of the settlement, the KDPW manages an automatic securities lending and borrowing system. The risk management measures implemented by the KDPW also include the application of financial, organisational and technical criteria for access to and participation in the system, monitoring the fulfilment of the criteria by participants and the imposition of an order to block the securities in accounts kept by participants causing suspension of transaction settlement.

In accordance with the Act on trading in financial instruments, the KDPW is also responsible for the operation of the mandatory investor compensation scheme. By 2008 the system will have reached the level of compensation envisaged in Directive 97/9/EC on investor compensation. This will ensure

that, in the event of bankruptcy on the part of an investment firm, its clients will have the right to receive compensation for the assets collected on their accounts with the investment firm.

In line with the provisions of the Act on the organisation and operations of pension funds, the KDPW administers a part of the Guarantee Fund.

#### **Pricing policy**

Pursuant to the Act on trading in financial instruments and its rules, the KDPW charges fees and commissions for activities performed on behalf of participants. The charges are specified in the list of tariffs appended to the KDPW's rules. In recent years, the KDPW has been systematically lowering its fees.

#### **Future development**

The KDPW's plans for further development include both short-term and long-term initiatives. As regards its short-term activities, the KDPW is well on the way to, *inter alia*, developing a new structure for depository accounts, implementing changes to the guidelines for and structure of the Business Continuity System, putting in place a new integrated system of risk management for both the cash and derivatives market, and improving the liquidity of settlements and introducing new functionalities, such as electronic proxy voting. As regards long-term activities, within the framework of work on system interoperability the KDPW is conducting research on the possibilities for setting up a DvP-based inter-system link with a foreign depository and settlement institution. There are also plans to single out the clearing activity from the KDPW and to establish a CCP. From a longer-term perspective, it is envisaged that the KDPW will be privatised.

#### **4.3.4.2 The RPW**

##### **Types of operation handled**

The system provides for depository and settlement services relating to Treasury and

NBP bill operations performed on the primary and secondary markets, as well as within open market operations.

##### **Transaction processing environment**

For the exchange of information between RPW participants and Narodowy Bank Polski, software – the ELBON module – is used for placing orders through the system of electronic data exchange; use is made of always-on connections based on the TCP/IP protocol, a transport layer using the Bea Tuxedo and the SWIFT network. Messages sent via the SWIFT network are in line with the ISO 15022 standard. Orders are transferred by system participants directly to the Domestic Operations Department (DOK) of Narodowy Bank Polski. Orders are registered on the basis of participants' orders, or, in the case of Treasury bills, on the basis of data on transactions concluded via MTS Poland and transferred to the DOK by the operator of that market. The DOK immediately notifies the participant of the receipt, registration or rejection of an offer or order via the electronic system of data exchange. In the event of a breakdown, the exchange of information is conducted via fax. Accounts and deposit accounts are handled, and operations registered, through a specialised RPW application called the main module.

##### **Settlement procedures**

Both securities settlement in the RPW and cash settlement in the SORBNET are performed on the basis of RTGS in line with the DvP Model 1 principle. Orders may be transferred by participants to Narodowy Bank Polski between 8 a.m. and 5 p.m. CET on the settlement day. Upon the close of an operating day on which changes in the balance on the participant's account in the RPW are recorded, the participant receives an account statement through the electronic system of data exchange.

##### **I) Treasury bills**

##### **Primary market – auction service**

Only dealers of treasury securities and state-owned banks can participate in Treasury bill

auctions. The auctions are organised by Narodowy Bank Polski on the first day of the week on the basis of issue letters announced by the Minister of Finance. An auction participant sends to Narodowy Bank Polski an offer of purchase within specified dates accompanied by an authorisation to debit its current account with the amount resulting from the transaction, both on its own behalf and on its own account.

After accepting the purchase offers by the Ministry of Finance, Narodowy Bank Polski notifies participants of the acceptance or rejection of their offers and issues the relevant confirmation. The Minister of Finance publicly announces the results of the auction. If the offer has been accepted, a payment order is generated automatically on the day specified in the issue letter as the payment day and transmitted electronically to the SORBNET system. Payment is made by debiting the current account of the participant in the DSP. As soon as payment has been settled in accordance with the payment order, the Treasury bills purchased are registered in the depository account of the RPW participant.

#### **Secondary market**

The RPW settles transactions concluded directly between participants of a system on the basis of the corresponding orders submitted, as well as transactions concluded on the MTS Poland market on the basis of data concerning transactions transferred to the DOK by MTS Poland. By entering into an agreement with Narodowy Bank Polski on maintaining an account in the RPW, the participant authorises Narodowy Bank Polski to debit its current account with the amounts resulting from the execution of transactions on securities.

In the case of a transaction between participants of the RPW, the counterparties submit orders to Narodowy Bank Polski to register this transaction in the RPW on the trading day. Following receipt of the relevant orders from the transaction participants and their automatic matching in the RPW, it is verified whether the selling party holds a sufficient amount of

Treasury bills which are not, for any reason, blocked. If the above condition is met, bills are blocked on the seller's account and the payment order is then generated automatically and transferred electronically to the DSP. After the transaction is effected, securities are automatically registered in the RPW. An order may be cancelled by the time orders are matched.

In the case of a transaction concluded through the MTS Poland, orders are sent to the RPW by the operator of this market and are settled in line with the above-mentioned procedures.

The settlement of FOP transactions in Treasury bills is also effected in the RPW. In the case of a sale of Treasury bills between a participant of the RPW and its clients, the participant submits an order to the DOK to register the transfer. A transfer of bills between individual RPW participants which is not related to their sale is registered on the basis of the submission by these participants of corresponding orders to the DOK to transfer ownership.

Once NBP bills reach their maturity, they are subject to redemption. The redemption of bills takes place by means of crediting RPW participants' current accounts in Narodowy Bank Polski.

#### **2) NBP bills**

##### **Primary market – auction servicing**

The sale of NBP bills is concluded through an auction. All banks which participate in the SORBNET and RPW systems and are equipped with the ELBON module can participate in basic operations. The DOK is the organiser of auctions and addressee of offers. An auction participant seeking to purchase NBP bills on the primary market issues an offer after submitting the order to register its participation in the auction. Having settled the auction, Narodowy Bank Polski notifies all the participants through the electronic system of data exchange of the acceptance or rejection of their offers. An account is debited by order of

Narodowy Bank Polski on the basis of the authorisation to debit the participant's cash account granted upon conclusion of the agreement with Narodowy Bank Polski on maintaining an account with the RPW. The payment is executed, on the day specified by Narodowy Bank Polski in the information on the auction, by means of simultaneously debiting and crediting the participant's current account and the relevant account used to register liabilities of Narodowy Bank Polski respectively. The settlement is contingent upon there being a sufficient amount of funds in the participant's current account. Following execution of the payment in accordance with the order submitted, the NBP bills purchased are registered exclusively on the participant's own account in the RPW.

#### **The secondary market**

In the case of a transaction between participants of the RPW, the parties submit orders for registering the transaction in the RPW to Narodowy Bank Polski on the trading day. Following the receipt of the relevant orders from transaction participants and their automatic matching in the RPW, it is verified whether the seller owns a sufficient amount of NBP bills which are not, for any reason, blocked. If the above condition is met, bills are blocked on the seller's account and the payment order is generated automatically and transferred electronically to the DSP. After the transaction is effected, securities are registered automatically in the RPW. An order may be cancelled by the time orders are matched.

The execution of an FOP transaction is also possible. In the case of a sale of NBP bills between an RPW participant and its clients, the participant submits an order to the DOK to register the transfer. A transfer of bills between individual RPW participants which is not related to their sale is registered on the basis of the submission by these participants of corresponding orders to the DOK to transfer ownership.

After the bills reach their maturity they are subject to redemption. The redemption of bills takes place by means of crediting participants' current accounts in Narodowy Bank Polski.

#### **Risk management**

The RPW system settles transactions on a gross basis and in real time. Thus, there is no special fund to guarantee the settlement of transactions, but there are mechanisms to support liquidity in both cash and securities.

Since December 2001 Narodowy Bank Polski has extended intraday credit. The credit may only be extended to RPW participants or to direct KDPW participants holding a current account with the DSP. A precondition for being granted credit is the conclusion of an appropriate agreement with Narodowy Bank Polski and the depositing of collateral in the form of Treasury securities. The amount of credit is 80% of the nominal collateral value. Credit paid back on the day it is extended bears no interest. The credit may be used between 8 a.m. and 5.30 p.m. CET. Repayment of the credit is effected on every operating day at 5.30 p.m. If a bank pays back its credit, the collateral is returned. If the credit is not paid back on a given operating day, it is converted into interest-bearing overnight credit and the participant is obliged to pay it back by 10.30 a.m. CET on the next operating day. If this payment does not take place, the collateral becomes the property of Narodowy Bank Polski.

The RPW runs a system of lending and borrowing Treasury bills, which serves to safeguard the realisation of transactions on Treasury bills if the seller lacks the relevant assets on its account during the operating day. RPW participants are participants in the lending and borrowing system. Loans are granted from the loan pool, consisting of bills (free from third-party rights) that may be transferred by every participant in the system up to five days before their redemption date. The loan is granted on condition that the borrower deposits collateral in the form of Treasury bills with a market value of not less than 110% of the

market value of the loan. The loan should be returned by 4.30 p.m. CET at the latest on the first working day following the date of loan extension.

#### **Pricing policy**

Narodowy Bank Polski is an issuing agent for Treasury bills. Under the agreement concluded on 30 September 1999 between Narodowy Bank Polski and the Ministry of Finance, the activities related to the handling of subsequent issues are free of charge. RPW participants are charged fees and commissions in accordance with the table of bank fees and commissions used by Narodowy Bank Polski.

### **4.4 USE OF THE SECURITIES INFRASTRUCTURE BY NARODOWY BANK POLSKI**

#### **Collateral management**

In order to ensure the functioning of the financial system and conduct its monetary policy Narodowy Bank Polski provides intraday liquidity and conducts open market operations. These needs can be met through the issuance of NBP bills, the use of funds from the reserve requirements, and/or the extension of loans.

#### **Lombard credit**

Banks may draw lombard credit collateralised by Treasury debt instruments (Treasury bills and Treasury bonds). These assets are registered and settled in two separate central securities depositories: the RPW for Treasury bills and the KDPW for Treasury bonds.

#### **Intraday credit**

Since December 2001 Narodowy Bank Polski has extended intraday credit. For details, see “Risk management” in Section 4.3.4.2.





# ROMANIA

## CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>280</b>
<b>INTRODUCTION</b>	<b>282</b>
<b>1 INSTITUTIONAL ASPECTS</b>	<b>283</b>
1.1 The general institutional framework	283
1.2 The role of BNR	285
1.3 The role of other private and public sector bodies	287
<b>2 PAYMENT MEDIA USED BY NON-BANKS</b>	<b>290</b>
2.1 Cash payments	290
2.2 Non-cash payments	290
2.3 Recent developments	292
<b>3 INTERBANK SETTLEMENT SYSTEMS</b>	<b>293</b>
3.1 General overview	293
3.2 The Romanian real-time gross settlement system	293
3.3 Retail payment systems	296
3.4 Future developments	299
<b>4 SECURITIES TRADING, CLEARING AND SETTLEMENT SYSTEMS</b>	<b>299</b>
4.1 Trading	299
4.2 Clearing	300
4.3 Settlement	301
4.4 The use of the securities infrastructure by BNR	302

## LIST OF ABBREVIATIONS

ANSVM	National Association of Securities Companies – <i>Asociația Națională a Societăților de Valori Mobiliare</i>
BER	RASDAQ electronic exchange – <i>Bursa Electronică RASDAQ</i>
BNR	National Bank of Romania – <i>Banca Națională a României</i>
BVB	Bucharest Stock Exchange – <i>Bursa de Valori București</i>
CEC	Romanian Savings Bank – <i>Casa de Economii și Cosemențăiuni</i>
EPS	Electronic Payment System – <i>Sistem electronic de plăți</i>
CIP	Payment Incidents Bureau – <i>Centrala Incidentelor de Plăți</i>
CNVM	National Securities Commission – <i>Comisia Națională a Valorilor Mobiliare</i>
EXIMBANK	Export-Import Bank of Romania – <i>Banca de Export-Import a României</i>
FGDB	Bank Deposits Insurance Fund – <i>Fondul de Garantare a Depozitelor în Sistemul Bancar</i>
MPF	Ministry of Public Finance
RASDAQ	Romanian Association of Securities Dealers Automated Quotation system
ReGIS	Romanian electronic Gross Interbank Settlement (the Romanian RTGS system) – <i>Sistemul de Decontare pe Bază Brută în Timp Real</i>
ROL	Old Romanian leu
RON	New Romanian leu
SaFIR	Settlement and Financial Instruments Registration system – <i>Sistem de Depozitare și Decontare a Instrumentelor Financiare</i>
SENT	Electronic net settlement system managed by TRANSFOND SA (an ACH for low-value payments) – <i>Sistemul Electronic cu decontare pe bază Netă administrat de TRANSFOND</i>
SMFCE	Sibiu Monetary Financial and Commodities Exchange (a derivatives and commodities exchange)
SNCDD	National Securities Clearing, Settlement and Depository Company – <i>Societatea Națională de Compensare, Decontare și Depozitare a Valorilor Mobiliare</i>

TRANSFOND

National Company for Funds Transfer and Settlement – *Societatea Națională  
de Transfer de Fonduri și Decontări*

## INTRODUCTION

Romania's current payment infrastructure is the result of the establishment between 1992 and 2005 of a homogeneous legal framework, based on new banking laws. The new laws, *inter alia*, give credit institutions and the State Treasury the right to issue and manage the payment instruments and explicitly designate Banca Națională a României (National Bank of Romania; BNR) as the regulatory body in the area of payments. This is in line with the fundamental changes that have occurred in the Romanian financial and banking system in recent years and serves the achievement of monetary policy goals. The result has been a gradual shift in the relative importance of the various payment services and instruments in the Romanian banking industry.

In 1999 BNR decided to outsource most parts of its funds transfer and settlement activities. It took a decision, together with the Romanian banking community, to establish a separate institution to process and settle interbank funds transfers. To this end, BNR together with the Romanian banking community set up the National Company for Funds Transfer and Settlement (TRANSFOND) in June 2000. The company became operational in early May 2001 when it took over, as BNR's agent, a significant part of the activity of BNR's former Banking Settlement Department. TRANSFOND's main objective was to implement and operate, together with BNR, the new interbank Electronic Payment System (EPS).

During the second half of 2004 and in 2005 a significant number of goals were achieved in the payment systems field. A large part of the legal framework was harmonised with EU legislation and most of the former infrastructure was gradually replaced by a new fully automated system.

Thus, in April 2005, the large-value payment system ReGIS was launched, replacing the previous system in which payment instruments were manually processed and settlement was not final until the end of the operating day. ReGIS is a real-time gross settlement system.

Shortly after the launch of ReGIS, another component of the EPS went live, the automated clearing house SENT, which undertook the processing of all interbank low-value payment orders. The only instruments still processed manually through the paper-based clearing house are debit instruments (cheques, bills of exchange and promissory notes). In the context of the same reform programme, discussions are currently under way on a solution for achieving the automated processing of debit instruments, with the migration to automatic processing due to start in 2006, once the regulatory framework for these instruments has been modified accordingly.

As a result of the efforts that have been undertaken in the last few years by the central bank and by the banking community to achieve a structural reform of the payment and settlement systems, Romania now has a modern and efficient payment system, in line with those existing in other EU countries.

There are two stock exchanges in Romania: the Bucharest Stock Exchange (BVB) and the RASDAQ electronic exchange (BER). Equities issued by Romanian companies are traded on both markets. Since the end of 2001 floating rate municipal bonds have also been traded on the BVB. There is no regular secondary market for government securities, and no dedicated trading infrastructure for government securities. BNR is involved in operations related to government securities (*i.e.* administration of the primary market, depository and settlement services) as the agent of the Ministry of Public Finance (MPF).

The BVB clears its own securities transactions, and RASDAQ trades are cleared by the National Securities Clearing, Settlement and Depository Company (SNCDD). The cash payments related to these transactions are netted by the BVB's and SNCDD's clearing houses, and finally settled in the ReGIS system. The BVB and RASDAQ markets merged in December 2005, and at the end of that year only a few securities listed on RASDAQ were settled through the SNCDD, most of them being deposited and settled in the BVB.

## I INSTITUTIONAL ASPECTS

### 1.1 THE GENERAL INSTITUTIONAL FRAMEWORK

At present, the main providers of payment services in Romania are BNR, the credit institutions, the State Treasury, TRANSFOND and the Romanian Post Office.

The legal framework for banking activities consists of Law No 58/1998 on banking activity, as republished, Law No 312/2004 on the Statute of BNR, and Government Ordinance No 10/2004 on the judicial reorganisation and winding-up proceedings of credit institutions, as approved and amended by Law No 278/2004.

As provided by BNR's Statute and the Law on banking activity, BNR plays the leading role in Romanian payment systems. As the result of measures taken by BNR, at the end of 2005 the Electronic Payment System (EPS) was launched with its four components: the real-time gross settlement system (ReGIS), the automated clearing house (SENT), the Settlement and Financial Instruments Registration system (SaFIR) and the backup and recovery system. The implementation of the EPS is intended to create a clearly defined legal and contractual framework for participation in the interbank payment system and to complete the legal framework for electronic funds transfer, in line with EU requirements.

BNR has adopted a series of measures underpinning the payment and settlement systems. BNR Regulation No 1/2005 on clearing payment systems focuses on BNR licensing procedures with respect to payment systems ensuring funds clearing, i.e. clearing houses, and settlement risk management procedures developed by BNR. BNR Regulation No 2/2005 on payment orders used in credit transfer operations applies to payment orders related to domestic payments denominated in national currency. BNR Regulation No 3/2005 on direct debits executed via the automated clearing house lays down the rules for executing a beneficiary's direct debit instructions through

the payee's bank and drawn on the payer's account opened with the payer's bank.

The finalisation of the EPS was accompanied by BNR Regulation No 10/2005 on the facilities granted by BNR for smooth settlement within ReGIS.

The Payment Incident Bureau (CIP) is a structure within BNR managing information on payment incidents both from the Bank's point of view (overdrafts) and from a general point of view (loss, theft, damage, etc.). The database is divided into two files: the Payment Incidents National File, which has three components (the Cheques National File, Promissory Notes National File and Bills of Exchange National File), and the Risky Persons National File.

Law No 253/16 of June 2004 on settlement finality in payment and securities settlement systems has fully transposed into Romanian law the Settlement Finality Directive. It applies to payment systems and securities settlement systems, to all participants in these systems and to the guarantees in relation to participation in such systems or related to operations with BNR and the NCBs of the EEA member countries.

Now that Romania has become a member of the EU, BNR is required to notify all EEA member countries with regard to the opening of insolvency proceedings against a system participant.

Government Ordinance No 10/2004 (the Winding-up Ordinance), as approved and amended by Law No 278/2004, harmonises the Romanian legal framework for the winding-up of credit institutions with both the Directive on the reorganisation and winding-up of credit institutions and with the general insolvency law applicable in Romania (Law No 64/1995, as amended). The new framework provides a refined procedure for the winding-up of credit institutions, reformulates insolvency status, and extends the application of the procedures to all credit institutions that are Romanian legal

persons, including their branches operating outside Romania.

The Cross-Border Credit Transfer Directive and the Commission recommendation on the transparency of banking conditions relating to cross-border financial transactions have been transposed into Romanian law by Government Ordinance No 6/22 of January 2004, as approved without amendments by Law No 119/19 of April 2004. The Ordinance establishes the categories of cross-border payments, defines the relevant terms, and prohibits natural persons from performing monetary transfers as a commercial service. The Ordinance imposes obligations on the institutions making cross-border credit transfers with regard to the provision of information to clients, both before and after carrying out the transaction. It also imposes requirements for the operation of the institutions carrying out such transfers, as regards transparency, execution within the determined or a limited period, the strict fulfilment of the client's instructions, and the legal consequences of any breach of such obligations.

The Romanian Post Office operates in accordance with Government Resolution No 371/1998. It also carries out its activities on the basis of Government Ordinance No 31/2002 on postal services.

Two state-owned banks are established under special laws: the Romanian Savings Bank (CEC) and the Export-Import Bank of Romania (EXIMBANK). The structure and range of activities of the CEC are defined by Law No 66/1996 on the reorganisation of the CEC as a bank, as republished. This Law allows it to carry out the whole range of banking activities and establishes BNR's powers of supervision and control over it. EXIMBANK is both a bank and an insurance company. It was established in 1992 and is unique in the Romanian banking and financial system. At present, EXIMBANK is governed by Law No 96/2000, as republished, and the Law on banking activity.

The use of paper-based debit payment instruments (cheques, bills of exchange and promissory notes) and the discharge of financial obligations are governed by the provisions of the Civil Code and other specific laws based on the Geneva Convention: Law No 59/1934 on cheques and Law No 58/1934 on bills of exchange and promissory notes, which were re-introduced, with slight amendments, in September 1994. Pursuant to these laws, BNR has issued regulations concerning the standardisation of these payment instruments.

In order to promote the development of e-commerce and electronic services, including electronic payment services, Law No 455/2001 on the electronic signature was passed, opening the way for improved electronic banking services.

The Romanian securities markets are governed by Law No 297/2004 on capital markets. The organisation and operation of capital markets in Romania has undergone substantial changes since the adoption of the Law on capital markets. This Law regulates the establishment and operation of the financial instruments markets, specific institutions and operations, financial instruments and undertakings for collective investment in transferable securities. Banks authorised by BNR are entitled to access the capital markets once they are entered into the register kept by the National Securities Commission (CNVM).

The Law on capital markets does not apply to monetary policy instruments, which are regulated by BNR, or to debt instruments issued by the MPF if the issuer has chosen to transact these instruments on a market not regulated by the CNVM. Nor does it apply to those aspects of public debt that involve BNR and the MPF.

Under the new Law on capital markets, which regulates the conditions for market operators, the Bucharest Stock Exchange and RASDAQ, which were both previously operating equities markets, merged on 1 December 2005.

Consequently, the Bucharest Stock Exchange company now administers two markets: the regulated BVB market and the BER market. The regulated BVB market is for securities of highly rated companies, which have to fulfil specific requirements according to their category (I, II and Plus). Transactions on the BVB market have only been in equities, bonds and preferential rights. The final funds settlement of the net positions of the participants in both markets occurs within the ReGIS system. The BVB market is a self-regulating body whose regulations are subject to approval by the CNVM and apply to issuing companies and intermediaries. Besides the main legal framework provided by the Law on capital markets, the Statute of the BVB and the Ethical Code, market operations are mainly governed by 17 other regulations issued by the BVB. These cover various areas, such as membership, listing requirements, trading procedures, clearing and settlement, ownership transfer, risk management, taxation and the Guarantee Fund.

The new Law on capital markets also creates the framework for derivatives markets and central counterparties. In February 2004 the SMFCE became the first derivatives and commodities exchange to be authorised by the CNVM. The SMFCE issues its own regulations for its organisation and operation, which are subject to the CNVM's approval.

## 1.2 THE ROLE OF BNR

### 1.2.1 GENERAL RESPONSIBILITIES

According to Law No 312/2004 on the Statute of BNR, it is the primary objective of the Bank to ensure and maintain price stability. The main tasks of BNR are the following:

- to define and implement the monetary policy and the exchange rate policy;
- to conduct the authorisation, regulation and prudential supervision of credit institutions and to promote and oversee the smooth

operation of payment systems with a view to ensuring financial stability;

- to issue banknotes and coins to be used as legal tender within the territory of Romania;
- to set the exchange rate regime and to supervise its observance; and
- to manage the official reserves of Romania.

BNR carries out its payment activities through its headquarters and its 19 branches located in the cities that are county seats.

### 1.2.2 OVERSIGHT OF PAYMENT SYSTEMS

The above-mentioned Law establishes BNR's responsibilities in the field of payment systems oversight, including payment instruments, with a view to ensuring the security and efficiency thereof and avoiding systemic risk. When carrying out this task, BNR determines the required measures; implements them and monitors their implementation; regulates, authorises and supervises the payment systems; and regulates the payment instruments.

BNR is also empowered by Law No 58/1998 on banking activity, as republished, to issue regulations regarding the payment systems, which relate to the following:

- the conditions and organisation of payment systems;
- the conditions and authorisation procedure, as well as cases where authorisation may be withdrawn;
- the criteria and rules for the supervision of payment systems, including the participants in these systems and their administrators;
- the information and reports to be provided to BNR;

- the minimum requirements related to the functioning, operational audit and risk management of a payment system and those relating to the financial statements and the internal audit of the participants and of the administrator of a payment system; and
- any other specific requirements necessary for the smooth functioning of a payment system.

BNR designated ReGIS, SENT, SaFIR, the BVB and the SNCDD as systems subject to Law No 253/2004 on settlement finality in payment and securities settlement systems and oversees these systems. BNR also oversees the securities settlement systems that settle through systemically important payment systems or through systems of prominent importance.

### **1.2.3 SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

According to Law No 313/2004 on public debt, Law No 312/2004 on the Statute of BNR and the agreement concluded between the MPF and BNR, the Bank is involved in operations related to government securities (i.e. placement, registration, transfer and settlement) as the agent of the MPF. In this respect, BNR is empowered to regulate the activities on both primary and secondary markets.

The MPF Regulation approved by MPF Order No 1408/2005 establishes the general principles for government bond trading and settlement. According to this Regulation, the primary market is administrated by an entity appointed by the MPF and the secondary market is composed of one market administered by BNR and one appointed by the MPF which is operated by an entity authorised by the CNVM.

Currently, both primary and secondary markets in government securities are managed by BNR, and settlement is performed by SaFIR, which is owned by BNR.

On the secondary market for government securities, operations take place between credit

institutions, between credit institutions and their customers, and between credit institutions and the central bank (mainly for monetary policy purposes). Banks may also participate, using government securities as collateral, in repo/reverse repo auctions organised by BNR for monetary policy purposes.

### **1.2.4 THE OPERATIONAL ROLE OF BNR**

According to Law No 312/2004 on the Statute of BNR, BNR opens and holds accounts for credit institutions, the State Treasury, clearing houses and other resident or non-resident entities, as provided by BNR's regulations. BNR performs the final, irrevocable and unconditional settlement of funds transfers in the holders' accounts.

ReGIS ensures the final settlement of the interbank funds transfers on a continuous, transaction-by-transaction basis, as well as the final settlement of the net positions resulting from net settlement systems and the final settlement of funds transfers related to securities transactions. The settlements are carried out within the limits of the available funds of the participants. BNR provides intraday liquidity to the participants eligible for market operations with the central bank, which are participants in the ReGIS and SaFIR systems and have signed a contract with BNR regarding the granting of credit facilities. ReGIS processes and settles BNR's own payments, as well as the funds transfers corresponding to operations on money markets and on foreign exchange markets, and on permanent BNR facilities, as well as any other operations requiring funds transfers between the settlement accounts of the participants. BNR may delegate any of the operational tasks related to ReGIS to a third party, in which case it is obliged to inform all participants.

BNR may provide clearing, depository and payment services through accounts opened with it.

At present, all operations in government securities are processed by BNR through the SaFIR system.

#### 1.2.5 COOPERATION WITH OTHER INSTITUTIONS

BNR cooperates with the MPF with regard to the regulation of transactions in government securities and State Treasury payments, and with the CNVM regarding the settlement of operations of independent clearing houses that process capital market transactions.

In April 2002 BNR, the CNVM and the Insurance Supervision Commission signed a memorandum of understanding regarding the exchange of information among these institutions.

### 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

#### 1.3.1 CREDIT INSTITUTIONS

At the end of 2005 the Romanian banking sector comprised 34 credit institutions incorporated under Romanian law, four branches of euro area-based credit institutions, one branch of an EEA-based credit institution (outside the euro area) and one branch of a non-EEA-based bank.

Credit institutions conduct their business under a licence issued by BNR. Of the total number of licensed credit institutions, two are state-owned.

The legal framework for payment systems treats Romanian and foreign commercial banks on equal terms.

#### 1.3.2 STATE TREASURY

Although the State Treasury is not subject to the provisions of the Law on banking activity, it has the legal right to provide payment and collection services for the state.

According to Law No 500/2002 on public finance, all public institutions are obliged to hold a current account with the State Treasury. The State Treasury operates these accounts, as

well as the accounts designated for collecting state revenues from taxpayers. The operations related to public debt management are also performed through the accounts maintained with the State Treasury.

All funds transfers to/from the State Treasury are settled through an account held with BNR, based on an agreement between the MPF and BNR.

#### 1.3.3 NATIONAL COMPANY FOR FUNDS TRANSFER AND SETTLEMENT

In 1999 BNR decided to outsource part of its settlement and funds transfer activities. In June 2000, together with a number of banks, it established a joint stock company named TRANSFOND (National Company for Funds Transfer and Settlement). The ownership shares of the 28 banks were equal at the time of subscription. TRANSFOND has its headquarters in Bucharest. It has a network of 41 branches in all major Romanian cities (county seats).

In 2005 BNR licensed the electronic system for the multilateral settlement of payments (SENT), operated by TRANSFOND, as an automated clearing house which processes low-value payment orders and direct debit instructions transmitted by the participants in the form of electronic files. The final settlement of the net positions takes place via ReGIS. TRANSFOND SA manages and controls the operation of SENT, authorises participation in SENT, issues and updates the system's rules and the corresponding documentation, and establishes the procedures as well as the technical and security standards applicable within SENT. TRANSFOND SA may delegate to third parties part of the operational activities and the provision of data communication services. Such delegation would not affect its liability towards the participants. TRANSFOND SA cannot act as an agent for any participant. It owns the technical infrastructure of the entire EPS and provides IT services for the administration of the ReGIS and SaFIR systems.

#### **I.3.4 ROMANIAN POST OFFICE**

The Romanian Post Office operates in accordance with Government Resolution No 371/1998 on the foundation of Posta Romana SA as a result of the reorganisation of the former Romanian Post. Accordingly, it has neither the status of a credit institution, nor the right to keep giro accounts. Despite this, the Romanian Post Office – on the basis of the principle of the universality of postal services and according to Government Ordinance No 31/2002 on postal services – provides domestic and cross-border payment services such as cash-to-cash transfers for individuals (including cash payment of pensions and postal money orders) denominated in national or foreign currency. Postal money orders are sent via the postal network. They are settled via the Post Office's accounts with commercial banks. Through its membership of the Eurogiro system, the Romanian Post Office also performs cross-border funds transfers.

#### **I.3.5 NATIONAL SECURITIES CLEARING, SETTLEMENT AND DEPOSITORY COMPANY**

The National Securities Clearing, Settlement and Depository Company (SNCDD) is the central depository and settlement system for securities traded on the RASDAQ market. It provides its direct users (i.e. securities investment firms and custodian agents) with the following services for securities:

- recording of all trades executed between direct users on the RASDAQ market as reported by RASDAQ;
- trade clearing and delivery of securities and funds on behalf of direct users;
- trade confirmation for custodians; and
- custody and safekeeping of securities traded on RASDAQ.

It is a member of the Association of National Numbering Agencies (ANNA) and is the national authority for ISIN allocation. It also provides independent registry services to

companies listed on the Romanian capital market.

The SNCDD is authorised by BNR to operate as a clearing house for payments related to securities transactions performed on the RASDAQ market.

Its activity in connection with securities transactions is regulated by the CNVM.

#### **I.3.6 BUCHAREST STOCK EXCHANGE**

The Bucharest Stock Exchange (BVB) was a non-profit-making public entity managed by its members, but in July 2005 it became a joint venture company held by securities companies. Initially 24 securities companies formed the Stock Exchange Association, whereas now there are 71 shareholders, i.e. 70 securities companies and the ANSVM (National Association of Securities Companies). The BVB is regulated by the Law on capital markets (No 297/2004).

The BVB provides the following services to its members:

- recording of all trades executed;
- trade clearing and delivery of securities and funds on behalf of members; and
- custody and safekeeping of the securities traded on this market.

Shares listed on the BVB may not be traded on the RASDAQ market. The BVB has been authorised by BNR to operate as an interbank clearing house.

The funds clearing related to BVB market transactions takes place according to clearing house operating principles established by BNR. Settlement is performed through banks authorised by BNR as participants in BVB clearing.

### 1.3.7 INDEPENDENT PROCESSORS OF CARD TRANSACTIONS

At present there are three independent processors dealing with Visa and MasterCard card transactions denominated in national currency and in foreign currency: Romcard, Provus Service Provider and PayNet. These processors are private legal entities. Banks are allowed to hold shares in their capital.

### 1.3.8 BANK DEPOSITS INSURANCE FUND

The Bank Deposits Insurance Fund (FGDB) was founded in 1996. Its main goal is to ensure the reimbursement, in the case of bankruptcy on the part of a bank, of individuals' and legal entities' deposits up to approximately €10,000. All credit institutions licensed by BNR to operate in Romania are obliged to participate in the FGDB.

### 1.3.9 NATIONAL SECURITIES COMMISSION

The activity of the National Securities Commission (CNVM) is regulated by Law No 514/2002 on the CNVM's Statute. The main objectives of the CNVM are to set up and maintain the necessary framework for the development of regulated markets, to promote trust in regulated markets and in financial instrument investments, to ensure the protection of operators and of investors against unfair, abusive and fraudulent practices, and to establish standards of financial soundness and honest practice in the regulated markets. It is managed by seven commissioners, appointed by parliament. The CNVM is responsible for all regulation and supervision of the capital markets, including the activity of the licensed self-regulatory bodies. By law, the CNVM licenses joint stock companies to participate as dealers and brokers in the securities markets.

According to Law No 297/2004 on capital markets, the CNVM, together with BNR, licenses the securities settlement systems.

### 1.3.10 NATIONAL ASSOCIATION OF SECURITIES COMPANIES

The National Association of Securities Companies (ANSVM) is a non-profit-making

professional association of securities intermediaries. It was set up in 1995 with the approval of the CNVM. The main objectives of the ANSVM are to:

- participate in developing the regulatory framework for the securities markets;
- support the development and promotion of the securities markets;
- cooperate with government and non-government institutions, as well as with foreign institutions, in order to ensure that securities market objectives are met; and
- heighten the professional standards of market participants.

The ANSVM provides operational assessment, training and RASDAQ market supervision of member companies located throughout Romania.

### 1.3.11 ROMANIAN ASSOCIATION OF SECURITIES DEALERS AUTOMATED QUOTATION SYSTEM

RASDAQ S.R.L. is the operator of the BER market segment. In December 2005 RASDAQ S.R.L was taken over by BVB SA and at present all the trades related to the RASDAQ market are performed on the BVB's trading platform.

### 1.3.12 PAYMENT INCIDENTS BUREAU

BNR plays an active role in the prevention of debit payment instrument fraud through its Payment Incidents Bureau (CIP). The CIP became operational in 1997, in accordance with a regulation issued by BNR.

The CIP is a national centre for data exchange and the handling of payment incidents involving cheques, promissory notes and bills of exchange. Major payment incidents involving cheques require the bank of the cheque issuer to ban the customer from issuing cheques for one year. The bank may revoke the ban only if it was imposed by mistake. This is the only legal way in which a person can be removed from the

“blacklist”. The information stored in the CIP database is disclosed to users (banks, public authorities, legal entities or individuals) on request or on the CIP’s own initiative. Any individual or legal person can obtain this information by approaching any branch of a commercial bank. The latter will forward the request to its headquarters or to the nearest branch of BNR.

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

BNR is the only institution in Romania authorised to issue banknotes and mint coins in Romanian lei as legal tender.

Since 1 July 2005 Romania’s legal tender, previously with the ISO code ROL, has been redenominated in such a way that ROL 10,000 are equal now to 1 new leu (RON). The ROL banknotes and coins were gradually replaced with RON banknotes and coins and continued to circulate up to January 2007. The overall legal framework for the redenomination is set out in Law No 348/2004 on the redenomination of domestic currency, as amended by Law No 101/2005.

BNR ensured the circulation of both currencies between 1 July 2005 and 31 December 2006. Up to 31 December 2009 exchanges of ROL for RON will be possible at some BNR branches and at the branches of the credit institutions authorised by BNR to perform this activity.

The new 1 leu, 5 lei, 10 lei, 50 lei, 100 lei and 500 lei banknotes are the same size as euro banknotes (i.e. the 1 leu banknote is the same size as the 5 euro banknote, the 5 lei banknote is the same size as the 10 euro banknote, etc.).

The polymer substrate used for printing Romanian banknotes issued from 1999 onwards has been maintained, owing to its advantages – e.g. the substantial increase in the lifespan of the banknotes, wear and tear-resistant material,

relatively low cost per unit, and enhanced security against counterfeiting. Since the introduction of polymers in the printing of banknotes, very few cases of counterfeiting have been reported.

Cash remained the predominant retail payment means, accounting for 47.1% of M1 (RON 11,555 million, approximately €3.2 billion). M1 amounted to RON 24,551 million (approximately €6.8 billion) at end-December 2005.

### 2.2 NON-CASH PAYMENTS

The following payment instruments and means of payment are used: credit transfers, cheques, bills of exchange and promissory notes, as well as cards, direct debits and standing orders. Bills of exchange and promissory notes are both payment and financing instruments. Moreover, the postal system provides payment services using a specific instrument (the postal money order).

#### 2.2.1 CREDIT TRANSFERS

The credit transfer is the cashless payment instrument most commonly used for commercial payments by legal entities. It can also be used by individuals.

Since the introduction of ReGIS and SENT, interbank credit transfers have been processed electronically only.

As a result of the major infrastructure changes, the settlement period for interbank credit transfers has been considerably reduced, from 3.67 days for a funds transfer between the payer’s account and the beneficiary’s account to a maximum of 2 days.

#### 2.2.2 CHEQUES

Cheques are used less frequently than credit transfers. Their main use is for commercial payments by legal entities. In 2005, 4.24 million interbank transactions with cheques were processed.

The interbank circuits for cheques and the maximum periods within which the banks must make the funds available to the beneficiary are regulated by BNR.

The legal framework for cheques consists of Law No 59/1934 on cheques and BNR Norms Nos 7/1994 and 9/1994.

The average time between the payer's account being debited and the payee's account being credited is approximately five business days.

On a year-on-year basis, the total value of cheque transactions increased by more than 23% (approximately RON 31.35 billion) in 2005.

### 2.2.3 DIRECT DEBITS

Direct debits are governed by BNR Regulation No 3/2005 on direct debits via SENT.

The direct debit is not regulated as a payment instrument, but rather as a means of making payments. Direct debits for intrabank payments are based only on arrangements between the customer and the bank.

Their main use is to make payments for services and utilities. In 2005 there was no interbank processing of direct debits.

### 2.2.4 STANDING ORDERS

Standing orders are governed by BNR Norm No 9/1996 on payments using a standing order. The standing order is not regulated as a payment instrument, but rather as a means of making payments. Standing orders for intrabank payments are based only on arrangements between the customer and the bank.

Standing orders are used less frequently than other payment instruments. Their main use is to pay for services and utilities.

No statistical information is collected regarding the use of standing orders.

### 2.2.5 CARDS

Debit cards denominated in national currency have been issued since 1997.

At the end of 2005 there were 27 banks which issued debit and credit cards under the Visa and MasterCard logos to their customers (individuals and legal entities), of which 20 banks issued Visa cards and 19 banks issued MasterCard cards.

In terms of currency denomination, three types of card are issued:

- cards denominated in national currency;
- cards denominated in EUR/USD; and
- cards denominated both in national currency and in EUR/USD.

Card payments are processed in compliance with the provisions of BNR Regulation No 4/2002.

At the end of 2005 there were more than 7 million cards issued in Romania, representing an increase of 26% year on year. In terms of volume, card payments grew by 32%.

#### a) Debit cards

Debit cards have several functions. They can be used for both cash withdrawals at ATMs and payments at POSs (by EFTPOS). They can also be used to pay telephone bills and government taxes directly at ATMs. Most debit cards also have an overdraft facility, with limits set by the issuing bank depending on the type of guarantee provided by the cardholder (i.e. bank deposits, agreement between bank and cardholder for the latter's salary to be paid into the debit card account, etc.).

Debit cards denominated in national currency can have domestic circulation or international circulation. Payments made using cards denominated in foreign currencies are not settled by BNR. Debit card transactions are processed by one of the three existing card

processors (Romcard, Provis Service Provider and PayNet) and subsequently cleared by Visa and MasterCard processing centres in accordance with agreements concluded with Visa and MasterCard. The net positions of the banks resulting from clearing are settled through ReGIS.

#### *b) Credit cards*

There are credit cards denominated both in national currency as well as in foreign currencies, issued under the Visa and MasterCard logos. Credit cards can be used for cash withdrawals at ATMs and for payments at POSs (by EFTPOS), as well as for payment of telephone bills and government taxes directly at ATMs. Credit card payments are processed in a similar way to debit card payments.

#### *c) ATM and POS networks*

Most ATM terminals can have both cash withdrawal and payment functions.

In Romania, the ATM networks are owned individually by banks. They are interlinked through three card processing companies to form a national ATM network.

At the end of 2005 the national ATM network comprised more than 4,000 machines, while the POS network had approximately 28,000 devices.

#### **2.2.6 POSTAL INSTRUMENTS**

The Romanian Post Office provides a specific type of payment instrument, the postal money order, which can be used only for cash-to-cash transfers between different post offices, at the request of an individual or legal entity. The following alternatives can be included in this category: online money order and the transfer of money from/to other countries using an international postal money order. Owing to the fact that the Romanian Post Office is not authorised as a credit institution and is therefore not allowed to hold accounts for its customers, funds transferred using postal money orders can only be collected in cash. The Post Office

also participates in international money transfer schemes such as Western Union and Eurogiro.

#### **2.2.7 OTHER PAYMENT INSTRUMENTS**

Bills of exchange and promissory notes are still scarcely used by banks' retail customers, since the public has little confidence in them. They are mostly used for commercial payments by legal entities. Bills of exchange and promissory notes are still processed in paper form, as debit payment instruments, and are settled through the paper-based clearing house operated by BNR that settles debit instruments in paper form.

### **2.3 RECENT DEVELOPMENTS**

In order to develop a payment system in Romania in line with other EU payment systems from the point of view of both its functions and the observance of European and international best practices and standards established by the ECB and the BIS, BNR carried out a project for the implementation of an integrated electronic payment system, including the related communication infrastructure. The Electronic Payment System (EPS) consists of: a real-time gross settlement system (ReGIS – Romanian electronic Gross Interbank Settlement), an automated clearing house (SENT – Romanian acronym for "Electronic Net Settlement System managed by TRANSFOND SA"), the government securities registration and settlement system (SaFIR – Settlement and Financial Instrument Registration) and the backup and recovery system.

On 3 October 2005 the EPS became completely operational. This project was financed by PHARE funds.

In recent years a large number of electronic banking (e-banking) services have been developed. 16 banks currently offer home banking services, 4 banks offer mobile banking services and 19 banks offer internet banking services, mainly to allow customers to view their current account balances, receive account statements, initiate credit transfers (domestic

and cross-border), standing orders and currency exchange transactions, and make fixed-term deposits denominated in national currency and foreign currencies.

### 3 INTERBANK SETTLEMENT SYSTEMS

#### 3.1 GENERAL OVERVIEW

There are two types of interbank settlement system operating in Romania: the large-value funds transfer system and the interbank clearing systems.

ReGIS is the large-value transfer system for interbank payments and the settlement of net balances calculated by clearing houses. This system is owned and operated by BNR.

Low-value interbank payments are cleared through the interbank clearing systems, i.e. the interbank paper-based clearing house (for cheques, bills of exchange and promissory notes) owned by BNR and operated by TRANSFOND, and SENT (an automated clearing house for payment orders and direct debits), owned and operated by TRANSFOND. Card transactions are cleared on the basis of Visa and MasterCard schemes and both net positions are settled through ReGIS.

#### 3.2 THE ROMANIAN REAL-TIME GROSS SETTLEMENT SYSTEM

In April 2005 the ReGIS (Romanian electronic Gross Interbank Settlement) system was launched, replacing the previous system that processed paper-based payment instruments.

ReGIS is the Romanian large-value payment system, as well as Romania's real-time gross settlement system, which ensures the exchange of payment instructions among the participants and the final settlement of their transactions on a gross basis, as well as the final settlement of net positions resulting from net settlement

systems and the final settlement of transactions involving financial instruments.

##### 3.2.1 OPERATING RULES

The operation of this large-value funds transfer system is based upon common rules and standard procedures for the transmission and settlement of obligations among participants. These rules and procedures were established by BNR as the system operator. The rules cover membership criteria, operating hours, moment of entry and finality of orders, intraday credit, financial collateral, prices, etc.

##### 3.2.2 PARTICIPATION IN THE SYSTEM

The institutions allowed to participate in the system are credit institutions licensed and supervised by BNR as defined by Law No 58/1998 on banking activity, as subsequently amended and supplemented, BNR, the State Treasury, and companies providing clearing or settlement services subject to oversight by a competent authority.

Indirect participation in the system is not possible within the existing regulatory framework.

At the end of 2005 there were 40 credit institutions licensed by BNR participating in the system: 34 credit institutions legally incorporated in Romania, four branches of euro area-based credit institutions, one branch of an EEA-based credit institution but outside the euro area, and one branch of a non-EEA-based credit institution. The resident companies providing clearing services are TRANSFOND, the SNCDD, the BVB, and international companies providing clearing services for card transactions, such as Visa International CEMEA and MasterCard International.

Eligible institutions as mentioned above are allowed to participate in the Romanian RTGS if they meet the access criteria set by the ReGIS rules and they conclude an agreement with BNR in its capacity as owner and operator of the RTGS system.

The access criteria include:

- the applicant's technical capacity to participate in the system;
- the applicant's legal soundness;
- the applicant's financial soundness; and
- the payment of an entrance fee.

The applicant institutions governed by legislation other than Romanian legislation must provide BNR, in its capacity as system operator, with a legal opinion based on the terms of reference for legal opinions established by BNR, consisting of:

- a capacity opinion on the applicant's capacity to enter into and carry out its obligations towards BNR and other participants with respect to ReGIS; and
- a country opinion confirming that the law under which it operates complies with the Romanian laws in the field.

Submission of the legal opinion should not be required if the system operator has already checked, in another context, that the access criteria have been met.

Each participant, except those providing clearing and settlement services, is required to hold a ReGIS settlement account. Participating institutions providing clearing and settlement services are allowed to hold a ReGIS settlement account only when they act in their capacity as central counterparties. Where the aforementioned institutions do not act in this capacity, the settlement of the payment instructions sent by them to ReGIS shall be facilitated by means of transit accounts within ReGIS.

Pursuant to Law No 312/2004 on the Statute of BNR, and in accordance with BNR regulations, the central bank may provide intraday credit to eligible participants through intraday repo transactions guaranteed by eligible assets

accepted by BNR. Such eligible assets are government securities and certificates of deposit issued by BNR.

In order to be eligible for intraday credit, a participant must :

- comply with the eligibility criteria for monetary policy operations, i.e. meet the criteria set out in the BNR regulations concerning monetary policy operations;
- not be temporarily suspended or permanently excluded from ReGIS or SaFIR;
- not be temporarily suspended or permanently excluded from monetary policy operations set out in the BNR regulations concerning monetary policy operations; and
- have concluded an agreement concerning intraday credit with BNR.

Intraday credit provided by BNR to ReGIS participants must be repaid by the final cut-off time. Intraday credit provided by BNR and repaid by the final cut-off is free of interest.

BNR may, at any time, suspend or cease to provide intraday credit to a participant in the event that:

- insolvency proceedings have been opened against that participant;
- the access of that participant to ReGIS or SaFIR is suspended or terminated;
- the participant no longer complies with the eligibility criteria for monetary policy operations, or its access to such operations is limited or suspended;
- the participant does not comply with the regulations concerning the redemption of asset-backed securities three times in one month.

### 3.2.3 TYPES OF TRANSACTION HANDLED

The system settles payment instructions (such as credit transfers) relating to large-value or urgent payments issued by participants on their own or their customers' account; payment instructions related to BNR's market operations and cash transactions; payment instructions for the settlement of net positions calculated by the clearing systems; and payment instructions related to the settlement of transactions in financial instruments.

### 3.2.4 OPERATION OF THE SYSTEM

For reasons of safety and efficiency, ReGIS has the following features:

- a timetable for sending payment instructions;
- instruction-by-instruction processing of credit transfers and immediate settlement of payment instructions by directly debiting the sending participant's settlement account and crediting the receiving participant's settlement account if there are sufficient funds available in the sending participant's settlement account;
- immediate rejection of a payment instruction if it does not comply with technical requirements or if it is received after the ReGIS settlement day; and
- queuing of the credit transfer if there are insufficient funds in the sending participant's settlement account.

### 3.2.5 THE TRANSACTION PROCESSING ENVIRONMENT

ReGIS processes credit transfers initiated by the participants in the form of payment messages through the SWIFT network. The participants transmit credit transfer instructions within the timetable set by the system rules. The credit transfer instructions can only be submitted by authorised users of the participants (e.g. credit institutions), each user being identified by a digital extended electronic signature.

With regard to the system's design, ReGIS is a centralised system, as the system can only be accessed by the participants through a single point of access, usually the headquarters of the participant.

Every participant in the system holds a settlement account with the system managed by BNR in order to facilitate funds transfers related to payment messages initiated and received by the participant.

### 3.2.6 SETTLEMENT PROCEDURES

Large-value interbank funds transfers are processed on a gross basis. Credit transfer instructions accepted after technical validation and after checking to see if there are sufficient available funds in the sending participant's settlement account are processed according to the FIFO principle.

All payment instructions that are successfully validated in terms of the technical conditions to be met but which cannot be settled owing to a lack of available funds are stored in a queue. All payment instructions that do not meet the required technical conditions are immediately rejected by the system.

ReGIS provides each participant with information, standard reports and charts on the state of their own settlement account, on the credit transfer instructions initiated by the participants in ReGIS and their status, as well as on the queued instructions that are to be processed. Other reports not available in standard format can be requested directly from the system administrator.

### 3.2.7 CREDIT AND LIQUIDITY RISK

ReGIS processes the instructions in real time and has facilities for the management of credit and liquidity risks. The payment orders are settled only if the sending participant has sufficient funds available on its settlement account.

In order to provide adequate credit and liquidity risk management to all participants in ReGIS, the system has the following facilities:

- the establishment of reserves for the settlement of the obligations arising from, for example, cash transactions in net systems and securities settlement systems;
- the possibility to assign a priority to credit transfer instructions;
- the availability of online reports on participants' balances, sent transactions, reserves, etc.;
- FIFO queue management;
- an automated/manual gridlock resolution mechanism; and
- the provision of intraday liquidity based on repo transactions with eligible securities (eligibility determined by BNR).

### 3.2.8 PRICING

The fees charged for these services take the form of a fixed amount per transaction, set with the intention of covering all related costs. At the end of 2005 the fee per transaction was RON 15 (approximately €4). The fee is paid by the sending participant.

### 3.2.9 STATISTICAL DATA

In 2005 ReGIS processed a daily average of 4,779 payments (domestic payments), with a daily average value of RON 11 billion (€3 billion).

The total transaction volume in ReGIS in 2005 was approximately 887,000, with a total value of RON 2,072 billion (€575 billion). The average value per transaction was RON 2.3 million (€0.6 million).

The maximum number of payments processed in one day was 9,064, and the highest daily value was RON 35.3 billion (€9.8 billion).

## 3.3 RETAIL PAYMENT SYSTEMS

In Romania there are four clearing houses: a paper-based clearing house, SENT and two card-based clearing houses.

### 3.3.1 PAPER-BASED CLEARING HOUSE

The operation of the paper-based clearing house is based upon common rules and standard procedures for the transmission and settlement of obligations between participants. These rules and procedures were established by BNR on the basis of Regulation No 10/1994 regarding multilateral clearing of cashless paper-based interbank payments, as amended.

#### 3.3.1.1 Participation in the system

Forty commercial banks and credit cooperatives participate in this system.

#### 3.3.1.2 Types of transaction handled

The system settles all interbank cheques, promissory notes and bills of exchange payable in the national currency regardless of their value. Payments are submitted in paper form.

#### 3.3.1.3 Operation of the system

The paper-based clearing house is operated by BNR and has 41 territorial clearing houses (branches), where net positions are calculated for each participant. There is a single daily clearing session, with two parts.

In the first part, debit payment instruments are presented. Each participant selects the instruments to be presented for clearing by type and receiving participant. It then sends the debit instruments to the receiving participants.

In the second part, payment instrument refusals and clearing take place. Payment instrument refusals are exchanged among participants.

In each branch, the multilateral clearing is performed on the basis of the "pay" value, the "to be paid" value and the refusals value of the participant, and in the end each participant will have a net position (debit or credit).

The total value of all net debit positions must be equal to the total value of all net credit positions. For each participant, a net-net position is calculated based on all 41 net positions calculated during that day.

For reasons of safety and efficiency, BNR imposes:

- a timetable for entering payment instruments into the system;
- a settlement risk procedure; and
- the pledging of collateral to ensure final settlement.

#### **3.3.1.4 The transaction processing environment**

The netting at territorial clearing houses is for the most part done manually. The net positions of each participant are calculated by every territorial clearing house. The calculations of the multilateral net-net positions and their recording on the participants' accounts with BNR are made electronically, based on automated procedures. In 2005 this clearing house processed about 24 million transactions with a value of RON 85 billion (approximately €23.6 billion), i.e. over 2 million transactions and more than RON 7 billion (approximately €1.96 billion) per month.

#### **3.3.1.5 Settlement procedures**

The final settlement of all multilateral net-net positions takes place through accounts held at BNR on the same day as these positions are calculated.

#### **3.3.1.6 Credit and liquidity risk**

The settlement of net-net debit positions is performed only if all relevant banks have sufficient funds (or collateral) available to cover their positions.

Collateral is provided through the pledging of government securities and/or deposit certificates and through cash deposits, according to the

collateral limits and guarantee procedures set up by BNR.

#### **3.3.1.7 Pricing**

The fee charged for settlement services is a fixed amount per transaction, set with the intention of recovering all costs involved. The fee per transaction is RON 1.1 (€0.31) for both the payer and the payee.

#### **3.3.2 ROMANIAN AUTOMATED CLEARING HOUSE**

The SENT system is an electronic net settlement system owned and operated by a private entity – TRANSFOND SA. The shareholders are BNR and most of the commercial banks.

#### **3.3.2.1 Participation in the system**

Forty commercial banks, a credit cooperative and the State Treasury participate in this system. BNR can also participate.

#### **3.3.2.2 Types of transaction handled**

The system settles low-value interbank credit transfer instructions and direct debits payable in the national currency.

#### **3.3.2.3 Operation of the system**

The operation of SENT is based on system rules and procedures. There are three sessions daily.

At the beginning of each session participants set up their necessary collateral (in funds and/or eligible securities). Funds are pledged according to ReGIS system rules and securities are pledged according to SaFIR system rules. The funds and securities are automatically blocked for all participants when such a request from the SENT operator is received by the ReGIS operator or the SaFIR operator.

Participants can send files with instructions into the system. The system validates each file received (both technically and with regard to the collateral pledged). After validation, the net positions of the file-sending participant and of the file-receiving participant are updated.

After the end of file acceptance, the net settlement instruction containing the net positions of all participants is sent to the ReGIS operator to be settled.

After settlement of the obligations, the participants can use their pledges as they wish. The pledge can be realised without:

- any prior notice of the intention to realise;
- any requirement for approval of the terms of the realisation by any court, public officer or other person; or
- any additional time period elapsing.

#### **3.3.2.4 The transaction processing environment**

The system ensures the exchange of messages among participants, collateral management and the acceptance of clearing bulk payment orders (electronic messages) up to the collateral limit of the sender (paying bank). The participant can establish its collateral limit, but in some specific cases BNR can impose a minimum limit.

SENT calculates a single net position for each participant for each cycle and then sends the net settlement instruction to ReGIS.

Instructions can be submitted only by authorised users of the participants (e.g. credit institutions) using a digital extended electronic signature.

In 2005 around 32 million transactions were processed, with a value of RON 8,167 billion (approximately €2,260 billion), i.e. over 4.2 million transactions and more than RON 1.08 billion (approximately €0.3 billion) per month.

#### **3.3.2.5 Settlement procedures**

The final settlement of all multilateral net-net positions takes place through accounts held at BNR on the same day as these positions are calculated.

#### **3.3.2.6 Credit and liquidity risk**

The settlement of net debit positions is performed only if all relevant banks with a net debit position have sufficient funds (or collateral) available to cover their positions.

Collateral is provided through the pledging of government securities and through cash deposits.

#### **3.3.2.7 Pricing**

The fees charged for these services take the form of a fixed amount per transaction, set with the intention of recovering all costs involved. The fee per transaction is RON 1.1 (€0.31) and is paid by the sender.

#### **3.3.3 CARD-BASED CLEARING SYSTEMS**

There are two clearing systems for card payments in Romania. They are run by Visa and MasterCard, which clear transactions only for cards issued under their logos.

Settlement of the multilateral net obligations related to RON-denominated card transactions takes place through ReGIS, according to the agreements concluded by BNR with Visa and MasterCard.

Final settlement of the net positions is done on a daily basis by BNR at 11.30 a.m. CET for MasterCard and 10 a.m. CET for Visa, based on reports showing the net positions from the previous working day. (For the Visa scheme, BNR settles at 11 a.m. and 12 a.m. CET on Tuesday, also for transactions occurring on Saturdays and Sundays.)

In 2005 the Visa clearing house settled around 11.10 million interbank transactions, with a total value of RON 1.00 billion (approximately €0.28 billion). In the same period the MasterCard clearing house settled around 9.8 million interbank transactions, with a total value of RON 1.28 billion (approximately €0.35 billion).

### 3.4 FUTURE DEVELOPMENTS

At present, BNR, together with the banking community and TRANSFOND, are running a project in order to process electronically debit instruments (cheques, bills of exchange and promissory notes) payable in national currency through SENT.

## 4 SECURITIES TRADING, CLEARING AND SETTLEMENT SYSTEMS

Equity trading in Romania dates back to 1882, one year after the necessary legal framework was approved. Until 1948, with the exception of the periods of the two world wars and the economic depression, there was significant growth in many sectors of the economy, including the financial, manufacturing, insurance and transport sectors.

Currently, trading on the Romanian capital market takes place especially in equities, but also in bonds (municipal and corporate) and rights. The Bucharest Stock Exchange (BVB) and the RASDAQ electronic exchange (BER) are relatively new markets, dating from 1995 and 1996 respectively.

Trades concluded on the BVB system are settled by the same institution. Securities listed and traded on the BER were settled mainly within the SNCDD, with the remainder settled using the BVB's clearing and settlement system.

In December 2005 the BVB merged with the BER and most securities were settled and deposited within the BVB's settlement and registration system by the end of 2005. BER securities were gradually transferred from the SNCDD to the BVB trading, clearing-settlement and registration system between June 2004 and the end of March 2006. According to Law No 297/2004 on capital markets, the BVB must externalise its registration, depository, clearing and settlement functions by creating a separate entity, the Central Securities Depository (CSD), along with other institutions involved in post-

trading activities. The BVB is currently working with Regisco (the largest independent registrar) to establish the CSD. The documentation needed for the authorisation of the CSD will be submitted to the CNVM by May 2006.

On both markets (the BVB and the BER), the securities are issued in dematerialised form and registered in electronic systems by book entry. The BVB and the BER market operations are supported by highly developed technology for quotation, trading, communication, clearing, settlement, custody, depository and registry systems.

Government securities are issued in accordance with the provisions of the Law on public debt and the agreements signed between the MPF, as issuer, and the assigned agents. At present, BNR is empowered to act as the state agent for the administration of the primary market and of government securities operations (e.g. depository, transfer and settlement functions).

### 4.1 TRADING

#### a) *Trades concluded on the Bucharest Stock Exchange*

Common shares, municipal bonds (since 26 November 2001), corporate bonds (since 20 May 2003) and rights (since 17 January 2005) are traded on the BVB. The BVB uses a fully automated trading system integrated in real time with the clearing, settlement and registration systems. The system allows participants to access the system remotely from their offices located all over the country, using a private communication system.

There are two trading methods: order-driven (automated matching of orders, where the identity of the counterparties is not known) and quote-driven, negotiated deals (bilateral dealing between two counterparties with compulsory or indicative quotes).

The trading hours for common shares and rights are between 9.45 a.m. and 2.30 p.m., and for bonds between 11 a.m. and 1 p.m. CET.

The BVB calculates three indices: BET (for the ten most liquid stocks listed on the BVB), BET-C (a composite index for all the listed stocks), and BET-FI (a sectoral index for the five Romanian financial investment companies). All the indices are calculated using a capitalisation-weighted price-based method and had a starting value of 1000 points. BET was launched on 22 September 1996, BET-C on 17 April 1998 and BET-FI on 1 November 2000.

#### *b) Trades concluded on the RASDAQ electronic exchange*

Common shares, certificates of deposit and bonds can be traded on the RASDAQ electronic exchange (BER). The BER system uses a quote-driven trading method allowing brokers and dealers remote access from locations all over the country using a private communication system. It relies on market-makers entering bid and offer quotations for given securities. The system automatically orders them by best bid and best offer quotations. According to the rules of fair practice, a customer's order must be carried out at the best possible price in the market.

According to market regulations with regard to fixed income securities, the negotiated item for certificates of deposit (CDs) is the interest/discount rate, and for bonds the price is expressed as a percentage of the face value.

The system uses an electronic dedicated private communication network. The BER trading system operates between 10 a.m. and 2 p.m. CET. The securities transferred via the BVB system follow the BVB trading schedule (from 9.45 a.m. to 2.30 p.m. CET).

The main index is the BER Composite Index, which was launched on 31 July 1998 at 1000 points. It is a capitalisation-weighted price

index comprising all issues traded on the RASDAQ market.

#### *c) Trades in government securities*

Government bonds are traded on the OTC secondary market administrated by BNR. Primary dealer banks have the obligation to offer quotations on Reuters contribution pages for the securities purchased from the primary market.

The main method of performing secondary market transactions in government securities is direct negotiation (telephone, Reuters).

#### *d) Trades on the SMFCE*

The Sibiu Monetary Financial and Commodities Exchange is the only Romanian market where futures and options contracts are traded. All traded contracts are standard contracts on derivatives (forex, interest rate, equity, index and commodity derivatives).

In June 2000 the SMFCE replaced the open outcry trading with an electronic trading system, which made trading more transparent, efficient and accessible.

The SMFCE's fully automated computer trading system manages the input and matching of buy and sell orders and the execution of settlement procedures, as well as the dissemination of real-time data to relevant members.

Since October 2000 the futures and options contracts listed at the SMFCE have been traded via the internet.

## **4.2 CLEARING**

The BVB and the SNCDD are authorised as clearing houses by BNR and as securities depositories and securities settlement systems by the CNVM.

Clearing of trades in securities listed on the BVB is performed by the Clearing and Settlement Department of the BVB, while the

clearing of RASDAQ trades is carried out by the SNCDD (see Section 4.3).

#### 4.3 SETTLEMENT

The BVB and the SNCDD are authorised by BNR as payment systems which ensure the clearing of funds related to the settlement of transactions. The funds are settled using the ReGIS system administrated by BNR.

##### *a) Clearing and settlement through the Bucharest Stock Exchange*

All the operations related to BVB clearing and settlement activities are performed by the BVB, except for the funds settlement operations which are carried out through the BNR payment system. The financial investment companies (brokerage houses) must open accounts with a settlement bank. Currently there are 19 credit institutions that have signed contracts with the BVB to participate in the BVB system. The custodian banks also act as settlement banks and have access to the BVB system both for securities and cash settlement (also on a contractual basis).

Settlement occurs via net settlement of funds followed by gross settlement of securities (DvP Model 2). The settlement cycle is T+3. Securities settlement takes place after the final cash settlement confirmation is received from BNR. The securities transfer occurs if and only if the final cash settlement takes place (DvP principle).

Short selling is not allowed by the BVB, so the system automatically checks the existence of the securities before they are sold. The settlement process starts when BNR blocks the collateral in the ReGIS settlement accounts and the BVB instructs BNR (by entering a settlement instruction in ReGIS) to perform the related funds transfers. After BNR confirms the final cash transfers, BVB performs the securities settlement in its own system, and the settlement is thus final and irrevocable.

The most important BVB risk management measures are:

- a trading limit imposed on trading participants;
- credit from settlement banks;
- the Guarantee Fund;
- buy-in procedures.

Since the adoption of these risk management measures (at the time of the establishment of the BVB in 1995), no failed settlement has occurred.

##### *b) Clearing and settlement through the SNCDD*

The SNCDD provides clearing and settlement for most of the trades carried out on the RASDAQ market. The settlement performed by the SNCDD uses gross settlement for securities (trade by trade) and net settlement for funds (DvP Model 2). The settlement cycle does not exceed T+3; however the SNCDD can also settle at T+1 and T+2 according to the settlement period agreed by the counterparties.

Before the settlement date, participants needing to deliver securities must complete all securities transfers needed to perform the securities settlement.

The settlement process starts with the blocking of securities in the SNCDD system and funds in the ReGIS settlement accounts. The SNCDD delivers the securities and instructs BNR to perform the related funds transfers. When BNR declares final the funds settlement through its system, the settlement performed by the SNCDD becomes final and irrevocable.

The most important SNCDD risk management measures are:

- short settlement cycles: from T+1 to T+3;
- specific administrative sanctions.

Since 2001, no failed settlement has occurred in the SNCDD system.

The SNCDD settled the trades from the BER until March 2006. At present its sole role is the allocation of ISIN codes.

#### *c) Settlement of trades in government securities and certificates of deposit*

The new electronic central securities depository and securities settlement system for government securities went live on 3 October 2005. Primary market operations and interbank transactions on the secondary market are settled by BNR through SaFIR. This system has a direct and real-time link to the ReGIS system. The backup facilities of the EPS are in place also for SaFIR.

Trades are settled in real time on a gross-gross basis (DvP Model 1). The processing of settlement instructions uses double notifications from participants. After the matching of participants' notifications, securities are blocked in participants' accounts in SaFIR, and SaFIR instructs ReGIS to make the payment in real time. After payment confirmation is received, securities are transferred to the buyer's account; these operations are also conducted in real time.

Payment events and redemptions are also managed by the SaFIR system via the ReGIS system.

The system processes FOP transfers, buy and sell operations, repo and reverse repo operations and pledges of government bonds.

Primary market operations are settled on a gross-net basis (DvP Model 2). The system calculates a multilateral netting balance for the positions of participants towards the MPF regarding their credit (payment events and redemptions) or debit (placements) positions.

BNR also administers operations with certificates of deposit issued by BNR. The primary market for CDs (first placement and

redemption) is operated by BNR. Interbank transactions on the secondary market are cleared and settled by BNR. BNR also carries out the cash settlement for these transactions through ReGIS.

Transactions between banks are notified to the Certificates of Deposit Register, and the buyer makes the payment via payment order. The payment system sends the payment confirmation to the Certificates of Deposit Register, after which the transfer of ownership takes place. Both parties must notify the Register about the operation in order to record the change of ownership. Transfer of ownership is performed if and only if the Register receives the payment confirmation of trades from the ReGIS system.

In the course of 2006 certificates of deposit will also be deposited and settled in SaFIR, allowing them to be used to guarantee the net settlement instructions from clearing houses.

#### **4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY BNR**

The present securities infrastructure plays an important role in the implementation of the monetary policy of BNR and in supplying liquidity for payment system purposes.

Banks may participate in repo/reverse repo auctions, which are organised by BNR for monetary policy purposes, using government securities as collateral. Repo and reverse repo are settled in real time in SaFIR.

BNR also uses government securities as collateral for its lombard facility. According to Article 20 of the Law on the Statute of BNR, the collateral must cover both the principal and the interest owed by the debtor. In this case, government securities are blocked in BNR's favour in SaFIR, and in the event of a lack of liquidity they are taken from the debtor's account and sold in the market.



# SLOVAKIA

## CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>304</b>
<b>INTRODUCTION</b>	<b>305</b>
<b>1 INSTITUTIONAL ASPECTS</b>	<b>306</b>
1.1 The general institutional framework	306
1.2 The role of Národná banka Slovenska	309
1.3 The role of other private and public sector bodies	312
<b>2 PAYMENT MEDIA USED BY NON-BANKS</b>	<b>314</b>
2.1 Cash payments	314
2.2 Non-cash payments	314
<b>3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS</b>	<b>317</b>
3.1 General overview	317
3.2 Large-value payment system in Slovakia (SIPS)	317
3.3 Retail payment systems	321
<b>4 SECURITIES SETTLEMENT SYSTEMS</b>	<b>322</b>
4.1 Trading	322
4.2 Clearing	323
4.3 Settlement	323

## LIST OF ABBREVIATIONS

ARDAL	Debt and Liquidity Management Agency – <i>Agentúra pre riadenie dlhu a likvidity</i>
BIPS	Basic Interface for Payment System
BSSE	Bratislava Stock Exchange, joint stock company – <i>Burza cenných papierov, a.s.</i>
CDCP SR	Central Securities Depository of the Slovak Republic – <i>Centrálny depozitár cenných papierov</i>
FMA	Financial Market Authority – <i>Úrad pre finančný trh</i>
SBA	Slovak Banking Association – <i>Slovenská banková asociácia</i>
SC	Securities Centre of the Slovak Republic – <i>Stredisko cenných papierov</i>
SIPS	Slovak Interbank Payment System
ZBK	Bank Card Association of the Slovak Republic – <i>Združenie pre bankové karty Slovenskej republiky</i>

## INTRODUCTION

The payment system of the Slovak Republic has undergone marked changes, especially by comparison with the period prior to 1990, when a centrally planned economy existed. These changes have gone hand in hand with the reform of the banking system. In 1990 the “mono-banking” model was replaced by a two-tier system, and many new commercial banks were established. Before 1990 the only bank in existence had been the State Bank of Czechoslovakia. There are currently 24 banks (mostly banks with a universal licence) operating in Slovakia.

The most frequently used payment medium is cash, but the use of payment cards is increasing rapidly. At the same time, the number of ATMs and EFTPOS terminals has also increased. Cheques, on the other hand, are not a common payment medium.

With effect from 1 January 2003, a significant change occurred in the interbank payment system in the Slovak Republic. Národná banka Slovenska took over the operation of the payment system from the Slovak National Clearing Centre (Bankové zúčtovacie centrum Slovenska, a.s.), which had operated the interbank payment system since 1993. Národná banka Slovenska thus became the operator and settlement agent for SIPS (the Slovak Interbank Payment System).

Národná banka Slovenska is responsible for the coordination of the payment system and, in accordance with the National Bank of Slovakia Act, controls, coordinates and ensures the efficient and economical performance of payment systems and the settlement of payment transactions within the scope established by this Act.

## I INSTITUTIONAL ASPECTS

### I.1 THE GENERAL INSTITUTIONAL FRAMEWORK

The current legal framework for payment and settlement governs the activities, rights and obligations of banks and other institutions operating in Slovakia.

Národná banka Slovenska plays the main role in the operation and coordination of the payment system. Its responsibilities and powers are laid down in the National Bank of Slovakia Act, 566/1992 Coll., passed by the National Council of the Slovak Republic, as last amended by No 149/2001 Coll. (National Bank of Slovakia Act).

#### I.1.1 ACT ON THE PAYMENT SYSTEM

On 1 January 2003 Act No 510/2002 Coll. on the payment system and on the amendment of certain other laws (the Act on the payment system) became effective. This Act sets forth comprehensive legislation governing the payment system, thereby bringing the Slovak legal system into line with European Union legislation relating to payments. The Act on the payment system transposes Directive 97/5/EC on cross-border credit transfers, Directive 98/26/EC on settlement finality in payment and securities settlement systems, Directive 2000/46/EC on the taking up, pursuit of and prudential supervision of the business of electronic money institutions (only the articles which define electronic money), Article 8 of Directive 97/7/EC on consumer protection in respect of distance contracts, and Recommendation 97/489/EC concerning transactions by electronic payment instruments and in particular the relationship between issuer and holder.

In fact, the Act on the payment system goes beyond the scope of relevant European Union legislation and addresses other issues related to the payment system. The Act governs, in particular, the execution of domestic and cross-border transfers, the issuance and use of electronic payment instruments, the operation

of payment systems and the supervision of payment systems. It also defines the procedures for addressing payment-related complaints and for the out-of-court resolution of payment-related disputes via the Arbitration Court of the Association of Banks, which was established on 1 July 2003.

On 1 January 2004 Act No 604/2003 Coll. amending the Act on the payment system entered into effect. This amendment to the Act on the payment system governs the requirements and conditions for the authorisation, taking up, organisation, management and pursuit of the business of electronic money institutions.

This amendment adds a new provision concerning personal data in response to the requirements of the Personal Data Protection Act. The amendment to the Act on the payment system also incorporates provisions on the Arbitration Court of the Association of Banks, in the light of the provisions of Act No 244/2002 Coll. on arbitration proceedings.

On 1 May 2004 a number of provisions of the Act on the payment system which were tied to the entry into force of the Treaty of Accession of the Slovak Republic to the European Union also took effect. These provisions relate largely to cross-border transfers and to Národná banka Slovenska's notification obligation vis-à-vis third parties.

In the light of Regulation (EC) No 2560/2001 on cross-border payments in euro, Národná banka Slovenska issued Decree No 7/2003, which became a part of the Slovak legal code on the date of the Slovak Republic's accession to the European Union on 1 May 2004. In this Decree, Národná banka Slovenska laid down the format of the domestic account number and the requirement to use the IBAN format for cross-border transfers.

#### I.1.2 BANKING ACT

The Banking Act, 483/2001 Coll., defines the legal status of banks operating in Slovakia (including savings banks) and provides a

definition of banking activities. It also contains provisions on, *inter alia*: the conditions for granting an entity a licence to operate as a bank; the management bodies and internal organisation of banks; liquidity management; prudent banking practices; auditing; and mortgage transactions.

The general rules governing the establishment, administration and termination of accounts for private individuals and legal entities are contained in the Commercial Code, 513/1991, and the Civil Code, 40/1964. The Commercial Code contains, *inter alia*, comprehensive provisions on letter-of-credit contracts, collections, current account contracts and traveller's cheques. With regard to the application of these provisions, however, reference must also be made to the Civil Code as the generally applicable regulation.

Provisions on money laundering in the banking sector are contained, *inter alia*, in the Banking Act and the National Bank of Slovakia Act. These legal provisions are in line with EC banking directives and other recommendations.

The financial sector is also governed by the Bankruptcy Law (Act 7/2005 on bankruptcy and restructuring), which, *inter alia*, contains provisions on the procedure to be adopted in respect of a declaration of bankruptcy on the part of a participant in the payment or securities settlement systems.

### **1.1.3 ACT ON SECURITIES AND INVESTMENT SERVICES**

With regard to securities clearing and settlement, until 1992 securities were issued in paper-based form, and all services associated with the custody and transfer of ownership of securities were provided by authorised banks. As a result of the first wave of privatisation, a large number of corporate share issues were launched in book-entry form in 1992. These shares were centrally registered at the Securities Centre of the Slovak Republic (SC) in accordance with Act 600/1992 Coll. on securities, which was

approved in the same year. This Act constitutes a basic legal framework for securities trading and settlement. It sets out, *inter alia*, the various categories of securities, the parties involved in securities trading, the position of public market organisers (stock exchanges) and the role of the SC. It has been supplemented by Act 530/1990 Coll. on bonds, as last amended by No 96/2002 Coll., which is specifically designed to govern debt securities.

On 1 January 2002 a new Act on securities and investment services, No 566/2001 Coll., replacing Act on securities No 600/1992 Coll., as amended, came into force. In accordance with its transitional provisions, publicly tradeable securities issued under the previous law that were not accepted for trading on the listed securities market of the stock exchange as of the date the new law entered into force (1 January 2002) are to be regarded as securities issued on the basis of a public offer. Until 30 June 2003 the ownership of securities accepted on stock exchange markets could only be changed by a trade concluded on the stock exchange. The above provision does not apply to securities trades performed by Národná banka Slovenska with a view to controlling the money market under the National Bank of Slovakia Act and the free transfer (donation) and succession of securities.

This new Act on securities and investment services also has important implications for the SC. It creates a framework for the establishment of a standard private central depository permitted to open accounts at other domestic or foreign central depositories and to exclusively provide the clearing and settlement of securities and other related services (OTC, securities safekeeping and custody, securities lending and borrowing, etc.). On this legal basis, the new Central Securities Depository of the Slovak Republic (CDCP SR) was established on 19 March 2004. (In fact, the former SC was transformed into a central securities depository, a joint stock company fully owned by the Ministry of Finance of the Slovak Republic, in compliance with the new securities legislation.)

CDCP SR operations are governed by the provisions of Act No 566/2001 Coll. on securities and investment services, as amended, and the CDCP SR performs securities depository activities pursuant to a licence granted by the depository's regulator, the Financial Market Authority (FMA).<sup>1</sup>

The Bratislava Stock Exchange (BSSE) became the sole owner of the CDCP SR on 16 March 2006 as a result of a non-monetary increase in the registered capital of the BSSE – by means of shares in the CDCP SR – effected by the National Property Fund of the Slovak Republic (the state privatisation agency) in the course of privatisation prepared by the previous owner of the CDCP SR, the Ministry of Finance of the Slovak Republic. The privatisation of the BSSE-CDCP SR group will be completed when all of the shares in the BSSE which are owned by the Fund are offered for sale in an international tender, respecting the pre-emptive rights of current BSSE shareholders.

The CDCP SR registers all dematerialised (book-entry) securities issued in the Slovak Republic – e.g. equities (including investment fund units), debt instruments (state, company and bank bonds (including mortgage bonds)) and cooperative units. On 1 May 2006 an amendment to the Act came into force allowing registration of book-entry units of unit trusts to be effected also by depositories of open-ended unit trusts.

Since 1994 the CDCP SR has been acting as the National Numbering Agency for the Slovak Republic. Before the company's transformation in line with the new Act on securities and investment services in 2004, the SC registered securities on the basis of one-level registration. Following the transformation, the CDCP SR introduced two-level registration of securities and transferred activities connected with account opening and the administration of securities accounts to its members. However, securities registration administered by CDCP SR members continues to be effected using the technology provided by the CDCP SR. More

changes to securities registration are underway, with nominee accounts to be introduced from November 2007.

This new Act on securities and investment services distinguished between securities in paper form (physical securities) and securities in book-entry form (registered securities). Many amendments to the Act expressed a preference for the book-entry form, especially for publicly tradeable securities. Under the current version, the Act defines which securities must take the form of registered securities. If not defined by the Act, the form of securities is left to the issuer's discretion. However, publicly tradeable securities must be issued in book-entry form and registered at the central depository, except for Treasury bills issued by the Ministry of Finance of the Slovak Republic or Národná banka Slovenska bills, which are registered at the Central Registry maintained by Národná banka Slovenska (see Section 1.2.3). Other securities not covered by the law are normally issued in paper form. In general, most stocks are dematerialised, but physical securities are also available on the market. This has implications for the different types of settlement which are in place for securities. Physical securities are kept in vaults, and a transfer of ownership is usually arranged on the basis of endorsement and physical delivery. A change in the ownership of registered physical shares takes place once the CDCP SR has made the relevant entry in the list of shareholders.

In accordance with the Act on securities and investment services and the Act on the stock exchange, trading in securities on the Slovak capital market is organised by the stock exchange on its listed and free markets. At present the BSSE is the only operator of a regulated securities market in Slovakia.

The CDCP SR clears and settles all trades concluded on the BSSE or on the OTC market. It registers securities transfers on the basis of

<sup>1</sup> As of January 2006 the Financial Market Authority is a part of Národná banka Slovenska.

instructions from stock exchanges and carries out a range of other procedures laid down by law. The finality of securities settlement is achieved once the change of ownership has been registered in the books of the CDCP SR. The cash side of transactions is settled via the SIPS payment system in central bank money. The CDCP SR is a direct participant in SIPS, which is operated by Národná banka Slovenska. The delivery of securities versus payment is also controlled by the CDCP SR (see Section 4.3).

The following laws, *inter alia*, are applicable to the securities market :

Act No 566/2001 Coll. on securities and investment services and on amendments and supplements to certain laws, as amended; Act No 530/1990 Coll. on bonds, as amended; Act No 429/2002 Coll. on the stock exchange, as amended; Act No 594/2003 Coll. on collective investment and on amendments and supplements to certain laws, as amended; the Commercial Code; the Civil Code; the Act on the transfer of state property to other persons (Act on privatisation); the National Bank of Slovakia Act; and the Foreign Exchange Act.

## 1.2 THE ROLE OF NÁRODNÁ BANKA SLOVENSKA

### 1.2.1 GENERAL RESPONSIBILITIES

Národná banka Slovenska was founded on 1 January 1993 by way of the National Bank of Slovakia Act, 566/1992 Coll., as amended, as the independent central bank of the Slovak Republic (Article 56 of the Constitution of the Slovak Republic). Národná banka Slovenska's primary objective is to maintain price stability. To this end, Národná banka Slovenska:

- a) determines monetary policy;
- b) issues banknotes and coins;
- c) controls, coordinates and ensures the circulation of money and the soundness of both the payment system and interbank settlements within the scope established by

this Act, and promotes the efficient and effective performance of these operations;

- d) supervises the safe functioning of the banking system and the conduct of banking activities pursuant to both this Act and special regulations; and
- e) performs other activities pursuant to both this Act and special regulations.

In order to maintain price stability, Národná banka Slovenska uses monetary policy instruments such as open market operations, the foreign exchange market, minimum reserve requirements and the foreign exchange position of banks for monetary purposes. Národná banka Slovenska also participates in the foreign exchange market through interventions.

On 25 November 2005 the Slovak Republic acceded to ERM II. With regard to this fact and to the declared intention to become a part of Monetary Union and adopt the euro as of 1 January 2009, Národná banka Slovenska has approved the National Euro Changeover Plan for the Slovak Republic. This plan contains the strategy for participation in the TARGET2 payment system.

The other instrument which influences bank liquidity is the minimum reserves that banks are obliged to maintain on reserve accounts with Národná banka Slovenska. Commercial banks may use these balances for payment purposes during the day.

One of the key tools for implementing monetary policy is the conduct of open market operations. Národná banka Slovenska may refinance or tighten the surplus liquidity of commercial banks, which may include direct purchases and sales of securities, individual repo deals or repo tenders, and deposits and issues of Národná banka Slovenska bills.

Národná banka Slovenska directs, coordinates and ensures the smoothness and soundness of the payment and settlement system and of the

processing of payment and settlement system data between banks and other legal persons carrying out banking activities or activities serving the performance of banking activities. In this context, Národná banka Slovenska operates the only payment system in the Slovak Republic designed for the processing and settlement of domestic payments. Národná banka Slovenska is thus both an operator and a settlement agent of this system.

Národná banka Slovenska is responsible for the stability of the financial system as a whole, for the secure, sound and credible functioning of the financial market, and for ensuring client protection and compliance with the rules of economic competition; its financial market supervision activities (pursuant, *inter alia*, to the Act on financial market supervision) are carried out to that end. Národná banka Slovenska is also responsible for foreign exchange supervision (pursuant to the Foreign Exchange Act), and for the oversight of the payment and settlement systems (pursuant to the Act on the payment system).

Národná banka Slovenska's activities in respect of supervision encompass, in particular:

- setting rules for prudential business practices and the safe operation of supervised entities;
- monitoring compliance with the provisions of the National Bank of Slovakia Act and special regulations;
- conducting relevant legal proceedings and issuing permits, licences and relevant decisions, and supervising the proper implementation of such decisions (including compliance with the conditions stipulated therein); and
- performing off-site and on-site supervision of supervised entities.

### **1.2.2 PAYMENT SYSTEM OVERSIGHT**

The role of Národná banka Slovenska in the area of payment system oversight is stipulated in Act No 510/2002 Coll. on the payment system and on the amendment of certain other laws, as amended by subsequent regulations, pursuant to which Národná banka Slovenska is responsible for conducting the oversight of payment systems. According to the general provisions regarding payment system oversight, the oversight performed by Národná banka Slovenska extends to payment systems operated pursuant to this Act, their operators and participants, activities of banks and branches of foreign banks in the payment system field, intermediary institutions, issuers, and other persons related to the activities of payment systems.

At present SIPS is the only payment system subject to oversight.

In September 2003 Národná banka Slovenska released a document entitled "Payment System Oversight in the Slovak Republic" (which is available on its website at <http://www.nbs.sk>).

Národná banka Slovenska uses its executive powers to attain three basic objectives in the field of payment system oversight:

- to maintain the stability of the payment system by identifying potential risks to which the payment system is exposed and undertaking appropriate measures to ensure their timely elimination;
- to ensure the safe and smooth functioning of payment and securities settlement systems; and
- to ensure public confidence in the payment instruments used.

Národná banka Slovenska has adopted the Core Principles for Systemically Important Payment Systems, issued by the Bank for International Settlements in January 2001, as a basis for

conducting the oversight of payment systems in Slovakia.

The basic objective of payment system oversight is the containment of systemic risk. It is important that all the risks that could lead to systemic risk are known, quantified and understood by the system operator, the participants and the public.

Payment system oversight includes:

- assessing the legal environment in which the payment system operates;
- assessing the payment system's rules (and proposed amendments thereto) and operating procedures; and
- monitoring changes in the system and in the principles for participation in the system. Where necessary, Národná banka Slovenska proposes changes within the legal framework governing the operation of the payment system.

### **I.2.3 ACTIVITIES IN THE AREA OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

Under the National Bank of Slovakia Act and the Act on securities and investment services, Národná banka Slovenska administers a Central Registry. The Bank's Central Registry is required by law to keep records on short-term securities with a maturity of up to one year issued by the Ministry of Finance of the Slovak Republic (government Treasury bills) and by Národná banka Slovenska (Národná banka Slovenska bills). The Central Registry performs the final settlement of only the securities leg of transactions, with the cash leg being settled through the payment system, SIPS.

In February 2003 the new Debt and Liquidity Management Agency (ARDAL) was established. On 1 January 2005 ARDAL took over from Národná banka Slovenska all activities connected with organising the primary market for government bonds.

Národná banka Slovenska carries out the final settlement of the net balances arising from the processing of interbank payments. It also settles the net balances both of the cash leg of securities transactions and of payment card transactions. Final settlement is executed on banks' reserve accounts with Národná banka Slovenska.

#### **I.2.4 THE OPERATIONAL ROLE OF NÁRODNÁ BANKA SLOVENSKA**

##### ***Provision of settlement accounts***

All banks and other financial institutions are direct participants in SIPS (see Section 3.2) and use their reserve accounts with Národná banka Slovenska for the final settlement of interbank payments. It is not possible to carry out interbank payments and clearing without establishing a reserve account. Národná banka Slovenska settles the balances of these accounts on a daily basis.

Národná banka Slovenska does not provide settlement accounts for third parties in SIPS.

Minimum reserves earn interest at a rate of 1.5% p.a. The basis for the calculation of interest is the daily actual balance on the reserve account. This is applied only in respect of the amount not exceeding the set level of required minimum reserves.

##### ***Provision of credit facilities***

Under Article 24 of the National Bank of Slovakia Act, Národná banka Slovenska may provide banks, for a maximum period of six months, with credit guaranteed by securities, or accept from banks credit guaranteed by securities. In order to maintain bank liquidity, Národná banka Slovenska may, in exceptional cases, provide a bank with short-term credit for a maximum period of three months. Národná banka Slovenska may provide credit to the Deposit Protection Fund.

Národná banka Slovenska, as the sole system operator and the settlement agent, is responsible for the coordination and the smooth, safe and efficient operation of the interbank payment

and settlement system. Within a clearing day, there is a precisely defined time frame for the adjustment of bank liquidity (see Section 3.2.4). During this period, banks may bridge their short-term liquidity shortages on the interbank money market, or they may obtain funds from Národná banka Slovenska as the lender of last resort, especially through open market operations.

Under Article 34 of the Act on the payment system, Národná banka Slovenska, as the settlement agent, may, in the event of a shortage of funds on a settlement account, provide intraday credit to a participant, which is repayable on the same banking business day that it was granted; such credit must be secured by securities, funds or other property serving as collateral (hereinafter referred to as “collateral”) for the obligations in question.

#### *Provision of foreign exchange activities and powers*

Under the terms of the National Bank of Slovakia Act, Národná banka Slovenska may coordinate and regulate cross-border payments and the settlement of clearing data in the Slovak Republic, maintain foreign currency accounts for its clients pursuant to this Act, and, within the limits of its jurisdiction, enter into payment and other agreements with foreign banks and international financial institutions. In accordance with the provisions of the Act, Národná banka Slovenska maintains loro accounts held in Slovak koruna for central banks and other important international financial institutions and performs operations on these accounts in Slovak koruna for foreign banks at Národná banka Slovenska. This is done in accordance with the Bank’s conditions for maintaining loro accounts.

#### *Pricing*

Národná banka Slovenska maintains reserve accounts for banks and other financial institutions on the basis of contractual relations established pursuant to the provisions of the National Bank of Slovakia Act, 566/1992.

Národná banka Slovenska does not charge any fees to banks and financial institutions for maintaining their reserve accounts.

#### **I.2.5 COOPERATION WITH OTHER INSTITUTIONS**

Národná banka Slovenska works closely with the Slovak banking sector in coordinating the organisational and technical processes applied during the processing of payment transactions and for the use of payment media. For this reason, Národná banka Slovenska organises regular meetings with commercial banks to inform them of new activities in the payment and settlement system. In addition, Národná banka Slovenska cooperates closely with the Slovak Banking Association (SBA; see Section 1.3) and coordinates various activities within the payment system.

### **I.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES**

#### **I.3.1 COMMERCIAL BANKS**

The status and function of commercial banks is specified in the Banking Act (see Section 1.1). This defines banks as legal entities – joint stock companies permanently based in the Slovak Republic – licensed to operate as banks and accept deposits and provide loans.

On 31 December 2006 the Slovak banking sector comprised 24 banking entities (17 banks and 7 branch offices of foreign banks) and 131 entities providing banking services on a cross-border basis (including foreign banks, foreign financial institutions and electronic money institutions).

Most of the 24 commercial banks are universal banks. Aside from core banking services – accepting deposits, providing loans, processing payments and clearing – they also provide additional services, such as issuing and administering payment instruments, providing guarantees, and opening and endorsing letters of credit.

A special role is performed by the three housing construction savings banks (building societies),

which accept deposits from customers and grant home improvement loans under special conditions. Their activities are geared solely towards home savings. The building societies are special banks which do not have a foreign exchange licence.

As at December 2006 the total amount on deposit accounts maintained by commercial banks in Slovakia on behalf of customers was SKK 912.22 billion (€24.50 billion), of which SKK 125.39 billion (€3.37 billion) was in foreign currency. In terms of capital share, banks in Slovakia may be divided into three groups, as indicated in the table below:

**Table I Commercial banks in Slovakia**

Type of bank	Number of banks
Without foreign capital interests	2
With foreign capital interests	15
Branches of foreign banks based in the Slovak Republic	7

### 1.3.2 FINANCIAL INSTITUTIONS AND OTHER BODIES

**The Export-Import Bank of the Slovak Republic**  
The Export-Import Bank of the Slovak Republic (Eximbanka) is a state-owned company established under a special act, 80/1997 Coll., which was passed by the National Council of the Slovak Republic, as amended by Act 336/1998 Coll. and Act 214/2000 Coll., and does not have the legal form of a joint stock company. It is not a commercial bank, and there is only one financial institution of this type in the Slovak Republic. Eximbanka was established to promote the export and import activities of Slovak companies by financing and insuring export credit. In this connection, Eximbanka mainly supports small and medium-sized enterprises. Eximbanka is authorised by the government to represent Slovakia in international institutions and fora whose activities are connected with those of Eximbanka.

#### ***Bratislava Stock Exchange, joint stock company***

The BSSE is a legal entity whose primary task is to facilitate trading in stocks and shares on behalf of its members and to prepare instructions for settlement of trades in the CDCP SR. For more detailed information, see Section 4.

#### ***Bank Card Association of the Slovak Republic***

The Bank Card Association of the Slovak Republic (ZBK) is a professional association of banks. The main goals of this association are: to promote the development of bank payment card use within the Slovak interbank payment system, to support and develop a joint network of ATMs and POS terminals, to provide further training to bank employees working in card-related businesses, to facilitate cooperation with other banking and non-banking institutions, to facilitate cooperation among banks as regards card risk management and to promote card products issued in Slovakia.

#### ***Central Securities Depository of the Slovak Republic***

The Central Securities Depository of the Slovak Republic is a joint stock company fully owned by the BSSE. It maintains a register of owners of dematerialised securities and a register of issuers and their issues. It is also responsible for the clearing and settlement of all trades concluded on the BSSE or on the OTC market in the Slovak Republic. For more detailed information, see Section 4.

#### ***First Data Slovakia, joint stock company***

First Data Slovakia is a joint stock company owned by First Data International. First Data Slovakia offers a full portfolio of systems and banking services for card issuing and merchant acquiring, as well as ATM and POS terminal management, switching and authorisation services, card personalisation, and print and mail services. At the same time, First Data Slovakia acts as a third party for payment card clearing.

#### ***Slovak Banking Association***

The Slovak Banking Association is a professional association of legal entities

operating in the field of banking and finance. The primary role of the SBA is to act as a coordination centre for the protection of the common interests of its members and to create a sound economic and legal environment in which commercial banks can cooperate effectively among themselves and with Národná banka Slovenska, the Ministry of Finance of the Slovak Republic and other financial and government institutions. The strategic goal of the SBA is to harmonise the country's legislation in the field of commercial banking with European and global standards. The SBA is a member of the European Banking Federation.

#### ***Slovak Association of Securities Dealers***

The Slovak Association of Securities Dealers is a self-regulating association of securities dealers that represents the interests of banks and stockbrokers trading in securities and regulates their activities.

#### ***Slovak Association of Asset Management Companies***

The Slovak Association of Asset Management Companies was established by companies operating in the domain of collective investment in the Slovak Republic. The association represents the interests of its members vis-à-vis other entities, in addition to providing consulting and information services.

#### ***Slovak Insurance Association***

The Slovak Insurance Association represents, safeguards and promotes the interests of insurance companies vis-à-vis the bodies of state administration and other legal entities.

## **2 PAYMENT MEDIA USED BY NON-BANKS**

### **2.1 CASH PAYMENTS**

To meet the demand for money, Article 16 of the National Bank of Slovakia Act provides that "the National Bank of Slovakia shall have the exclusive right to issue banknotes and coins as well as commemorative notes and coins which are legal tender and on which the nominal value

is marked in Slovak koruna or hellers". While the production of banknotes takes place abroad, the minting of coins takes place at the State Mint of Slovakia.

At present the currency in circulation in Slovakia consists of seven denominations of banknote (SKK 5,000, SKK 1,000, SKK 500, SKK 200, SKK 100, SKK 50 and SKK 20) and five denominations of coin (SKK 10, SKK 5, SKK 2, SKK 1 and 50 hellers). Cash is mostly used as payment for goods and services by private individuals and companies. Cash withdrawals from bank accounts are made by means of cheque, at the cash desks of banks and using payment cards from automated teller machines.

Slovak banknotes are accepted by both legal entities and private individuals without restriction. Coins, including commemorative coins, are accepted without restriction by Národná banka Slovenska, banks and branches of foreign banks. Other legal entities and private individuals may refuse to accept more than 20 coins of the same face value together, more than 30 coins of differing face values together, or commemorative coins.

At the end of 2006 the value of banknotes and coins in circulation (including cash in bank vaults) totalled SKK 143.5 billion (€3.85 billion), of which banknotes accounted for SKK 141.1 billion (€3.79 billion (i.e. 98.3% of the total value)) and coins (including commemorative coins) SKK 2.4 billion (€64.5 million (i.e. 1.7% of the total value)).

### **2.2 NON-CASH PAYMENTS**

Non-cash payments are carried out on current accounts maintained at banks. Households usually make payments from their current accounts using payment orders submitted in written form. Companies are increasingly using electronic data processing owing to the large number of payments.

The most frequently used means of non-cash payment are credit transfers, direct debits and payment cards.

### 2.2.1 CREDIT TRANSFERS

Credit transfers, whereby payers transfer payment from their own account to the account of the beneficiary, are currently the most widely used form of payment.

In 2005 credit transfers accounted for the majority of the total volume of non-cash payments. Credit transfers are submitted to banks by customers either in paper form or electronically. Those submitted in paper form are converted by the payer's bank into electronic (book-entry) form and then processed solely in electronic form.

Standing order credit transfers are used to make regular payments to the same payee on a certain date, i.e. for, *inter alia*, the regular transfer of fixed amounts (e.g. rent payments), of amounts above a certain limit from one account to another, or of the entire balance of one account to another.

### 2.2.2 CHEQUES

Cheques have never been a widely used means of payment in Slovakia. The use of cheques and the proper form of cheques are governed by the provisions of Act 191/1950 Coll. on bills of exchange and cheques. Cheques are also used for cash withdrawals from banks.

In Slovakia, banks issue private cheques to holders of accounts, and bank cheques may be issued even without the existence of an account. (The only condition is that a sufficient amount of money be paid into an internal account of the bank.)

### 2.2.3 DIRECT DEBITS

A direct debit is a form of payment initiated by the payee. It is necessary to distinguish between one-off and recurrent direct debits.

Recurrent direct debits are used for regular payments, due on certain days, on the basis of

a prior agreement between a bank and a customer (e.g. electricity supply payments or telephone charges). Present legislation makes it possible for certain entities to issue orders for legal direct debits, i.e. direct debits on the basis of legally valid and enforceable decisions of courts, court executors, etc. The direct debit is also used, *inter alia*, for the payment of charges for banking services.

### 2.2.4 PAYMENT CARDS

#### *Debit cards and credit cards*

As at 31 December 2006 almost 4.476 million payment cards had been issued by banks. Banks issue various types of payment card product – e.g. Maestro, Eurocard/MasterCard, MasterCard Electronic, Visa and Electron. Some banks also issue American Express and Diners Club cards.

The majority of payment cards are “pay now” products, i.e. debit cards normally linked to current accounts. (Even payment cards such as Eurocard/MasterCard or Visa are issued and processed essentially in accordance with the same method as debit cards, i.e. when a certain amount, which depends on the general terms and conditions set by the particular bank, is held on the customer’s account.)

#### *ATM and POS networks*

As at 31 December 2006 cardholders in Slovakia could use a network of 2,009 ATMs and 22,665 EFTPOS terminals. Widespread ATM use began before the development of EFTPOS terminals (typically installed at petrol stations and in shops/shopping centres, supermarkets, hotels, restaurants and other service sector establishments). This is why cash withdrawals from ATMs (which represent 66% of total card transactions in Slovakia) are more common than card payments (which account for 34%) at retailers. The value of card payments accounted for 19% of the aggregate value of card transactions in Slovakia in 2006, and cash withdrawals for 81%.

However, the EFTPOS terminal network in Slovakia has been expanding more rapidly than the ATM network. The following changes were recorded between 31 December 2005 and 31 December 2006:

- the number of ATMs increased by 8%, the number of ATM transactions by 10%, and the value of ATM transactions by 13.5%; and
- the number of EFTPOS terminals increased by 19%, the number of EFTPOS transactions by 29% and the value of EFTPOS transactions by 38%. This is a very positive signal for the future and testifies to the increasing use of payment cards in Slovakia for their primary purpose, i.e. non-cash payments.

#### ***Statistical data on non-cash payments***

In 2006 there were 40.42 million payment card transactions, with a value of some €1.27 billion. By comparison with 2005, there were no major changes as regards the number and value of transactions.

With regard to direct debits, 4.68 million transactions, with a total value of around €546 million, were processed through the payment system in the course of 2006. By comparison with the previous year, there was a 0.7% decrease in the number and a 20.5% increase in the value of transactions.

#### ***2.2.5 POSTAL INSTRUMENTS***

Slovenska posta s.p. provides payment services at post office branches, primarily to the general public. Slovenska posta s.p. uses its own payment media (i.e. postal order forms) for receiving and delivering cash. The link between account holders making and receiving payments is supplied by Postova banka a.s., which settles cash transfers for Slovenska posta s.p.

#### ***2.2.6 OTHER PAYMENT INSTRUMENTS***

##### ***Bills of exchange***

Bills of exchange are used only to a limited extent as payment instruments. They are used largely to secure credit, primarily in the agricultural sector.

Several banks encourage their clients to use bills of exchange as payment instruments (e.g. to settle their obligations vis-à-vis trading partners) on the basis of their transferability, to pledge them, or to use them as negotiable securities (with various possibilities as regards such use).

##### ***Documentary payments***

Documentary letters of credit and documentary collection are instruments used mainly in cross-border commercial payments.

##### ***Luncheon vouchers***

As part of fringe benefit programmes, employers provide their employees with luncheon vouchers. These may be used to pay for meals at an extensive network of restaurants and to make food purchases in some shops. The most widely used are "Ticket Restaurant" luncheon vouchers.

#### ***2.2.7 ONLINE BANKING SERVICES***

Telephone or PC-based banking applications allow remote access to client accounts held at banks. Home banking, internet banking and mobile phone banking services are provided by all major banks.

ATMs are also frequently used not only for cash withdrawals, but also for checking account balances, for bank transfers from a customer's account to another account, for cash deposits and for prepaid mobile phone top-ups.

### 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

#### 3.1 GENERAL OVERVIEW

Slovakia has only one payment system, SIPS. This system processes and settles all interbank payment transactions, regardless of their value.

Národná banka Slovenska is both the system operator and the settlement agent, and took over the running of the payment system from the Slovak National Clearing Centre on 1 January 2003.

#### 3.2 LARGE-VALUE PAYMENT SYSTEM IN SLOVAKIA (SIPS)

Payment processing and settlement is based on the principles of gross settlement; priority payments meet the principles of real-time gross settlement. Payments are processed and settled continually throughout the day in the accounts held with Národná banka Slovenska. Payment processing and settlement is fully automated, with the transmission of data between Národná banka Slovenska and SIPS participants being carried out solely in electronic form, through the communication system BIPS (Basic Interface for Payment System).

If there are sufficient funds in the sender's account with Národná banka Slovenska to cover a priority payment, this payment is settled within a few minutes, depending on the number of payments ready for processing in SIPS at any given moment. A binding receipt is sent to both the sender and the receiver of the priority payment through the BIPS system once that payment has been processed and settled. The receipt includes all data necessary for the identification of the priority payment.

Priorities are assigned by the commercial banks themselves. There are no rules (e.g. on the value of payments) laid down by Národná banka Slovenska.

#### 3.2.1 OPERATING RULES

The processing and settlement of transactions are performed by Národná banka Slovenska. Banks and branches of foreign banks carry out payment and settlement operations solely via SIPS. The final settlement of transactions occurs on the minimum reserve accounts held by Národná banka Slovenska.

The legal aspects of SIPS are regulated by the Act on the payment system, 510/2002, which includes rules governing the payment system operated by Národná banka Slovenska.

“Rules of Access to the SIPS Payment System” are published on Národná banka Slovenska’s website. These include a number of criteria which potential participants are required to fulfil in order to participate in the payment system or to end such participation, as well as a number of technical prerequisites.

Insolvency proceedings are covered by Act No 328/1991 Coll. on bankruptcy and settlement, as amended.

#### 3.2.2 PARTICIPATION IN THE SYSTEM

Participants in SIPS are either direct or indirect participants. Banks, branch offices of foreign banks and other financial institutions are direct participants and hold their own accounts with Národná banka Slovenska for payment clearing conducted through SIPS. In banks and branch offices of foreign banks, this account is also used for the monitoring and evaluation of the mandatory minimum reserves. Direct participants effect both their own payments and those of their clients through SIPS.

All entities acting in the interbank payment system as “third parties” (ancillary systems) are considered to be indirect participants in SIPS. These are non-banking entities, which do not hold an account with Národná banka Slovenska for the clearing of payments. These entities offer selected services in SIPS, delegated by direct participants. Bratislava Stock Exchange Inc. effects the financial settlement of trades in securities through SIPS, and First Data Slovakia

Inc. offers the clearing of transactions made using payment cards. Non-banking entities are authorised to debit and credit the accounts of direct participants in SIPS. Prior written approval must, however, be granted.

Pursuant to Article 38, paragraph 1 of the Act on the payment system, central banks of other countries, the European Central Bank and branches of foreign banks registered in the territory of a different country in the European Economic Area may, subject to the approval of Národná banka Slovenska, also participate in SIPS.

Národná banka Slovenska coordinates and controls participants' access to SIPS in accordance with the conditions set out in the Act on the payment system. Národná banka Slovenska has issued the rules governing access to SIPS. The technical eligibility of an applicant for participation in the system is verified in accordance with the requirements laid down by law in the course of an application for entry to the payment system.

The applicant becomes a participant in the payment system once it has met the conditions for participation therein. Once those conditions have been met, Národná banka Slovenska signs a SIPS contract with the applicant and assigns identification codes for the domestic payment system. Národná banka Slovenska issues a list of identification codes, which is updated whenever the participants in the system change. The list of identification codes for the domestic payment system, the list of payment systems and their participants, and the rules governing access to SIPS are all available to the general public on Národná banka Slovenska's website.

### 3.2.3 TYPES OF TRANSACTION HANDLED

Credit transfers and direct debits are the basic payment types used in the system. Payments are further broken down into standard and priority payments. Standard payments can be characterised as "small-value" payments (normally standard interbank and client payments), which have low priority in terms of

processing. Priority payments can be characterised as "large-value" payments. These are normally interbank money market payments and thus of greater economic significance. Priority payments have the highest priority in terms of processing, which means that they are settled with priority in the interbank payment system.

SIPS also processes cheque transactions and the net positions of card transactions. First Data Slovakia Inc. supplies banks which issue and accept payment cards with daily clearing files containing data on the use of payment cards. At the same time, First Data Slovakia Inc. prepares data for interbank settlement on a daily basis and submits these data to SIPS for processing on the basis of a third-party entry order. The settlement of card transactions for banks is based on the principle of net settlement.

The complete processing and settlement of a credit transfer – from the debiting of the payer's account at one bank to the crediting of the beneficiary's account at the other bank – takes no more than two days. For direct debits, the payment is initiated by the payee, which asks the payer to settle its obligation. This operation prolongs the processing and settlement of direct debits by up to four days.

### 3.2.4 OPERATION OF THE SYSTEM

SIPS processes payment transactions on the day that they are received. It is not possible to submit transactions to the system several days in advance in order for them to be settled on a given value date. The transaction processing environment is fully electronic.

Transactions are processed in the order in which they arrive (i.e. the "first in, first out" principle is applied) within their respective predetermined priority classifications.

SIPS works on the basis of a 24-hour cycle called a "clearing day". The exchange of data between banks and Národná banka Slovenska takes place at intervals established in accordance

with a timetable for the submission and processing of data.

- Banks may deliver payment transaction data for processing on a given clearing day (D) from 5 p.m. CET on the previous day (D-1) to 11.30 a.m. CET on the clearing day.
- The period from 7 a.m. to 1 p.m. CET on a clearing day is reserved for priority payments, and the period from 1 p.m. to 1.30 p.m. CET is set aside for sterilisation and refinancing payments. After 1.30 p.m. CET SIPS generates and sends output files to the banks.
- During the period from 3 p.m. to 5 p.m. CET system maintenance is carried out in SIPS. Input data sent to SIPS after 5 p.m. CET is processed with the value of the following clearing day (D+1).

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

SIPS is designed to provide a reliable and credible platform for the operation of the interbank payment system in Slovakia. Its design incorporates the principles of information security and uses verified cryptographic algorithms. The security of SIPS is based on a high level of data protection during all processing and clearing phases, as well as during the transmission of data between Národná banka Slovenska and participants in SIPS.

SIPS consists of the following three basic parts:

- the BIPS data transmission system;
- the UNIVERZAL-NET® data network;<sup>2</sup> and
- the clearing system.

Data integrity and authenticity is verified during the transmission of data by means of digital signatures. The processing and settlement of payments is fully automated, and data

transmission among participants is carried out in electronic form through the BIPS communication system and the UNIVERZAL-NET® data network.

The BIPS communication system is a special system designed for data transmission and protection within SIPS. It consists of a central BIPS node, which is located in Národná banka Slovenska, and BIPS nodes for each individual participant. Each participant also uses several workstations (i.e. terminals), which communicate with BIPS using participant nodes.

The BIPS system provides participants with the following services:

- data input and output;
- transmission of data between a participant and the clearing centre;
- transmission of monitoring information, data processing information and information on the balance of a participant's account in the clearing centre;
- processed data protection; and
- operating key management for SIPS' needs.

Participants' BIPS nodes are connected with that of the clearing centre via the UNIVERZAL-NET® network.

### 3.2.6 SETTLEMENT PROCEDURES

All payments are processed and settled on the minimum reserve accounts held by Národná banka Slovenska for each direct participant.

If a bank does not have enough funds to cover a payment transaction, all payment transactions for this bank which are waiting to be processed are put in a holding queue. Národná banka

2. UNIVERZAL-NET® is a registered trademark of Národná banka Slovenska.

Slovenska provides intraday credit facilities for direct participants, which are required to maintain mandatory reserves.

As soon as the system detects sufficient funding, it resumes the processing of payment transactions, processing them in the order they entered the system (i.e. in accordance with the “first in, first out” principle).

If the payer’s bank does not have sufficient funds to cover the queued payment transactions at the end of the clearing day, SIPS, rather than settling these transactions, returns them to the bank. The participants subject to the minimum reserve procedure are able to ask for intraday credit to cover their payments. Intraday credit is payable only within one SIPS operating day and must be collateralised by securities registered in the central registry of short-term securities held with Národná banka Slovenska.

### 3.2.7 CREDIT AND LIQUIDITY RISK

No payment transaction may be processed and settled with insufficient cover. Thus, credit and liquidity risks are reduced to a minimum.

Národná banka Slovenska provides intraday credit to commercial banks. Intraday credit is payable only within one SIPS operating day and must be collateralised by securities registered in the central registry of short-term securities held with Národná banka Slovenska. Národná banka Slovenska will grant credit to the participant on the basis of its application for the provision of intraday credit. That application will also include a request for the registration of a right of lien for securities. If a participant’s account contains sufficient securities, Národná banka Slovenska will register the right of lien and grant the intraday credit to the participant by setting a debit limit for its account. Participants generally send applications for the provision of intraday credit to Národná banka Slovenska on Fridays. The debit limit set for the participant’s account is valid for the duration of the following calendar week.

### 3.2.8 PRICING

Národná banka Slovenska’s pricing policy is in accordance with the cost recovery principle.

There are three basic types of fee:

- transaction fees;
- monthly fees; and
- one-off fees.

Participants’ one-off and monthly fees constitute fixed costs for connection to the payment system and use of transmission lines which do not depend on the number of transactions settled through SIPS.

The level of transaction fees depends on the number of payments sent to Národná banka Slovenska for processing and settlement. The basic fee per input item is fixed, and that fee is then multiplied by a coefficient which varies depending on the type of payment (i.e. standard or priority) and the time at which the payment entered the system. The basic fee for processing one input item is SKK 0.25 (€0.006).

Only one fee is charged per payment, and Národná banka Slovenska does not charge fees for output items. Each fee specified in the service rates is related to the procurement price of SIPS and the real operating costs.

### 3.2.9 STATISTICAL DATA

In 2006 the average monthly payment volume was around 10 million. An average of around 501,000 transactions were effected every day, with a peak volume of 1,453,303 transactions on a particular day in May. The average daily value of processed transactions was SKK 346,662 million (€9,310 million), with an average value per transaction of around SKK 658,574 (€17,687).

Customer transfers (which numbered around 119 million) accounted for more than 99.5% of total processed transactions by volume. However, the value of those transactions

was only around SKK 7,199,737 million (€193,364 million), i.e. 8% of the value of all payments processed. The average value of a customer transfer was SKK 58,474 (€1,570).

Interbank payments (which numbered 640,000) represented less than 0.5% of total processed transactions by volume. However, with a value of SKK 78,425,799 million (€2,106,291 million), they accounted for 92% of the total value of transactions processed. The average value of an interbank payment was around SKK 122 million (€3.3 million).

### 3.2.10 LARGE AND SMALL-VALUE PAYMENTS

SIPS does not distinguish between payments on the basis of their value and processes all interbank large-value and retail payment transactions (see Section 3.2.6).

### 3.2.11 CROSS-BORDER PAYMENTS

Slovakia acceded to the European Union on 1 May 2004. Since then the legislation governing cross-border payments in euro has changed as follows. The main legislative measures in this area are regulations, directives, decisions and recommendations of the European Parliament and of the Council relating to cross-border payments, which have been transposed into national law governing foreign exchange issues by means of legislation such as Act No 510/2002 Coll. on the payment system and on amendments and supplements to certain laws, the Foreign Exchange Act (No 202/1995 Coll.) and Decree No 6/1999 of Národná banka Slovenska on the conditions for establishing the balance of payments of the Slovak Republic.

Chapter 3, Articles 12 to 20 of Act No 510/2002 Coll. on the payment system and on amendments and supplements to certain laws defines the term "cross-border transfer", as well as containing information, requirements and deadlines relating to the processing of cross-border transfers.

In 2005 commercial banks in Slovakia and Národná banka Slovenska joined the EBA PE-ACH STEP2 as indirect participants and

thus became able to receive and effect cross-border payments in euro through this system.

Cross-border payments in currencies other than euro are based on correspondent banking. The legislative measures governing these payments are basically the same as those governing cross-border payments in euro, with the exception of those provisions relating only to cross-border transfers in euro.

## 3.3 RETAIL PAYMENT SYSTEMS

### 3.3.1 E-MONEY SCHEMES

There are currently no card-based e-money schemes in Slovakia.

### 3.3.2 CARD-BASED SCHEMES

First Data Slovakia operates authorisation services and manages and administers payment cards and the network of EFTPOS and ATM terminals. All ATM and EFTPOS terminals are connected online to First Data Slovakia's central system. ATMs are connected to First Data Slovakia by a data line (X.25), whereas EFTPOS terminals are connected mainly via a telephone line (dial-in) or via GSM Eurotel. Authorisation is performed either by matching card data against the card database held by First Data Slovakia in real time, or by checking the card's account balance in the relevant bank's card database via a host-to-host connection or by routing the authorisation request to the authorisation centre of the relevant issuing banks. First Data Slovakia's information on cards' account balances is updated by banks on a daily basis. First Data Slovakia generates all necessary settlement data, reports and statistics for individual ZBK members on a daily basis. All transactions are authorised and cleared by First Data Slovakia, which transmits the net position of each ZBK member to SIPS on a daily basis by means of a third-party order for settlement.

Slovenska sporitelna a.s. operates its own network of terminals (ATMs and EFTPOS). This network is connected to the First Data

Slovakia network to form a joint ZBK network.

### 3.3.3 RETAIL CREDIT, DEBIT AND CHEQUE TRANSFER SYSTEMS

There is no special clearing system for retail credit, debit and cheque transactions. All transactions are executed via SIPS (see Section 3.2).

## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

#### 4.1.1 BRATISLAVA STOCK EXCHANGE

##### a) Main regulations

The BSSE was founded in March 1991 as a joint stock company. Its legal framework is laid down in Act No 429/2002 Coll. on the stock exchange. Under the provisions of this Act, the BSSE issues rules which are binding on all of its members. Any modification to BSSE rules was subject to approval by the Financial Market Authority until December 2005. In January 2006 the FMA became part of Národná banka Slovenska, and these activities are therefore performed by Národná banka Slovenska at present.

##### b) Members and ownership

There are 27 full members of the BSSE, and Národná banka Slovenska is an entity entitled by law to trade on the stock exchange. BSSE members are either banks or brokerage houses. The majority of shares in the BSSE are held by private banks. The state is represented by the National Property Fund. Temporary membership is limited to one year (after one year the member in question leaves the stock exchange or must apply for full membership). A temporary member is not entitled to ask the stock exchange to list new security issues (nor to have representatives in the stock exchange's trading, listing and membership committees), is not required to pay the initial membership fee and must pay higher annual fees (with transaction fees remaining the same).

##### c) Main features

The BSSE is the sole operator of the regulated securities market in Slovakia. The following securities are traded: single issues admitted to trading on the stock exchange, e.g. equities (ordinary and preferred), units and bonds (corporate, municipal, government and mortgage).

There are, as yet, no futures and options markets in Slovakia. The BSSE is not licensed for derivatives trading.

The following types of trade may be concluded on the stock exchange:

- trades matched through an electronic order book;
- negotiated stock exchange trades; and
- repo trades.

In accordance with the matching method, the electronic order book is divided into the following modules:

- auction trading;
- continuous trading;
- market-makers; and
- block trading.

In the auction trading module, all securities admitted to the stock exchange market are traded. In the continuous trading and block trading modules, all securities admitted to the stock exchange market for which a price spread has been specified on that particular stock exchange day are traded.

An issue may be admitted to trading in the market-makers module provided that the minimum number of market-makers for this issue, as set down by the stock exchange, is achieved.

#### 4.1.2 THE SHORT-TERM SECURITIES MARKET

##### a) Main regulations

The short-term securities market is the market for Treasury bills and Národná banka Slovenska bills, which are registered in the Central Registry. This market is organised by Národná banka Slovenska.

The most important legislation issued by Národná banka Slovenska includes the following:

- Act No 566/2001 Coll. on securities and investment services and on amendments to certain laws, and Act No 566/1992 Coll. on the National Bank of Slovakia, as amended by subsequent regulations;
- the Decision of Národná banka Slovenska of 21 December 2004 establishing the Rules of Procedure of the central registry of short-term securities maintained by Národná banka Slovenska; and
- Decision No 6/2003 of Národná banka Slovenska of 12 December 2003 on conditions and procedures for the provision of intraday credit to participants in the Slovak Interbank Payment System.

Repo deals are executed on the basis of the “Framework Contract on the Extension of Loans Backed by the Transfer of Securities”. The contractual parties agree on the conditions for a repo deal by telephone or by means of the Reuters system.

##### b) Participation in the system

The members of the Central Registry are Národná banka Slovenska and the Ministry of Finance of the Slovak Republic (the Ministry of Finance carries out activities associated with the Central Registry through ARDAL).

Upon request, the following entities may become members:

- banks and branches of foreign banks;

- the Export-Import Bank of the Slovak Republic;
- insurance companies;
- stock brokerage firms registered in Slovakia; and
- central depositories (whether registered in or outside Slovakia).

#### 4.2 CLEARING

Clearing services are performed as an integral part of the settlement process (rather than being performed separately by a clearing entity). These are described below in Section 4.3.

#### 4.3 SETTLEMENT

##### 4.3.1 SETTLEMENT OF TRADES IN THE CENTRAL SECURITIES DEPOSITORY OF THE SLOVAK REPUBLIC

The CDCP SR is the only central securities depository operating in the Slovak Republic. The CDCP SR performs the following activities in compliance with its licence:

- registration of book-entry and immobilised securities in an issuer's registry;
- registration of owners of book-entry securities in owners' accounts and in members' client accounts within the scope established by Act No 566/2001 Coll. on securities and investment services;
- registration of changes in owners' accounts and members' client accounts;
- registration of data on book-entry and immobilised securities;
- allocation, amendment and deletion of ISINs;
- provision of services to securities depository members, to securities issuers and to the stock exchange;

- provision and organisation of the system used for the technical processing of the data held in the registries;
- provision of clearing and settlement services for stock exchange trades and OTC trades;
- administration of issuers' registries for registered paper shares;
- registration of other data where required by Act No 566/2001 Coll. on securities and investment services;
- redemption of securities and payment of securities yields; and
- provision of other services in connection with the activities of the central securities depository in compliance with Act No 566/2001 Coll. on securities and investment services.

At the end of 2006 the CDCP SR had 21 members: 13 commercial banks, Národná banka Slovenska, six stockbrokers and one foreign central securities depository. Membership of the CDCP SR is granted to all applicants that fulfil the membership criteria laid down in the Operational Rules of the CDCP SR.

*a) Settlement procedures and types of transaction*

All trades concluded on the BSSE or the OTC market are cleared and settled by the CDCP SR. The settlement of trades is effected on a gross settlement basis (BIS Model 1), but netting on the cash side is also available (BIS Model 2). In the gross settlement module trades are settled on a trade-by-trade basis and the CDCP SR manages both securities and cash settlement. The cash side of transactions is settled in central bank money, as the CDCP SR is a direct participant in the payment system managed by Národná banka Slovenska. SIPS settles transactions on the basis of RTGS principles, and payments are therefore settled with immediate finality. The settlement cycle for stock exchange trades normally ends on T+3.

*b) DvP arrangements*

The CDCP SR offers securities settlement in two settlement modules: a gross settlement module, which is the module predominantly used by CDCP SR participants, and a net settlement module. Both modules are used for the settlement of both stock exchange trades and OTC trades.

On T+0 the BSSE sends instructions indicating the trades for settlement in the gross settlement module of the CDCP SR. The CDCP SR then splits received instructions into half-instructions and delivers them to the respective counterparties in the CDCP SR. (This arrangement is necessary owing to the fact that the trading members of the BSSE may not be the same as the settling members of the CDCP SR.) On T+3, the settlement day for stock exchange trades, half-instructions are re-matched, and CDCP SR members must indicate their readiness to settle the trade (meaning that sufficient cash or securities are available) by means of a simple confirmation of readiness. Once members' readiness to settle has been confirmed, the CDCP SR blocks the securities in the securities account. Where a member has a payment obligation resulting from instructions with confirmed readiness, that member must cover the full amount of that obligation by transferring the relevant funds to the cash settlement account of the CDCP SR held with Národná banka Slovenska. The depository then settles the trade by transferring the securities, and then debiting the depository's cash settlement account and crediting the member's cash account.

Stock exchange trades that are not able to be settled owing to insufficient cash or securities are recycled for an unlimited period of time, with the expected settlement day delayed by one day to SD+1.

For OTC transactions, the same settlement process applies, except for the fact that settlement starts with members' delivery of instructions to the CDCP SR for matching. Failed OTC transactions are immediately

returned to the instructing parties as unsettled, without any additional attempt to settle.

In the net settlement module, activities on T+0 are the same as those in the gross settlement module. On SD-1 (i.e. T+2 for stock exchange trades), after members have confirmed their readiness to settle, the depository runs two rounds of netting, in which net cash obligations resulting from trades processed in the net settlement module are calculated. Members must cover their net cash obligations by means of payments to the cash settlement account of the CDCP SR held with Národná banka Slovenska on SD-1 (with cash required to be present in the account one day prior to settlement). If a member fails to cover its net cash obligation in full, its instructions will be excluded from processing in the net settlement module and forwarded for settlement in the gross settlement module. In the early hours of the settlement day the depository transfers the securities and – once Národná banka Slovenska's payment system has opened – the depository settles the cash leg by debiting its cash settlement account and crediting the respective members' cash accounts with the net sums.

If the stock exchange trades are to be settled in the net settlement module, members must change the settlement method in the settlement instruction from "gross" to "net" prior to confirming their readiness to settle.

#### *c) Measures for the control of credit and liquidity risk*

All trades to be settled in the CDCP SR are put on hold and must be released for settlement by the member settling the trades. That release is effected by means of members' confirmation of their readiness to settle, with members thereby acknowledging that their provision checks have been successful. On the basis of this confirmation, the depository blocks the securities that are to be settled. The depository's instruction to block securities cannot be overruled by any other instruction to block the same securities. This confirmation of readiness means that the settlement failure rate is kept

very low. In addition, the depository's Operational Rules establish the point at which transfer orders become irrevocable in compliance with the provisions of the Settlement Finality Directive as transposed into Slovak legislation.

The cash side is also controlled by the depository, and without the corresponding crediting of the depository's cash settlement account, the CDCP SR will not initiate the transfer of securities.

#### *d) Same-day settlement finality*

In the gross settlement module trades are settled with immediate finality on the business day that they are entered into the system. Once a member has confirmed its readiness to settle, the depository blocks the securities that are to be settled and the member transfers an amount covering the payment obligation resulting from each trade settled in the gross settlement module to the depository's cash settlement account via the RTGS system of Národná banka Slovenska. The depository then checks the credited amount and, if it is correct, transfers the securities with immediate finality from the securities account of the seller to that of the buyer. To finalise the settlement, the depository initiates the debiting of its cash settlement account and the crediting of the relevant member's cash account via the RTGS payment system. Transfers of cash effected through the RTGS system are irrevocable, with immediate finality. Free-of-payment trades are also settled on the same day.

#### *e) Pricing policy*

The pricing policy of the CDCP SR with regard to the clearing and settlement of trades is transparent, with separate charges for the transfer of securities and for the clearing and financial settlement of trades.

### **4.3.2 SETTLEMENT OF TRADES ON THE SHORT-TERM SECURITIES MARKET**

Trades on the short-term securities market are settled by the Central Registry, which is maintained by Národná banka Slovenska.

#### ***a) Participation in the system***

When establishing safe custody accounts for legal entities, the Central Registry distinguishes between (a) members and (b) clients.

The Rules of Procedure of the Central Registry establish the entities entitled to be members (see Section 4.1.2).

The Central Registry may establish only one safe custody account for each member. The Central Registry communicates only with its members. Clients communicate with the Central Registry only via their respective members. Only a member of the Central Registry may request the opening of a safe custody account for a client. Only one account may be opened per client, with the exception of asset management companies, for which a safe custody account may be opened for each mutual fund and pension fund established or administered by the asset management company in question.

#### ***b) Types of transaction handled***

The Central Registry is legally required to maintain a register of short-term securities denominated in Slovak currency with a maturity of up to one year issued by the Ministry of Finance of the Slovak Republic and Národná banka Slovenska, which are used to cover the state budget deficit and regulate the money market.

In accordance with its Rules of Procedure, the Central Registry:

- keeps records of issuers of securities;
- opens safe custody accounts for Registry members and their clients, and keeps records of such accounts;
- registers issues of securities;
- registers primary sales of securities;
- registers trades on the secondary market;

- registers issuers' repurchases of securities upon their maturity;
- registers the origination and cessation of pledges of securities and changes to such pledges, as well as suspensions of the right to dispose of pledged securities; and
- keeps records of intraday credit provided.

#### ***c) Operation of the transfer system and the transaction processing environment***

The system was set up and is operated by Národná banka Slovenska, which also has the only direct electronic connection to the system. Communication with the Central Registry is carried out by fax. The Department of Information Technology and Automation of Národná banka Slovenska is currently responsible for the technical operations and software of the Central Registry system.

#### ***d) Settlement procedures***

On working days the Central Registry accepts documents from issuers, members and other persons from 8.30 a.m. to 3 p.m. CET. The time the document arrives (i.e. the time of delivery to the Central Registry) is decisive for its acceptance for processing.

On working days the Central Registry accepts:

- applications for the registration of an issue for the issuer's own portfolio until 10.30 a.m. CET;
- applications for the registration of an ordinary issue until 1 p.m. CET;
- instructions to register the transfer of securities credited to the safe custody account of a buyer; instructions to register a transfer of securities debited from the safe custody account of a seller; instructions by a creditor for the transfer of pledged securities; instructions by a debtor for the transfer of pledged securities; and instructions for the registration of a

contractual pledge of securities until 1.30 p.m. CET;

- confirmation of payment until 2.15 p.m. CET; and
- applications for membership of the Registry and to open a safe custody account for a member of the Registry; applications to open a safe custody account for a client; applications for changes to or the closure of the safe custody account of a client; and complaints until 3 p.m. CET.

An application for the registration of an ordinary issue must be delivered to the Central Registry no later than one working day before the day of the primary sale of the securities. An application for the registration of an issue for an issuer's own portfolio must be delivered to the Central Registry by the day the securities are issued.

Securities may be traded on the secondary market from the first business day following the date of the issue until the end of the second business day prior to the maturity date.

The documentation relating to the purchase and sale of securities must be delivered to the Central Registry by the settlement date of the trade. For repo transactions, these must be delivered by the day of the provision of a loan.

The settlement of the cash leg of the securities transaction is effected by the payment system SIPS on T+0.

Confirmation of payment must be delivered to the Central Registry by the settlement date of the trade in the event of the purchase and sale of securities and by the date the loan is granted in the event of loans backed by a transfer of securities. The repurchasing of mature securities is effected on the maturity date when the Central Registry opens.

*e) DvP arrangements*

The DvP requirement is met for all trades effected in the Central Registry.

*f) Pricing*

Národná banka Slovenska performs all activities related to the maintenance of the Central Registry free of charge, unless the Board of Národná banka Slovenska decides otherwise.

*g) Measures for the control of credit and liquidity risk*

Risk control is carried out on three levels:

- The Central Registry checks the number of securities owned by a seller. A trade will be booked only if the member or client in question owns sufficient securities. Booked securities cannot be traded during the booking period.
- The buyer is obliged to effect a bank transfer of funds in the form of a priority payment for the bought securities. The financial obligation is considered to have been fulfilled when funds equal to the total value of the trade are credited to the account of the seller in the interbank payment system SIPS. This must be done by the settlement date of the trade.
- The seller of the securities must send the Central Registry confirmation of the receipt of payment as soon as it receives those funds. On the basis of that confirmation of receipt of payment, the Central Registry registers the securities and sends the parties to the trade confirmation of the registration of the trade and a statement from their safe custody accounts.





# SWEDEN

## CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>330</b>
<b>USEFUL LINKS</b>	<b>330</b>
<b>INTRODUCTION</b>	<b>331</b>
<b>1 INSTITUTIONAL ASPECTS</b>	<b>332</b>
1.1 The general institutional framework	332
1.2 The role of the central bank	334
1.3 The role of other private and public sector bodies	336
<b>2 PAYMENT MEDIA USED BY NON-BANKS</b>	<b>337</b>
2.1 Cash payments	337
2.2 Non-cash payments	338
2.3 Recent developments	339
<b>3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS</b>	<b>340</b>
3.1 General overview	340
3.2 RIX	340
3.3 Retail payment systems	343
<b>4 SECURITIES SETTLEMENT SYSTEMS</b>	<b>346</b>
4.1 Trading	346
4.2 Clearing	349
4.3 Settlement	351
4.4 The use of the securities infrastructure by Sveriges Riksbank	354

## LIST OF ABBREVIATIONS

BGC	Clearing organisation Bankgirocentralen BGC AB
OMX	Exchange owner and operator in the Nordic and Baltic region and provider of financial services technology
RIX	Sveriges Riksbank's large-value payment system
VPC	Swedish central securities depository

## USEFUL LINKS

BGC	<a href="http://www.bgc.se">www.bgc.se</a>
Finansinspektionen (Swedish financial supervisory authority)	<a href="http://www.fi.se">www.fi.se</a>
Ministry of Finance	<a href="http://www.sweden.gov.se">www.sweden.gov.se</a>
Stockholm Stock Exchange	<a href="http://www.se.omxgroup.com">www.se.omxgroup.com</a>
Sveriges Riksbank	<a href="http://www.riksbank.com">www.riksbank.com</a>
Swedish Bankers' Association	<a href="http://www.bankforeningen.se">www.bankforeningen.se</a>
VPC	<a href="http://www.vpc.se">www.vpc.se</a>

## INTRODUCTION

Sveriges Riksbank's large-value payment system RIX can be described as the hub of Sweden's payment system in that it handles all payments between banks and other players. Funds are transferred electronically between the accounts that RIX participants have with Sveriges Riksbank ("the Riksbank"). Payments between participants – both on their own account and on behalf of customers – are settled through the RIX system. Participants in RIX include, in addition to the major Swedish banks and the Swedish National Debt Office (Riksgälden), clearing and settlement organisations such as Bankgirocentralen BGC (BGC), the Stockholm Stock Exchange and the Swedish central securities depository VPC, as well as a number of foreign banks, including CLS.

The RIX system is used for settlement of Swedish krona payments only. However, between 1999 and 2006 the Riksbank had a parallel system for settlement in euro, which was linked to the TARGET system. The RIX system has a weekly turnover of almost SEK 2,500 billion (€270 billion). That corresponds fairly well to Sweden's annual GDP.

BGC is the main intermediary for retail payments between banks in Sweden. It is mainly giro payments and transfers that pass through BGC's system. BGC administers the Bankgirot system and processes the payments made through this system. BGC also operates the Dataclearing system on behalf of the Swedish Bankers' Association (Svenska Bankföreningen). The Dataclearing system manages both transfers between accounts and cheque payments (including payment orders). Card payments – both aggregated cash withdrawals and purchases – are also settled via BGC's system. BGC also manages debit transactions, i.e. transactions initiated by the payment recipient rather than the payment sender (e.g. direct debits).

Previously, Postgirot was a system that competed with Bankgirot. However, Postgirot (now PlusGirot) was acquired by the commercial bank Nordea in 2001 and is now an internal system for transfers between accounts in Nordea.

The Swedish securities market was consolidated in the late 1990s, when the derivatives exchange and stock exchange merged to form what is now the Stockholm Stock Exchange. The Stockholm Stock Exchange is the central market-place for trading in derivatives and shares in Sweden. Its operations also cover, to a certain extent, debt securities.

Cross-border integration in the Nordic and Baltic derivatives and equities markets has progressed since the late 1990s. For stock exchanges, the NOREX alliance of Nordic stock exchanges brought about a harmonisation of membership procedures, together with the adoption of similar trading rules and the same technical system. In 2000 the NOREX alliance comprised the Swedish, Danish, Norwegian and Icelandic exchanges. In 2003 OM, the owner of the Stockholm Stock Exchange, merged with the Finnish exchange company HEX to form OMX AB. HEX owned shares in the Estonian and Latvian exchanges and brought these into the alliance. More recently the Lithuanian stock exchange has been bought by OMX, thereby expanding the alliance further. The Danish stock exchange, a NOREX member, was bought by OMX in 2005, and in 2006 the Icelandic stock exchange was also bought by OMX. Another result of this is the consolidation of derivatives markets such that derivatives for the Danish, Finnish and Swedish markets are traded and cleared in the Stockholm Stock Exchange.

VPC holds the register of almost all shares and debt securities traded in the Swedish financial markets. As well as holding that register, VPC clears and settles transactions in Swedish shares and debt securities. When VPC bought its Finnish counterpart (APK), a first step was taken towards the integration of securities settlement systems.

## I INSTITUTIONAL ASPECTS

### 1.1 THE GENERAL INSTITUTIONAL FRAMEWORK

#### 1.1.1 THE INSTITUTIONS

Payments are material to every economic activity and a central feature of the financial system. The Swedish payment system's central agents are the Riksbank and the commercial banks. The banks distribute notes and coins, hold transaction accounts connected to the giro system and manage card systems. The Riksbank issues notes and coins and provides accounts and liquidity in the RIX payment system, which banks can use to execute large mutual payments. In the light of its central role in the payment system, the Riksbank is tasked by the Swedish parliament ("the Riksdag") with promoting safe and efficient payment systems.

The state has a particular interest in overseeing the functioning of payment systems because a serious crisis in the financial system can entail extensive economic and social costs. The Riksbank analyses the financial system's stability on a continuous basis with a view to the early detection of changes and vulnerabilities that could lead to a crisis (see Section 1.2).

The Riksbank cooperates closely with Finansinspektionen (the Swedish financial supervisory authority) and the Ministry of Finance. The Ministry of Finance is responsible for the regulation of financial enterprises, and Finansinspektionen is responsible for supervision (see Section 1.3). The authorities' interaction is important both in preventive work and in the event of crisis management.

#### 1.1.2 THE GENERAL LEGAL FRAMEWORK

Sweden has no one single payment systems act. Instead, there are a number of separate acts forming the legal framework for the payment and settlement systems infrastructure in Sweden.

The Sveriges Riksbank Act (lagen (1988:1385) om Sveriges riksbank) states that the Riksbank must, *inter alia*, "promote a safe and efficient

payment system". The Riksbank may provide settlement system facilities and participate in the settlement of payments. It may also grant intraday credit to participants in the system against adequate collateral. Credit institutions and all other companies supervised by Finansinspektionen have an obligation, where requested to do so by the Riksbank, to provide the Riksbank with such information as the Riksbank considers necessary in order to oversee the stability of the payment system.

The Banking and Financing Business Act (lagen (2004:297) om bank- och finansieringsrörelse) contains regulations on banking and financing operations. It also lays down, *inter alia*, licensing requirements for the conduct of such operations and guidelines governing the supervision of credit institutions.

The Securities Business Act (lagen (1991:981) om värdepappersrörelse) lays down licensing requirements for securities firms and guidelines governing the supervision of such firms, as well as stipulating the types of business in which such firms may engage. The Act is based on the EC Investment Services Directive.<sup>1</sup>

The Exchange and Clearing Operations Act (lagen (1992:543) om börs- och clearingverksamhet) regulates the authorisation of exchanges or markets in which financial instruments can be traded. Clearing services can be provided only by Sveriges Riksbank, authorised banks and certain securities firms, or by institutions granted authorisation in accordance with this Act. Finansinspektionen is tasked with granting this authorisation. VPC, the Stockholm Stock Exchange and BGC have all been granted authorisation in accordance with this Act.

The Systems for Settlement of Obligations on the Financial Market Act (lagen (1999:1309) om system för avveckling av förpliktelser på finansmarknaden) is based on the EC directive

<sup>1</sup> Council Directive 93/22/EEC of 10 May 1993 on investment services in the securities field.

on settlement finality in payment and securities settlement systems.<sup>2</sup> The Act governs the notification and approval of systems used for settling financial transactions. The systems of VPC, the Stockholm Stock Exchange and BGC have been approved and notified in accordance with this Act. The Riksbank's RIX system has also been notified, but does not have to be approved under this Act.

The Financial Instruments Accounts Act (lagen (1998:1479) om kontoföring av finansiella instrument) regulates the registration of ownership of both dematerialised financial instruments and those material instruments which have been taken out of circulation. Responsibility for maintaining the ownership register is assigned to a CSD, which is granted authorisation by Finansinspektionen. Thus far only VPC has been authorised to act as a CSD in Sweden.

The Financial Instruments Trading Act (lagen (1991:980) om handel med finansiella instrument) specifies the disclosures to be made, the information to be provided and the procedures to be followed when transactions involving securities are effected. The Act transposes the EC directive on prospectuses.<sup>3</sup> Finansinspektionen is the competent authority under both the Act and the Directive.

The Act on cross-border payments within the EU (lagen (1999:268) om betalningsöverföringar inom Europeiska ekonomiska samarbetsområdet) is based on the EC directive on cross-border credit transfers<sup>4</sup> and covers payments from individuals or legal entities in Sweden to individuals or legal entities in another EEA country, as well as payments from payers in another EEA country to payees in Sweden. The Act covers payments up to the value of €50,000.

The Cheque Act (checklagen (1932:131)) regulates the use of cheques in Sweden.

The Consumer Credit Act (konsumentkreditlagen (1992:830)) regulates the granting of credit to

consumers and contains, *inter alia*, provisions on marketing and information. It also regulates the liability to pay where a credit card is stolen.

The Act on issue of electronic money (lagen (2002:149) om utgivning av elektroniska pengar) transposes the EC directive on electronic money.<sup>5</sup> It lays down, *inter alia*, licensing requirements for issuers of electronic money and guidelines governing the supervision of such issuers.

The Act on measures against money laundering (lagen (1993:768) om åtgärder mot penningvätt) contains rules to prevent money laundering. For example, it obliges financial institutions to check the identity of those who wish to enter into a business relationship with them and to report to the police any circumstances that may be indicative of money laundering.

The Companies Act (aktiebolagslagen (2005:551)) regulates public limited companies and shareholdings. The Act is applicable to those financial institutions that are established as limited companies.

The Bankruptcy Act (konkurslagen (1987:672)) regulates bankruptcy proceedings. It lays down rules on, *inter alia*, when a company can be declared bankrupt and how a bankrupt's estate should be liquidated.

2 Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement finality in payment and securities settlement systems.

3 Directive 2003/71/EC of the European Parliament and of the Council of 4 November 2003 on the prospectus to be published when securities are offered to the public or admitted to trading and amending Directive 2001/34/EC.

4 Directive 97/5/EC of the European Parliament and of the Council of 27 January 1997 on cross-border credit transfers.

5 Directive 2000/46/EC of the European Parliament and of the Council of 18 September 2000 on the taking up, pursuit of and prudential supervision of the business of electronic money institutions.

## 1.2 THE ROLE OF THE CENTRAL BANK

### 1.2.1 GENERAL RESPONSIBILITIES

The Riksbank is Sweden's national central bank and is accountable directly to the Riksdag, the Swedish parliament. Under the Sveriges Riksbank Act, the Riksbank's main tasks are to maintain price stability and to promote a safe and efficient payment system.

In order to fulfil its responsibility for promoting a safe and efficient payment system, the Riksbank oversees payment systems and provides certain operational services (see Sections 1.2.2 and 1.2.3 below). The tasks and responsibilities associated with the Riksbank's oversight activities have been assigned to its Financial Stability Department, while the operational activities have been assigned to its Market Operations Department.

### 1.2.2 PAYMENT SYSTEMS OVERSIGHT

The systems that the Riksbank oversees are the major systems used for making payments and for trading and delivering financial products. These are listed below.

- RIX: the large-value payment system for settlement of Swedish krona payments, which is owned and operated by the Riksbank.
- VPC: a clearing organisation providing a securities settlement system for settlement of transactions in Swedish shares and debt securities and holding a register containing details of who owns those securities. VPC's system also manages the pledging of securities.
- Stockholm Stock Exchange: the central market-place for trading in shares and derivatives. Its operations also cover, to a certain extent, debt securities. However, it is primarily in its function as a central counterparty and clearing organisation for derivatives that the Stockholm Stock Exchange is overseen by the Riksbank.

– Bankgirocentralen BGC: the main intermediary for retail payments between Swedish banks. BGC administers the Bankgirot system and manages the operation of both this system and the Dataclearing system. Card payments – both cash withdrawals and purchases – also pass through BGC's system. BGC also manages debit transactions, such as direct debits.

The proper functioning of these systems lessens the risk of problems arising somewhere in the financial markets or in a particular institution and spreading to other participants or markets. It also reduces the risk of disruptions occurring in some part of the infrastructure and spreading from there.

By continuously evaluating the components of these systems on the basis of international norms and standards, the Riksbank can act to make the infrastructure capable of withstanding shocks of various kinds. The results of these assessments are published on the Riksbank's website and presented in the Riksbank's Financial Stability Report on an annual basis.

The Riksbank also monitors developments in various payment instruments, such as cash, cards and credit transfers. Ad hoc studies have been carried out on, for instance, the prices and costs of various payment instruments in Sweden.

The Riksbank is also involved in the cooperative oversight both of TARGET, within the framework of the European System of Central Banks (ESCB), and of CLS and SWIFT, within the framework of the Bank for International Settlements' Committee on Payment and Settlement Systems (CPSS), of which the Riksbank is a member.

### 1.2.3 OPERATIONAL ROLE

The Riksbank has a central role in the Swedish payment system. The Riksbank ensures the supply of banknotes and coins in Swedish kronor and operates the large-value payment

system RIX, in which Swedish krona payments can be sent.

The Sveriges Riksbank Act states, *inter alia*, that the Riksbank has “the exclusive right to issue banknotes and coins” in Swedish kronor and that the Riksbank “shall be responsible for the provision of Sweden’s banknotes and coins”. The distribution of banknotes and coins is, however, a task for the banks. The Riksbank has recently reduced its number of branches to two and has let the banks create their own depots for banknotes and coins where these are most needed. This allows unnecessary transportation to and from the Riksbank to be avoided and a reduction in the total number of cash deliveries. Each bank receives remuneration for its individual store of banknotes and coins held in a depot, provided that it observes the principles established by the Riksbank.

The Riksbank provides and operates the large-value payment system RIX. All banks have access to accounts in RIX, either directly or via an intermediary (i.e. a clearing bank). When banks make payments to one another, they transfer funds via accounts in RIX. Participants in RIX include, in addition to the major Swedish banks and the Swedish National Debt Office (which is responsible for the Swedish government’s financial administration), clearing and settlement organisations such as VPC, the Stockholm Stock Exchange and BGC, as well as a number of foreign banks, including CLS. RIX participants may borrow from the Riksbank during the day for the purpose of evening out payment flows. There are no formal limits for this type of credit, as long as the participants have adequate collateral.

The Riksbank is also the one authority in Sweden which is in a position to provide emergency liquidity assistance where problems are so serious that the entire financial system is threatened.

#### **I.2.4 ACTIVITIES IN THE AREA OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

The Riksbank does not provide securities clearing and settlement systems, but the payment legs of both derivatives and securities transactions between banks are settled in central bank money. Derivatives payments resulting from Stockholm Stock Exchange operations are settled directly in the Riksbank’s large-value payment system RIX, and securities and derivatives transactions involving deliveries of securities are settled in central bank accounts administered by VPC.

#### **I.2.5 COOPERATION WITH OTHER INSTITUTIONS**

##### ***Memoranda of understanding***

The Riksbank has signed a memorandum of understanding (MoU) on cooperation in the fields of financial stability and crisis management with the Swedish government (Ministry of Finance) and Finansinspektionen. All three parties have tasks related to the stability of the financial system. The MoU provides guidelines for cooperation and information sharing between the three parties in the fields of financial stability and crisis management, and also contains a more detailed description of the division of labour and cooperation between the Riksbank and Finansinspektionen.

The Riksbank has also signed a number of other MoU, such as the MoU on cooperation between central banks, ministries of finance and supervisory authorities of the European Union in financial crisis situations; the MoU on cooperation between the Nordic central banks in the management of financial crises in banks with cross-border operations; the MoU on cooperation between the Riksbank and the national central banks of Estonia, Latvia and Lithuania in the management of financial crises in banks with cross-border subsidiaries or branches; and the MoU on cooperation between the Riksbank and Suomen Pankki – Finlands Bank in the oversight of the central securities depositories VPC AB in Sweden and Suomen Arvopaperikeskus Oy (APK) in Finland.

### ***Committees and working groups***

The Riksbank participates in a large number of international committees and working groups. The majority of these (e.g. the European System of Central Banks' Payment and Settlement Systems Committee and the Bank for International Settlements' Committee on Payment and Settlement Systems) are linked to the Riksbank's or Sweden's membership of international institutions and groups.

The Riksbank also participates in a number of domestic committees and working groups. Two domestic committees that the Riksbank has initiated are the Payment Systems Committee (Betalningssystemrådet) and the Cash Management Advisory Board (Kontanthanteringsrådet).

The Payment Systems Committee was established in 2000 and consists of executive representatives from both the larger banks and the clearing and settlement organisations in Sweden. This committee serves as a forum for the discussion of payment systems issues at a general policy level.

The Cash Management Advisory Board was established in 2006 and consists of representatives from the cash management field. It functions as a discussion forum for issues concerning cash management and its distribution throughout the country. This discussion forum became necessary as a result of the new cash management structure in Sweden, whereby the Riksbank has reduced its number of branches to two and has allowed the banks to create their own depots for cash where these are most needed. Those invited to take part in the advisory board are representatives from banks, security transport firms, the retail trade, the trade unions and the authorities involved, such as the National Police Board, the Swedish Work Environment Agency and Finansinspektionen.

### **I.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES**

#### ***The Swedish Bankers' Association***

In the private sector, the Swedish Bankers' Association has standing committees which discuss and coordinate banks' approaches to issues concerning the processing of payments and the technical aspects of payment systems. These relate primarily to domestic issues, but also concern matters at the European level. The Swedish Bankers' Association is also the owner of one of the retail payment systems in Sweden, the Dataclearing system.

In the public sector, there are a number of authorities, in addition to the Riksbank, which are involved in various aspects of the payment system.

#### ***The Ministry of Finance***

The Ministry of Finance is the Swedish government office responsible for, *inter alia*, legislation in the financial sector. Its objectives are stability, efficiency and consumer protection. Financial stability is also an important precondition for economic stability. The Riksbank has signed a memorandum of understanding on cooperation with the Ministry of Finance and Finansinspektionen in the fields of financial stability and crisis management.

#### ***Finansinspektionen***

Finansinspektionen is the Swedish supervisory authority for financial institutions and market-places. Its main objectives are to contribute to the stability and efficiency of the financial system – by setting standards, issuing licences and conducting prudential supervision – and to promote satisfactory consumer protection. The authority carries out prudential supervision of all financial institutions, but special priority is given to systemically important groups. This includes the supervision of all clearing organisations, with the exception of the Riksbank's large-value payment system RIX. Finansinspektionen is accountable to the Ministry of Finance.

### ***The Swedish Competition Authority***

The Swedish Competition Authority (Konkurrensverket) is a state authority working in order to safeguard and increase competition in Sweden. It applies the Competition Act (konkurrenslagen (1993:20)). The Act is based on the competition rules of the European Community and contains two prohibitions, precluding both anti-competitive cooperation between undertakings and the abuse of a dominant position. It also contains provisions regarding the supervision of mergers. The prohibition of anti-competitive price collusion has in some cases led to changes in the pricing of different retail payment services.

### ***Consumer protection agencies***

The Swedish Consumer Agency (Konsumentverket) is the government agency responsible for consumer protection in all areas, including payment systems. In practice, customers can often turn to the Swedish Consumers' Banking and Finance Bureau (Konsumenternas bank- och finansbyrå), which is an independent service established to provide consumers with objective information about financial services and help them in any disputes with their financial service providers. The service is financed by the Swedish Bankers' Association, the Swedish Mutual Fund Association and the Swedish Securities Dealers Association. Finansinspektionen and the Swedish Consumer Agency are both represented on its board.

### ***The Swedish National Debt Office***

The Swedish National Debt Office is an agency reporting to the Ministry of Finance which is responsible for financing the national debt. The Swedish National Debt Office participates in the RIX system as the government agency responsible for the processing and management of government payments.

## **2 PAYMENT MEDIA USED BY NON-BANKS**

### **2.1 CASH PAYMENTS**

Pursuant to Chapter 9, Article 14 of the Instrument of Government, the Riksbank has the exclusive right to issue banknotes and coins. Banknotes are issued in five denominations – 20 kronor, 50 kronor, 100 kronor, 500 kronor and 1,000 kronor – and coins are issued in four denominations – 50 öre, 1 krona, 5 kronor and 10 kronor. The stock of banknotes and coins in circulation varies during the year, with peaks just before major public holidays and monthly wage and salary payments, when public demand for cash rises. At year-end 2006 the stock of banknotes and coins in circulation totalled SEK 112 billion (€12.4 billion).

Cash is used primarily in transactions involving small values, where the seller and buyer meet directly. Cash payments still account for a large proportion of the number of transactions in the Swedish economy, although this proportion has decreased in recent years in favour of the use of cards. As there are no overall statistics on the use of cash, this can only be estimated. Measuring the value of currency in circulation ("M0" in economic terminology) in relation to GDP can give an indication of cash use. Over time, this measure has declined in Sweden. Since 1950 the value of banknotes and coins as a percentage of GDP has more than halved, falling from 10% in that year to 3.2% in 2005. This reflects the emergence of alternative payment instruments, particularly card payments.

Estimates derived using other methods suggest that the use of cash in Sweden has also declined in recent years. A study carried out by the Riksbank<sup>6</sup> shows that the percentage of cash payments in registered trade fell from just over 75% at the beginning of the 1990s to almost 60% at the end of the 1990s.

<sup>6</sup> Andersson and Guibourg, "The use of cash in the Swedish economy", Economic Review 2001:4, Sveriges Riksbank.

The availability of cash has increased over the past decade as a result of the growing number of ATMs. Although there are two different brands of ATM, there is only one network in the sense that the underlying systems – some of which are proprietary, while others are owned collectively by a group of banks – are linked to one another. Individuals can thus make withdrawals at any branch of any bank or at any ATM, irrespective of the bank with which their account is held.

## 2.2 NON-CASH PAYMENTS

### 2.2.1 CREDIT TRANSFERS

Countries' payment systems are often either credit transfer-based or cheque-based. Sweden has a largely credit transfer-based (giro-based) payment system. In terms of value, credit transfers accounted for 91% of the total value of non-cash payments effected in 2005. This figure is slightly lower than that at the beginning of the 2000s. However, credit transfers as a percentage of the total number of transactions decreased by a third during the same period. This is partly due to the fact that credit transfers between postal giro accounts have, since 2001, not been included in the statistics, since these are now internal transactions within Nordea,<sup>7</sup> and partly due to the rapid growth of card payments during this period. Cards now account for 61% of the total number of transactions (see Section 2.2.4).

The bulk of all credit transfers by households and companies are giro payments. A giro payment is a special form of transfer which uses a special number – rather than a bank account number – to identify the sender and recipient of the payment. Giro services are generally included in the package of services which banks offer their customers when they hold a bank account. These services cover a wide range of transactions, such as invoice payments, supplier payments and salary payments.

Most credit transfers (approximately 94% in terms of value) are non-paper-based. Those

credit transfers which are paper-based are initiated primarily by households. However, households are increasingly submitting their payment orders electronically by means of internet banking services. Companies for the most part submit their payment orders using electronic media.

### 2.2.2 CHEQUES

The number of cheque transactions has decreased substantially since the beginning of the 1990s. Around 1 million cheque transactions were conducted in 2005, with a total value of SEK 30 billion (€3.2 billion). There are a number of possible explanations for this development. One is the growing number of ATMs, which have made cash more easily available at any time of the day, thereby reducing the need for cheques as a payment instrument. A second reason is the growing importance of various EFTPOS systems, which, from a practical point of view, should make payment by card more attractive. A third factor – and probably the most significant – is the fact that Swedish banks have implemented a clear policy of reducing the number of cheque payments, because these are considerably more costly than alternative means of payment, such as debit cards. To this end, at the beginning of the 1990s one of the major banks introduced a relatively high transaction charge (SEK 15 (€1.66)) for cheque transactions. The other banks subsequently followed this example and also imposed heavy fees, with the result that the use of cheques fell dramatically.

In Sweden, all cheques are truncated, that is to say, the bank at which the cheque is cashed retains the physical document and the information is transmitted by electronic media to the drawee bank. The cheques are truncated in the Dataclearing system (see Section 3.3.3). All cheques can be cashed at any bank branch, irrespective of the bank on which they are drawn.

<sup>7</sup> Following its acquisition by the commercial bank Nordea, Postgirot (now PlusGirot) has become an internal bank system.

### 2.2.3 DIRECT DEBITS

The use of direct debits, called “autogiro” in Sweden, has risen during the 2000s, increasing from 91 million transactions in 2000 to 160 million in 2005. However, direct debits still account for a relatively limited share – around 9% – of the total number of non-cash transactions. The reason that direct debits do not account for a larger share of the total number of non-cash transactions may be that the low cost of alternative payment methods means customers have no strong incentive to use direct debits. Both BGC and PlusGirot administer direct debit systems in Sweden.

### 2.2.4 CREDIT AND DEBIT CARDS

Card payments represent the payment instrument that has increased the most over the past ten years, with the use of credit cards increasing more than fourfold and the use of debit cards increasing almost tenfold during this period of time. In terms of volume, card payments now account for 61% of all non-cash transactions in Sweden.

Debit cards have gained the most in importance. Debit cards linked to bank accounts usually combine several functions, namely those of a debit card for EFTPOS and paper-based transactions; those of an ATM card for cash withdrawals; and those of a credit card to the extent that the bank account to which the card is linked has an overdraft facility. In addition, these cards are usually provided with a link to international card systems such as Visa or MasterCard, which also makes them useful for international travel.

A rapid structural transformation has taken place in the area of retail payments in recent years, with increasing automation the main driving force. One important indicator of this transformation is the fast-growing number of EFTPOS terminals and other points of sale in shops. The number of terminals operated by banks increased threefold between 1995 and 2005, rising from 60,000 terminals in 1995 to almost 180,000 in 2005. The number of POS

transactions increased more than sevenfold during this period.

Another development in this field has been the growing importance of various retailer cards over the past decade. The volume and value of transactions using these cards have risen considerably, as has the number of issuers. This development can, in part, be explained by the technical developments mentioned above, as card payments have become cost-effective from the retailer’s point of view and eliminate the risk of theft and robbery associated with the handling of large volumes of cash. Retailer cards also open up new channels for marketing vis-à-vis customers.

### 2.2.5 PREPAID CARDS

In 1998 a number of Swedish banks launched the CASH card. This was an electronic money – or e-money – scheme (i.e. a scheme whereby a prepaid value is stored on a microprocessor embedded in the card). The CASH card was primarily intended as a replacement for banknotes and coins in small-value transactions at small points of sale, where terminal costs are too high. However, the new instrument of payment had no success among Swedish consumers and was withdrawn from the market in autumn 2004.

## 2.3 RECENT DEVELOPMENTS

Use of the internet is widespread in Sweden. Today more than 80% of the population in Sweden have access to the internet and 60% regularly use the internet services provided by banks. This has resulted in increased use of the internet as a channel for payments. Internet payment solutions usually entail the adaptation of traditional payment instruments in line with the new payment channel, while other parts of the infrastructure remain the same. A good example of this is credit transfers via the internet. There are now electronic bill presentation services linked to the internet credit transfer service. The payment recipient sends the invoice information directly to the recipient’s internet banking application, where

the recipient can see the entire invoice and pay it like an ordinary internet credit transfer, without having to key in all the information about the payment itself.

Most banks offer some form of “secure” payment solution for internet shopping. The most commonly used in Sweden is the direct payment method, which enables a shop to link its customers to their internet banking applications, from where they can make payments for the value of their purchases by means of credit transfers from their accounts to the shop’s account with the same bank. Many Swedish banks also offer different types of “secure” card payment. One such application is called 3D Secure/Secure Payment Application (SPA) and is based on the security standards agreed by Visa and MasterCard. This application is being installed in internet shops around the world. At present, however, this method is used by relatively few card customers. The application can be supplemented with simpler types of e-card that provide greater security for the buyer, even when purchasing from e-retailers that do not use 3D Secure/SPA.

### 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

#### 3.1 GENERAL OVERVIEW

The Swedish interbank payment system consists of the large-value payment system RIX and the retail payment systems Bankgirot and Dataclearing. The RIX system is operated by the Riksbank, and the two retail payment systems are operated by the clearing organisation Bankgirocentralen BGC.

#### 3.2 RIX

The Riksbank’s large-value payment system RIX can be described as the hub of Sweden’s payment system, in that it handles all Swedish krona payments between banks and other

players. The settlement of payments in RIX follows the principle of real-time gross settlement (RTGS). This means that payments are settled one at a time, and the funds transferred to participants’ accounts become immediately accessible in those accounts and can be used for other payments. Payments between participants – both on their own account and on behalf of customers – are settled through the RIX system.

Participants in the RIX system include, in addition to the major Swedish banks and the Swedish National Debt Office, clearing and settlement organisations such as BGC, the Stockholm Stock Exchange and the Swedish central securities depository VPC, as well as a number of foreign banks, including CLS (see Chart 1).

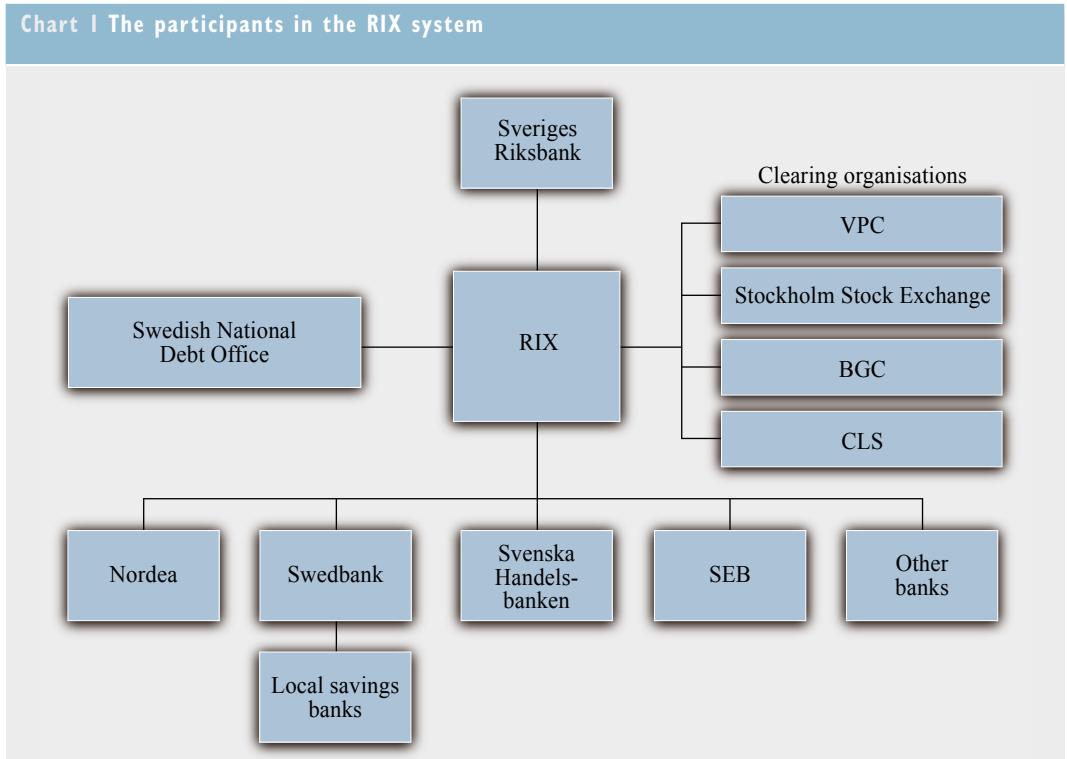
The RIX system was developed between 1988 and 1990 and began operations in 1990. Between 1999 and 2006 there were two RIX systems in operation in Sweden. One system was used to settle Swedish kronor, and the other, which was part of the TARGET system, was used to settle euro transactions.<sup>8</sup> Both systems were operated by the Riksbank. Since there was only limited interest among participants in Sweden in taking part in the new TARGET2 system, the Riksbank decided to close the euro settlement system at the end of 2006. Furthermore, the current technical system RIX for settlement of Swedish krona transactions is to be replaced with a more modern RTGS system in the fourth quarter of 2007.

#### 3.2.1 OPERATING RULES

The terms and conditions governing participation in RIX are laid down in the Rules and Regulations for RIX and Monetary Policy Instruments (Regelverk för RIX och penningpolitiska instrument). The RIX regulations are available to participants and the general public. They are circulated to the participants in RIX every time they are amended

<sup>8</sup> The system for Swedish krona settlement was called K-RIX, and the system for euro settlement was called E-RIX.

Chart I The participants in the RIX system



or updated, and they can also be downloaded from the Riksbank's website.

### 3.2.2 PARTICIPATION IN THE SYSTEM

The Riksbank owns and operates the RIX system. The participation of institutions in the system is subject to the approval of the Riksbank. Participation in the RIX system is open to the following categories of institution: credit institutions; investment firms (provided that they are authorised to trade in financial instruments or to provide guarantees in connection with issues of securities, and are counterparties in the Riksbank's money market operations); clearing organisations; government agencies (which are responsible for central government payments and cash management); and foreign central banks.

Each institution needs to fulfil certain prerequisites in order to participate in the RIX system, such as having sufficient technical, administrative and financial capacity, in order

to prevent disruptions to the RIX system. The institutions must also be participants in SWIFT.

At the end of 2006 RIX had 21 participants, including the Riksbank. Of these, 15 were banks, including seven branches of foreign banks. The other institutions were BGC, VPC, the Stockholm Stock Exchange, CLS and the Swedish National Debt Office.

Direct participants in RIX have an account with the Riksbank. A credit facility can be attached to the accounts of participants which are credit institutions, securities firms or government agencies. The Riksbank can grant intraday credit and overnight credit in Swedish kronor against collateral.

Participants can make payments on behalf of other institutions, and some smaller banks use this type of arrangement. For instance, local savings banks participate indirectly in the RIX

system via Swedbank, which acts as their clearing bank.

### 3.2.3 TYPES OF TRANSACTION HANDLED

The types of transaction handled in the RIX system include both individual transactions (whether on the participant's own account or on behalf of its customers) and aggregated transactions.

Under an agreement between the participants in the RIX system, the minimum amount for individual payments, such as interbank payments and customer-related payments, is currently SEK 0.5 million (approximately €55,300). Payments below this amount are aggregated and settled at predetermined times.

The participants in the RIX system have agreed on certain conditions for the settlement of these bilaterally and multilaterally aggregated payments, which are divided into different categories. For each category, settlement takes place during a fixed and limited period of the day. The purpose of this is to reduce the amount of liquidity used for the settlement of each category.

### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

The RIX system operates on an RTGS basis. This means that payments are settled one by one and that the funds which are transferred to the participants' accounts at the Riksbank are immediately available for new payments whenever the system is open.

The RIX system operates on a mainframe computer and is developed, owned and operated by the Riksbank. The Riksbank runs the central computer system, and the RIX participants use their own equipment in their respective offices.

Communication via the RIX system is based on the SWIFT messaging system (see also Section 3.2.5).

The RIX system has a queuing function which stores participants' payments in a queue when

there is insufficient liquidity. The payments are settled automatically when liquidity becomes available. This function applies the first in, first out (FIFO) principle (i.e. the first payment in the queue is settled first). RIX participants can depart from the FIFO principle by changing the order of the payments in the queue.

Participants can receive intraday liquidity from the Riksbank against collateral. This is managed through an ancillary system, Colin.

Participants can keep track of their transactions and the status of their Riksbank accounts at all times via a dedicated, encrypted online connection. This connection can also be used to register transactions manually if the participant cannot use its standard system of communication.

The opening hours for RIX are from 7 a.m. to 5 p.m. CET every working day.

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

As mentioned above, communication via the RIX system is effected by means of the SWIFT messaging system. The RIX system uses a SWIFT service called SWIFT FIN Copy, which stores payment messages and forwards them to the recipient once settlement has been effected. Messaging technology allows participants to send payment instructions directly from their own systems. Payments can be processed automatically, which facilitates the continuous settlement of payments throughout the day.

If a bank suffers a disruption, it can enter transactions in the RIX system manually via RIX-Online. It is also possible to fall back on the Riksbank's former online system for sending and receiving payments in the event of disruption to the SWIFT network or the communication system.

The Riksbank has backup computer facilities located at physically separate operating sites. Communications with the computer facilities are duplicated, and all production data are updated in real time. If a breakdown in

operations should occur, a transfer to the RIX backup system can take place within two hours.

### 3.2.6 SETTLEMENT PROCEDURES

As mentioned in Section 3.2.3, the participants in RIX have agreed on a settlement schedule for bilaterally and multilaterally aggregated payments, while the settlement of individual payments, such as interbank and customer payments, can take place whenever the system is open (7 a.m. to 5 p.m. CET every working day).

### 3.2.7 CREDIT AND SETTLEMENT RISK

Since 1 January 1995 full collateral has been required for both intraday and overnight borrowing. The Riksbank can grant intraday credit and overnight loans in Swedish kronor.

As a result of the Riksbank's fine-tuning operations and interbank transactions, liquidity between the banks is equalised at the close of business.

### 3.2.8 PRICING

The pricing of the system is based on the principle of full cost recovery. The table below shows the price list for the RIX system in 2007:

Membership fees <sup>1</sup>	Monthly fee
Tier 1 0-2,000 transactions per year	SEK 40,000 (€4,425)
Tier 2 2,001-18,000 transactions per year	SEK 65,000 (€7,190)
Tier 3 18,001-70,000 transactions per year	SEK 90,000 (€9,955)
Tier 4 70,001-200,000 transactions per year	SEK 180,000 (€19,910)
Tier 5 More than 200,000 transactions per year	SEK 260,000 (€28,760)
<b>Transaction fees</b>	SEK 5 (€0.55)
<b>New member in the RIX system</b>	SEK 75,000 (€8,296)

<sup>1</sup> Transactions per year are based on the number of sent payments in the period Q4 2005-Q3 2006. New members are automatically placed in tier 2.

### 3.2.9 STATISTICAL DATA

In 2006 the number of transactions in the RIX system averaged around 6,800 per day, with a daily average turnover of almost SEK 491 billion (€53 billion). Weekly average turnover in the RIX system corresponded fairly well to Sweden's annual GDP.

### 3.2.10 REPLACEMENT OF THE TECHNICAL SYSTEM

At the beginning of 2008 the current RIX system, which is an old system developed in-house and run on a mainframe platform, will be replaced by a modern RTGS system on a UNIX platform supplied by Perago/SIA. This will reduce the system's operating costs and also add new functions to the system.

## 3.3 RETAIL PAYMENT SYSTEMS

The bank-owned clearing organisation BGC is the main intermediary for retail payments between banks in Sweden. It is mainly giro payments and transfers that pass through BGC's system. BGC administers the Bankgirot system and processes the payments made through this system. BGC also operates the Dataclearing system, which manages both transfers between accounts and cheque payments (including payment orders) on behalf of the Swedish Bankers' Association. Card payments – both aggregated cash withdrawals and purchases – are also settled via BGC's system. BGC also manages debit transactions, i.e. transactions initiated by the payment recipient rather than the payment sender (e.g. direct debits).

A description of the Bankgirot system is given in Section 3.3.1, followed by a description of the clearing services that BGC provides outside the Bankgirot system in Section 3.3.2. Brief information about the Dataclearing system is given in Section 3.3.3.

### 3.3.1 BANKGIROT

The Bankgirot system is an open system, i.e. all banks in Sweden can apply for access to the system.

Transfers between banks are made via a Bankgirot number. Each individual Bankgirot number denotes a particular bank account. BGC compiles and transmits information to the banks regarding the size of the transfers made and the accounts which should be credited. The transactions are cleared in the BGC system as bilateral net transactions. This means that only one payment obligation arises for each pair of participants. The actual settlement of the net positions occurs through the participants' accounts in the Riksbank's RIX system (for Swedish krona payments; see Section 3.2) or in Suomen Pankki – Finlands Bank's BoF-RTGS system (for euro payments).

### 3.3.1.1 RULES OF THE SYSTEM

The Bankgirot system's regulations consist of bilateral agreements between BGC and the participating banks. The basic provisions are laid down in the Main Agreement, which specifies the fundamental obligations and entitlements of all parties. A number of bilateral "subordinate" agreements are then linked to the Main Agreement.

### 3.3.1.2 PARTICIPATION IN THE SYSTEM

As indicated above, the Bankgirot system is an open system.

Participation in the Bankgirot system can take different forms. There are direct and indirect participants. A direct participant is a bank that is directly connected to the Bankgirot system, while an indirect participant is connected to the Bankgirot system through another direct participant.

A direct participant can, in turn, be a direct or an indirect clearing member. The difference is that a direct clearing member settles using its own account in the Riksbank's RIX system or through BGC's account in Suomen Pankki – Finlands Bank's BoF-RTGS system, while an indirect clearing member settles using a direct clearing member's account.

The entry requirements are the same for all direct participants, which all sign the same Main Agreement.

At the end of 2006 the Bankgirot system had 19 direct participants and 78 indirect participants. Six of the direct participants were foreign-owned, subsidiaries or branch offices.

### 3.3.1.3 TYPES OF TRANSACTION HANDLED

The Bankgirot system manages a number of different types of payment product, which are designed to meet different needs. These include, for instance, giro payments, payments by companies to suppliers, salary transfers and tax payments. The Bankgirot system also manages debit transactions, that is to say transactions initiated by the payment recipient rather than the payment sender. This is the case, for instance, with direct debits.

The banks distribute, in turn, Bankgirot's range of payment products to their own corporate and private clients. The openness of the system means that a bank customer can make a payment to another customer via BGC even if that customer has an account with a different bank.

Transactions via the Bankgirot system can be initiated in many different ways, for instance over the counter at a bank branch, or by means of a payment instruction sent by post or via the internet. Companies and public authorities can also deliver files containing payment information directly to BGC.

The vast majority of transactions are in Swedish kronor, but certain types of credit transaction in euro also pass through the Bankgirot system.

### 3.3.1.4 OPERATION OF THE TRANSFER SYSTEM

Management of transactions in the Bankgirot system varies for different types of transaction. For certain transactions, the Bankgirot system manages both authorisation and coverage checking, as well as clearing and settlement. Other transactions, known as predebited transactions, are authorised at the time of the transaction by other systems. The Bankgirot

system then receives information from these systems and is responsible only for clearing and settlement. Examples of predebited transactions are paper-based giro transactions and giro transactions via an internet banking application. In the latter case, authorisation takes place in the bank's internal system, and in the former it occurs in Privatgirot,<sup>9</sup> which manages paper-based giro transactions (which are initiated mainly by households). Payment information for these transactions which is sent by post is machine-read, predebited and converted into computer files before being sent on to BGC.

### 3.3.1.5 SETTLEMENT PROCEDURES

Each of the payment products has one or more predetermined settlement times per day. The latest time for delivery of the payment order to BGC varies by payment product. These times range from 5 p.m. to 11 p.m. CET on the day prior to the date of payment. Coverage checking and settlement take place on the same day, with the exception of predebited flows, for which coverage can be checked on the preceding day. Outgoing payments can be effected by giro on the day of payment if they arrive at BGC before 11.30 a.m. CET, and account deposits can be dealt with until 2 p.m. CET on the same day.

### 3.3.1.6 FINAL SETTLEMENT

The majority of transactions are cleared in the BGC system as bilateral net transactions. This means that only one payment obligation arises for each pair of participants. The actual settlement of the net positions does not, however, take place in BGC's system, occurring instead through the participants' accounts in the Riksbank's RIX system (for Swedish krona payments) or through BGC's accounts in Suomen Pankki – Finlands Bank's BoF-RTGS system (for euro payments).

On behalf of its participants, BGC supplies the data on which this settlement in RIX or BoF-RTGS is based. In addition to this, the BGC system sends information back to the payer and payee on cleared and settled transactions. This is done in paper form or by electronic file transfer and is, to a certain extent,

automated and integrated with the customers' internal accounting systems.

### 3.3.1.7 VOLUME AND VALUE OF TRANSACTIONS

In 2006 559 million payment transactions were processed by the Bankgirot system, with a total value of SEK 5,724 billion (€619 billion).

### 3.3.1.8 PRICING

BGC charges the banks for their use of the Bankgirot system. Bankgirot's pricing model is based on the handling of transactions and includes both the development of payment services and customer service. The level of those fees is determined on a yearly basis. New participants in Bankgirot pay an entry fee based on the actual cost of connecting them to the Bankgirot system. Other products and systems operated by BGC have different price models, and these are laid down in product or system-specific agreements.

### 3.3.2 BGC'S CLEARING SERVICES OUTSIDE THE BANKGIROT SYSTEM

BGC also manages certain transactions that are not derived from payment products offered within the Bankgirot system. Such payments include cheque payments, transfers and internet payments not using a Bankgirot number, card payments and cash withdrawals from ATMs. All of these payments are initiated in systems other than the Bankgirot system.

Dataclearing is used mainly for standard bank transfers from account to account, not using a Bankgirot number, and for cheque payments. Dataclearing is operated by BGC on behalf of the Swedish Bankers' Association.

CEKAB – one of many companies jointly owned by the banks – takes care of the authorisation and clearing of cash withdrawals from ATMs and the authorisation of card payments. Clearing of card payments takes

<sup>9</sup> Today BGC only deals with payments in an electronic format. The management of paper-based payments has been sold to Privatgirot, which translates these payments into an electronic format and checks that there are adequate funds for them. The information is scanned in and then supplied to BGC.

place, however, via the international Visa and MasterCard networks. The aggregated amounts for cash withdrawals from ATMs and MasterCard's card payments in Sweden are calculated multilaterally and sent on via BGC for settlement in the RIX system.

BGC also sends settlement information to the RIX system on behalf of the banks for the distribution of cash to and from banks.

Bankgirot's payment services also enable giro payments to be made to PlusGirot accounts in certain cases. It is also possible to make deposits via Bankgirot in personal accounts held with Nordea. PlusGirot, formerly Postgirot, was purchased by Nordea in 2001 and is now an internal system for transfers between accounts held with Nordea.

### 3.3.3 DATACLEARING

Dataclearing is owned by the Swedish Bankers' Association, but operated by the clearing organisation BGC (see Section 3.3.2).

Dataclearing is used primarily for credit transfers that go directly from account to account without the use of a giro number. Account numbers and payment messages are transferred in accordance with a standardised format, which allows for straight-through processing (STP). Dataclearing is also used for cheque payments, including payment orders.

85.6 million transactions passed through Dataclearing in 2006, with a total value of SEK 1,849 billion (€199.8 billion).

At the end of 2006 Dataclearing had 23 participants. Seven of the participants were foreign-owned, subsidiaries or branch offices.

## 4 SECURITIES SETTLEMENT SYSTEMS

### 4.1 TRADING

#### 4.1.1 INSTITUTIONAL AND LEGAL ASPECTS

The Swedish securities market comprises the equities and derivatives exchange, the money and bond market, and OTC derivatives. The Stockholm Stock Exchange offers a trading platform for equities, derivatives and some fixed income products. Equities, bonds, money market instruments and certain derivatives instruments are dematerialised in the VPC system, which also handles the clearing and settlement of these instruments. In October 2006 the Stockholm Stock Exchange adopted OMX's Nordic List, a set of harmonised listing requirements for the exchanges in Copenhagen, Stockholm and Helsinki and a common way of presenting listed companies.

The Stockholm Stock Exchange clears and settles the derivatives traded on its exchange, together with some OTC derivatives. (The Stockholm Stock Exchange and VPC are described in more detail in Sections 4.2 and 4.3 respectively.) The Stockholm Stock Exchange employs the SAXESS system for the trading of equities and the CLICK system for the trading of derivatives.

Finansinspektionen is responsible for the authorisation and supervision of exchange and clearing and settlement organisations (see Section 1.3).

Only exchange members are allowed to trade directly on the Stockholm Stock Exchange. Members must have €730,000 in capital. Furthermore, as a general rule, they should be authorised by the relevant public authority to act either as an investment firm or as a credit institution authorised to conduct investment services. In Sweden, this authority is Finansinspektionen. The exchange's rules allow a non-financial company to become a member of the Stockholm Stock Exchange, but there are currently no such members. Furthermore, members must meet technical requirements,

arrange for the clearing of transactions and have at least two employees who meet the requirements imposed on traders for trading via SAXESS. In order to be authorised as a trader in the SAXESS system, an employee must: have at least six months' experience in securities trading in a member firm; have a satisfactory, documented knowledge of stock market legislation, economics, financial markets and financial analysis; and have passed the SAXESS training course.

76 members traded on the cash markets at the end of February 2007, and 50 of these were foreign remote members, i.e. without a presence in Sweden. At that time 43 members traded derivatives, and 18 of these were foreign remote members.

The majority of trading in fixed income instruments is carried out over the counter. The Stockholm Stock Exchange's Fixed Income Exchange offers both an electronic market-place for interbank trading in government bonds and a system called SOX for trading in bonds and money market instruments among smaller and medium-sized investors.

The Stockholm Stock Exchange operates an alternative market called First North in Stockholm. This is an ancillary operation for the Stockholm Stock Exchange and is not a regulated market. Additionally, there is one other exchange and one authorised market operating in Sweden. The exchange, Nordic Growth Market (NGM) AB, is licensed by Finansinspektionen. It offers both equities and derivatives, traded with the Tellus trading system. AktieTorget AB is an authorised market-place as at December 2006. It uses the SAXESS trading system and the NOREX rules. Both market-places provide a primary and a secondary market for relatively small companies with growth potential.

#### **Legal basis**

Trading is regulated mainly by the Exchange and Clearing Operations Act and the Financial Instruments Trading Act (1991:980).

#### **Basic statistics**

The market value of the shares listed on the Stockholm Stock Exchange was SEK 4,275 billion (€472.9 billion) at the end of 2006. The value of all transactions conducted in 2006 was SEK 5,521 billion (€596.6 billion). On average, 69,687 transactions were traded every day in 2006, with an average total daily value of SEK 21,997 million (€2,376.9 million). During 2006 an average of 553,793 Swedish, Finnish and Danish derivatives contracts were traded every day, and an average of 389,766 of these were traded on the Stockholm Stock Exchange.

The total stock of securities outstanding on the bond market had a value of SEK 1,879 billion (€207.8 billion) at the end of 2006. The central government was the largest issuer, with an outstanding stock of bonds worth SEK 766 billion (€84.7 billion) in December 2006, while mortgage institutions had a stock of SEK 747 billion (€82.6 billion). On the money market, the stock of instruments had a total value of SEK 516 billion (€57.1 billion) at the end of 2006. The central government had an outstanding stock of bills worth SEK 259 billion (€28.7 billion), and those of mortgage institutions had a value of SEK 113 billion (€12.5 billion). The average daily turnover during 2006 was SEK 30 billion (€3.2 billion) for government bonds and SEK 10 billion (€1.1 billion) for mortgage bonds. For money market instruments, the average daily turnover was SEK 10 billion (€1.1 billion) for Treasury bills and SEK 3 billion (€0.3 billion) for mortgage certificates.

#### **4.1.2 OPERATIONAL ASPECTS**

##### ***Stock and derivatives market***

In 1999 the SAXESS system was introduced for trading on the Stockholm Stock Exchange (then OM Stockholm Exchange). It has subsequently been adopted by the NOREX exchanges and the exchanges owned by OMX AB. In Sweden, trading is conducted by traders operating from their own offices via PCs connected to the SAXESS computer at OMX AB. The institutional

and operational aspects of the use of the computerised SOX trading system for small-value bond and money market trades are similar to those involved in the trading of equities. Trading in SOX is carried out through the SAXESS system, and the following description therefore applies also to this type of fixed income trading. The instruments traded include shares, bonds, premium bonds, convertibles and fixed interest securities.

SAXESS is an order-driven trading system. Bids and offers are automatically matched to generate deals when price, volume and other order conditions are met. Trade orders are executed in accordance with price and time priority. For very large trading lots, deals may be made by telephone, but these must be entered into the SAXESS system manually.

Information regarding changes in the market is broadcast continuously. The information is displayed in real time in the form of order books, market summaries, concluded deals, index information and reports of various kinds. All traders receive the information at the same time. Traders can thus enter their orders without having to be in personal contact with the other party. At the same time, they gain an instant overview of the market situation.

Most trading takes place in the trading lot market, where shares are traded in lots. In order to maintain an efficient market for small orders as well, a specific odd lot market has been developed. The two markets are integrated in such a way that the remaining odd lot portion of a larger order is automatically moved to the odd lot market if the volume of the order falls below that of a trading lot.

Automatic matching in the odd lot market can be performed only at the last paid price in the trading lot market. Deals can also be generated between trading lot orders and odd lot orders. Before continuous trading begins, there is an opening pretrade session during which the traders can enter limit orders. The order book is not revealed during this session. The total

volume of orders for each security is accumulated, and the opening price is set at the level at which most shares can be traded. Once trading for a specific share opens, continuous trading begins.

There are two ways of closing a deal in the SAXESS system: automatic matching and off-exchange registration. Automatic matching and off-exchange registration are used for all instruments traded in SAXESS. Off-exchange registration occurs when two parties agree the terms of the trade outside of the SAXESS system. The trader must then report the deal to SAXESS within five minutes during the trading day, or no later than 15 minutes before the start of the next trading day if the deal is made after SAXESS closes. The same rule applies to internal crossings. For shares with the highest turnover, orders of 500 trading lots or less must be traded within the spread. For other shares, orders of 250 trading lots or less must be traded within the current spread.

#### ***Currencies***

Since 1999 trading on the Stockholm Stock Exchange has been possible in two currencies: Swedish kronor and euro. Listed companies may choose the trading currency, and there are three alternatives: trading in Swedish kronor, trading in euro, or trading in both Swedish kronor and euro. In all cases, the registered share capital for Swedish companies remains in Swedish kronor.

#### ***Operating hours***

In 2006 the opening hours of the SAXESS trading system were 9 a.m. to 5.30 p.m. CET.

#### ***Risk management***

In order to ensure a sound and transparent market, there is a membership agreement which governs members' obligations and listing agreements. The duties of the Stockholm Stock Exchange include monitoring members' compliance with the agreement and ensuring that members act in a manner which fosters confidence in the securities market. Surveillance is carried out with the help of electronic systems

which indicate abnormal changes in prices and volumes. Unsound, illegal or other misleading trading which contravenes existing trading rules or membership agreements is investigated and reported to Finansinspektionen.

#### ***Links to other systems***

As described above, the exchanges owned by OMX AB (the Stockholm Stock Exchange, the Vilnius Stock Exchange, the Riga Stock Exchange, the Tallinn Stock Exchange, the Copenhagen Stock Exchange, the Helsingfors Stock Exchange and the Icelandic stock exchange) are joined together in a common trading system and have adopted common rules and regulations. Oslo Børs, as a NOREX member, also uses the same system and rules.

#### ***Bond and money market***

The bond and money market is organised as a dealer market, and the market-makers are authorised by the respective issuers. All trading takes place via a market-maker acting as a counterparty. Since 2001 the Stockholm Stock Exchange has offered an electronic trading platform for government bonds. The electronic market does not handle much of the trading in Swedish fixed income instruments.

On the bond and money market, the market-makers maintain a supply of liquidity. The market-makers compete for investors' orders by quoting prices at which they will buy and sell. Customers' trades are not made directly with another customer; instead, all trades are made with a market-maker acting as a counterparty.

## **4.2 CLEARING**

### **4.2.1 INSTITUTIONAL AND LEGAL ASPECTS**

The Stockholm Stock Exchange is the only clearing organisation in Sweden which acts as a central counterparty. Stockholm Stock Exchange Ltd is a wholly owned subsidiary of the listed company OMX AB. By the end of 2006 the Swedish state owned 6.6% of capital and voting rights and was the second-largest shareholder in OMX AB. The Stockholm Stock

Exchange itself is incorporated as a separate legal entity in Sweden, and it is the legal entity Stockholm Stock Exchange Ltd which is the counterparty in derivatives clearing business. In addition to its clearing house function, the Stockholm Stock Exchange is also an exchange, as described in Section 4.1. Stockholm Stock Exchange Ltd is licensed to engage in clearing operations (pursuant to the Exchange and Clearing Operations Act). It is also supervised by Finansinspektionen and has been approved and designated under Directive 98/26/EC on settlement finality in payment and securities settlement systems.

Pursuant to the Exchange and Clearing Operations Act, the Stockholm Stock Exchange must apply the principle of free access and neutrality for its participants. Clearing membership is open to institutions authorised to deal in securities under the Securities Operations Act, or to equivalent foreign institutions (i.e. institutions supervised by Finansinspektionen or by a corresponding agency in their home country). The minimum capital requirement is SEK 10 million (€1.1 million), calculated as the shareholder's equity after tax.

The Stockholm Stock Exchange offers end-customer clearing, which means that customers (both financial institutions and private persons) normally have proprietary accounts and a direct contractual relationship with the central counterparty. A customer which is not a member of the Stockholm Stock Exchange must employ an exchange member to conduct its trades and a clearing member to administer its accounts. In the clearing process, the customer has the Stockholm Stock Exchange as its legal counterparty and not its intermediary institution. Customers which are not members of the exchange are identified only by an account number in the exchange's system, so the exchange does not know the identity of these counterparties. A special company, Clearing Control AB, which is jointly owned by the Stockholm Stock Exchange and the Swedish Securities Dealers Association, has been

established to hold the contracts between Stockholmsbörsen and these customers and to assign them account numbers. Clearing Control AB also ensures that the collateral pledged to Stockholmsbörsen is acceptable. The customer's intermediary is responsible for ensuring that the customer has signed the necessary contracts and collecting the customer's collateral.

#### 4.2.2 OPERATIONAL ASPECTS

The Stockholm Stock Exchange acts as a central counterparty for derivatives which are traded in the Stockholm Stock Exchange's trading system or which are reported to the Stockholm Stock Exchange. As soon as the deal is struck in the trading system, the transaction is transferred to the clearing system for derivatives. When the transaction is registered in the clearing system, the Stockholm Stock Exchange automatically assumes the role of central counterparty. In practice, the participant then has the Stockholm Stock Exchange as its direct counterparty.

#### Products

Clearing activities cover both derivatives products traded on the Stockholm Stock Exchange and a number of products traded outside the exchange. The Stockholm Stock Exchange does not regularly clear cash market transactions, but it does clear fixed income transactions made in its electronic system if requested to do so.

The following products are traded on the Stockholm Stock Exchange or a linked exchange and are cleared by the Stockholm Stock Exchange:

- options on Swedish, Finnish, Danish and Norwegian shares;
- futures on Danish shares;
- forwards on Finnish, Norwegian and Swedish shares;
- options and futures on the Swedish, Danish, Norwegian and Nordic share indices;

- Russian equity derivatives based on the FTSE Russian IOB Index and on the ten companies comprising that index; and
- Finnish stock loans.

In addition, the Stockholm Stock Exchange will clear some standardised fixed income products and tailor-made contracts on listed shares or equity indices and on fixed income products. The Stockholm Stock Exchange will introduce Icelandic derivatives in the course of 2007.

#### *Volumes and values*

During 2006 the Stockholm Stock Exchange's members cleared an average of 389,766 derivatives contracts per day. The average daily number of contracts for equity-related derivatives products was 337,018, while the average daily number of contracts for interest rate-related derivatives products was 52,748.

#### *Risk management*

For all outstanding contracts there must be sufficient collateral pledged to the Stockholm Stock Exchange. Collateral can be pledged either individually by each customer, or by the clearing member for both its own and its customers' obligations. Margin requirements are calculated at the end of each day, and additional collateral must be delivered before 11 a.m. CET the following day. The Stockholm Stock Exchange can also make intraday margin calls. A margin is calculated for each separate clearing account (i.e. for each end customer), but within an account the exposure is estimated on the basis of the portfolio's value.

The Stockholm Stock Exchange accepts different types of asset as collateral, for example cash in seven currencies, government securities from seven countries, certain other Swedish fixed income securities and certain Swedish, Danish, Finnish and Norwegian listed shares. Collateral is to be deposited with one of the custodian institutions accepted by the exchange. There were 11 custodian institutions in December 2006. Collateral is held separately from Stockholm Stock Exchange assets.

In the event of default by customers, the Stockholm Stock Exchange has its own financial resources in addition to the collateral received from customers. These totalled SEK 1,482 million (€163.9 million) at end-2006. The Stockholm Stock Exchange stress tests its exposures and monitors the results to calculate its capital needs.

#### ***Connections to trading systems and settlement***

Derivatives transactions which are traded on the Stockholm Stock Exchange are automatically transferred to the clearing system. Other transactions are fed into the system through interfaces with members' in-house systems.

All funds settlement (option premiums, variation margins, fees and maturing contracts) in Swedish kronor is effected daily via the Stockholm Stock Exchange account in the RIX system on a multilateral net basis. All clearing members which have an account with the RIX system in Swedish kronor – whether directly or through a settlement bank – register their net debit or credit transactions in this account no later than 11.30 a.m. CET. The Stockholm Stock Exchange confirms these transactions at 11.45 a.m. CET, at which time they are settled simultaneously and finalised. As a party to all transactions, the Stockholm Stock Exchange guarantees settlement and replaces defaulting members in the settlement process. The Stockholm Stock Exchange clears transactions in euro, Danish kroner and Norwegian kroner. It is a direct member of the RTGS system for Danish kroner, but for euro and Norwegian kroner it uses a settlement bank. The settlement bank in turn settles on the Stockholm Stock Exchange's behalf through each currency's RTGS system.

#### ***Links to other central counterparties***

The Stockholm Stock Exchange has two links with other exchanges and the respective central counterparties. These links make possible cross-border trade and central counterparty clearing. The two exchanges and clearing houses in question are:

- EDX London Exchange and LCH.Clearnet Ltd; and
- Oslo Börs and VPS Clearing ASA.

Through the link with LCH.Clearnet, members of EDX London Exchange, Oslo Börs and the Stockholm Stock Exchange are able to trade Nordic derivatives with one another. Through the link with Oslo Börs, members of the Stockholm Stock Exchange are able to trade in derivatives listed on Oslo Börs and vice versa.

#### ***Operating hours***

The Stockholm Stock Exchange system is open for clearing registration from 8 a.m. to 6.30 p.m. CET, and for trading from 9 a.m. to 5.30 p.m. CET.

### **4.3 SETTLEMENT**

#### **4.3.1 INSTITUTIONAL AND LEGAL ASPECTS**

VPC is the only clearing and settlement organisation in Sweden which operates an SSS – the VPC system – and provides CSD services. VPC provides services to support registration, issuance and account holding. All Swedish securities settled in VPC's system are issued in uncertificated, dematerialised, book-entry form and are transferred or pledged by book entry at the time of settlement.

VPC also operates a settlement system which settles stock exchange and fixed income transactions on a gross basis, with the proceeds of settlement being available at specific designated times during the day. A supplementary RTGS service is also offered. The finality of settlement is supported by the Swedish implementation of the EC Settlement Finality Directive by means of the Systems for Settlement of Obligations on the Financial Market Act (1999:1309). Under the Financial Instruments Accounts Act, registration in a CSD account (known as a VPC account in the VPC system) confers ownership rights. Thus, there is no time lag between settlement and registration.

In addition to the holding of securities accounts, registration and settlement, VPC also provides services to support issuance and a range of account-keeping services. VPC's account-keeping services include distributing payment instructions (e.g. for dividends and interest payments), withholding and reporting taxes, and providing information and services in the area of corporate actions.

VPC AB is owned by four Swedish banks (Swedbank, Nordea Bank AB, SEB and Svenska Handelsbanken), which together hold 98.9% of its shares, while a group of other banks and securities firms hold the remaining 1.1%. In December 2004 VPC AB bought all shares in Suomen Arvopaperikeskus Oy, the Finnish CSD, from OMX Exchanges Oy, a wholly owned subsidiary of OMX AB. The Finnish CSD thus became a subsidiary of VPC AB. Since that purchase, VPC has been using the brand name NCSD in its documents and information.

VPC is a joint stock company with limited liability which is incorporated in Sweden under the Companies Act and operated on a for-profit basis. It is authorised and supervised by Finansinspektionen as a clearing organisation operating under the Exchange and Clearing Operations Act and as a CSD under the Financial Instruments Accounts Act. It is also a designated securities settlement system under Directive 98/26/EC on settlement finality in payment and securities settlement systems.

#### *Participation in the system*

The VPC system serves both issuers and investors. These can participate in the system as account operators, authorised nominees, clearing members, settlement banks and account holders. The participation requirements for these different roles vary, but the Exchange and Clearing Operations Act requires that they be fair and transparent. The rules governing access and exit are outlined in VPC's General Terms and Conditions and are described in the application documentation (both of which are published on the internet).

Issuers may issue fixed income or equity-related securities and derivatives. In December 2006 the VPC system held securities for 1,148 issuers.

Clearing members may participate in settlement in the VPC system on their own behalf. Some also act on behalf of customers. Clearing members may choose to participate in the clearing process in one or more of four sub-markets: equities in Swedish kronor, equities in euro, fixed income securities in Swedish kronor and fixed income securities in euro.

Account operators are technically affiliated to the VPC system and are the only entities, with the exception of VPC itself, which are directly involved in entering book-entry registrations in the system. In general it is banks and investment firms that act as account operators, but a few issuers and major investors also take on that role. Account operators tend to act on behalf of others, although some act only for themselves.

In order to become a clearing member or account operator on its own behalf, an institution must have an organisational structure, risk management capabilities and technical systems which are sufficient to support membership. An institution must also have at least €730,000 in initial capital in order to become a clearing member or €125,000 in initial capital in order to become an account operator. Account operators must also have a technical connection to the VPC system.

There are additional requirements for those clearing members and account operators which act on behalf of others. In order to act as a clearing member or account operator on behalf of others, an institution must be authorised by Finansinspektionen to trade in securities or be authorised to carry out such business in another country (i.e. an institution supervised by Finansinspektionen or by a corresponding agency in its home country). Clearing organisations, CSDs and central banks may

also become clearing members and account operators.

In order to be a settlement bank, an institution must be a member of the Riksbank's large-value payment system (see Section 3.2.2).

As at December 2006 there were approximately 44 financial institutions participating in VPC's clearing and settlement. At that time approximately 40 institutions acted as account operators – primarily banks and investment firms, but also a few issuers and major investors. There were 11 institutions acting as settlement banks at that time.

#### ***Account structure***

VPC operates a holding system which facilitates both direct and indirect holdings. Investors can have their securities holdings registered either in an account opened in their own name in the VPC system or under a nominee registration in a nominee account opened in the name of a nominee authorised by VPC. As at December 2006 the system held approximately 3.5 million securities accounts.

#### **4.3.2 OPERATIONAL ASPECTS**

##### ***Settlement processes***

There are three main clearing and settlement processes: settlement for the fixed income market and settlement for the stock market, both of which are deferred gross settlement processes, and a real-time gross settlement process which can be used for both fixed income and equity instruments. Participants initiate the settlement process by submitting instructions to the VPC system. The system then matches the buy and sell instructions. Once the instructions have been matched, they cannot be revoked unilaterally. Instructions can be entered into the system prior to the settlement day or on the settlement day itself. The normal settlement cycle is T+3 for equities and bonds and T+2 for money market instruments.

At 7.15 a.m. CET on the settlement day, the gross settlement process begins. Each of the

matched instructions goes through a control process to ensure first that the securities are available in the seller's securities account and then that the cash is available in the buyer's liquidity settlement account. For settlement banks, the holdings on these liquidity settlement accounts are claims on the central bank, while for other participants, the holdings are claims on their own settlement bank. If securities and liquidity are available, these assets are blocked for settlement. At this point, the transaction is marked "ready for settlement" and settlement is guaranteed at the next settlement batch during the day, even if one party to the transaction has been declared bankrupt. The control process optimises the number of transactions which may be marked "ready for settlement" given the available cash and securities.

As soon as a transaction has been marked "ready for settlement", the cash or securities which a participant has accumulated in the control process can be used to settle subsequent transactions. Thus, a running account of each participant's net blocked cash and securities holdings is maintained. The fact that a buyer may utilise securities that have been blocked in its favour in order to complete the control process for subsequent transactions (and vice versa for the seller) makes the system more efficient. The final stage in the settlement cycle – the actual settlement of the transaction – occurs at three specific times for stocks and at four specific times for fixed income instruments. After settlement, liquidity becomes freely available and can be transferred out of the VPC system.

##### ***Cash settlement and delivery versus payment***

Cash settlement is effected in central bank money via Riksbank accounts which are administered by VPC, sometimes called the "integrated central bank money model". VPC also administers intraday credit for these accounts on the same terms employed for intraday credit in the payment system. Clearing members in VPC which have no access to the RIX system must use a settlement bank which is a member of the RIX system.

## VOLUMES AND VALUES

VPC cleared a daily average of 1,727 fixed income and 74,777 stock transactions in 2006. The average gross value per day for these transactions was around SEK 460 billion (€49.7 billion) for the fixed income instruments and SEK 32 billion (€3.5 billion) for the stock market instruments.

### *Links to other settlement systems*

As at December 2006 VPC had established direct FOP links with the Danish CSD VP Securities Services, the UK CSD CRESTCo Ltd, the Finnish CSD APK, and the Swiss CSD SIS SegainterSettle. Indirect FOP links have been established with Denmark, Finland, Iceland and the United States.

### *Risk management*

VPC has no exposures to the participants in its settlement process. It is not a party to any transaction to be settled and does not offer any credit or stock lending facilities. All Swedish book-entry instruments are issued directly in the VPC system. For some foreign instruments, depositories are used. Depositories are highly reputable commercial banks (i.e. custodians).

### *Operating hours*

The VPC system is open for registration between 7 a.m. and 7 p.m. CET. For fixed income transactions, DvP settlement occurs at 8 a.m., 10 a.m., 12 p.m. and 2 p.m. CET, and FOP settlement occurs at 5 p.m. CET. For stock market transactions, DvP settlement occurs at 10 a.m., 12 p.m. and 2 p.m. CET, and FOP settlement occurs at 5 p.m. CET. Participants may settle transactions using the RTGS functionality between 7 a.m. and 5 p.m. CET.

## 4.4 THE USE OF THE SECURITIES INFRASTRUCTURE BY SVERIGES RIKSBANK

### 4.4.1 COLLATERAL MANAGEMENT

The Riksbank uses the VPC system to receive collateral for monetary policy and intraday credit in the payment system, and as a custodian for other central banks.

### 4.4.2 OTHER USES OF SYSTEMS

The Riksbank registers its holdings of Swedish securities with VPC and uses VPC for settlement when carrying out operations directly related to monetary policy.



## UNITED KINGDOM

### CONTENTS

<b>LIST OF ABBREVIATIONS</b>	<b>356</b>
<b>INTRODUCTION</b>	<b>358</b>
<b>1 INSTITUTIONAL ASPECTS</b>	<b>360</b>
1.1 The general regulatory framework	360
1.2 Role of the Bank of England	362
1.3 The role of other private and public sector bodies	364
<b>2 PAYMENT MEDIA USED BY NON-BANKS</b>	<b>366</b>
2.1 Cash payments	366
2.2 Non-cash payments	367
2.3 Recent developments	371
<b>3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS</b>	<b>372</b>
3.1 General overview	372
3.2 CHAPS	372
3.3 BACS	376
3.4 Cheque and Credit Clearings system	378
<b>4 TRADING, CLEARING AND SETTLEMENT</b>	<b>380</b>
4.1 General overview and recent developments	380
4.2 Trading	381
4.3 Clearing	384
4.4 Securities settlement systems	385

## LIST OF ABBREVIATIONS

AIM	Alternative Investment Market
APACS	Association for Payment Clearing Services
BACS	(formerly stood for) Bankers' Automated Clearing Services
BBA	British Bankers' Association
BCSB	Banking Code Standards Board
BPSL	BACS Payment Schemes Ltd
BSA	Building Societies' Association
C&CC	Cheque and Credit Clearings system
C&CCC	Cheque and Credit Clearing Company Ltd
CDI	CREST Depository Interest
CDL	CREST Depository Limited
CHAPS	Clearing House Automated Payment System
CHAPSCo	CHAPS Clearing Company Ltd
CGO	(formerly stood for) Central Gilts Office
CMO	(formerly stood for) Central Moneymarkets Office
CREST	The United Kingdom's securities settlement system
CRESTCo	CRESTCo Ltd
FMIRs	Financial Markets and Insolvency (Settlement Finality) Regulations 1999
FSA	Financial Services Authority
FSMA	Financial Services and Markets Act 2000
FTSE	Financial Times Stock Exchange (share index)
IAD	Independent ATM deployer
HMT	Her Majesty's Treasury

**UNITED KINGDOM**

IBDE	Inter-Bank Data Exchange
IPE	(formerly stood for) International Petroleum Exchange
LCH	LCH.Clearnet Ltd
LFCA	Liquidity Funding and Collateralisation Agreement
LIFFE	London International Financial Futures Exchange
LME	London Metal Exchange
NCS	Note Circulation Scheme
OFT	Office of Fair Trading
PC	Payments Council
PPS	Protected Payments System
PSTF	Payment Systems Task Force
RCH	Recognised Clearing House
RIE	Recognised Investment Exchange
ROCH	Recognised Overseas Clearing House
ROIE	Recognised Overseas Investment Exchange
SCR	Self-collateralising repo
SEAQ	Stock Exchange Automated Quotation system
SEAQI	SEAQ International
SEATS PLUS	Stock Exchange Automated Trading System
SETS	Stock Exchange Electronic Trading Service
SLRC	Stock Lending and Repo Committee
UKLA	UK Listing Authority
USRs	Uncertificated Securities Regulations

NB All figures quoted in the text are expressed in nominal terms.

## INTRODUCTION

There have been significant changes to the payments, trading, clearing and settlement landscape in the United Kingdom in recent years, resulting in particular from reform of the institutional framework, payment innovations and consolidation and enhancement of infrastructures.

### *Institutional framework*

Responsibility for the supervision of banks was transferred from the Bank of England to a new regulatory body, the Financial Services Authority (FSA), in June 1998, which was subsequently provided with additional statutory powers by the adoption of the Financial Services and Markets Act 2000 (FSMA). The respective responsibilities of the Bank of England, the FSA and Her Majesty's Treasury (HMT) are set out in a memorandum of understanding establishing a framework for cooperation in the field of financial stability, reissued in March 2006. The Bank of England, as the central bank of the United Kingdom, retains responsibility for contributing to the maintenance of the stability of the financial system as a whole and continues to apply a non-statutory oversight regime to payment systems, focusing especially on those systems whose reliable functioning is critical to financial stability.

### *Interbank payment systems*

The three main interbank payment systems, previously operating under the umbrella of the Association for Payment Clearing Services (APACS), are now managed and operated by three independent companies: CHAPS Clearing Company Ltd (CHAPSCo), BACS Payment Schemes Ltd (BPSL) and the Cheque and Credit Clearing Company Ltd (C&CCC). APACS continues to serve as a trade association for the payments industry, and to act as the industry voice in a variety of domestic and international fora. In March 2007 the United Kingdom's Payments Council (PC) was set up, and took over from APACS the responsibility for coordinating discussion of a range of non-competitive payments issues. The PC is

currently developing a strategic vision for the UK payments industry, consulting widely in putting together a National Payments Plan (which is expected to be finalised in 2008).

The United Kingdom's interbank clearing system, the CHAPS (Clearing House Automated Payment System) RTGS system, is designed for high-value wholesale payments. CHAPS offers two separate clearings, one operating in sterling, the other in euro. Since the Bank of England will not participate as a direct member of TARGET2, CHAPS Euro will cease operation once all current members have migrated to the TARGET2 platform. This is currently expected to be in 2008.

Two retail-oriented payment clearing arrangements exist in sterling and euro: the BACS system offers processing of bulk electronic automated payments including direct credits and direct debits, while the Cheque and Credit Clearings (C&CC) system processes paper items such as cheques and paper credit vouchers. In 2003 responsibility for the BACS system was split between two companies: BPSL, responsible for the rules and membership of the BACS payment scheme; and Voca Ltd, which provides processing services to members of BPSL. The UK payments industry has also committed itself to creating a new "faster payments" service, which will provide a near real-time settlement service for retail payments.

### *Non-bank payment media*

A range of payment card schemes are in operation in the United Kingdom. Credit cards are predominantly issued through the Visa and MasterCard schemes. The main debit card issuers are Maestro and Visa Delta. E-money activities remain small-scale, but the number of e-money providers is increasing, offering a range of both internet-based and prepaid card schemes. ATMs are connected via the LINK system, a reciprocal agreement allowing customers to withdraw funds from their accounts at any of the participating institutions.

### ***Securities trading, clearing and settlement***

UK exchanges, clearing houses and settlement systems have undergone significant restructuring in recent years, in particular through exchange consolidation and the mergers of the London Clearing House (LCH) with Clearnet, and of CRESTCo with the Euroclear Group.

The United Kingdom currently has two Recognised Investment Exchanges (RIEs) for securities, with a further five for commodities or derivatives. By far the largest is the London Stock Exchange (LSE), which operates order and quote-driven markets in UK equities, international equities, UK government and commercial sterling bonds, eurobonds, medium-term notes, depository receipts and exchange-traded funds. Virt-x, a pan-European market, is owned by SWX Swiss Exchange.

The United Kingdom has two Recognised Clearing Houses (RCHs): LCH.Clearnet Ltd and CRESTCo Ltd.

LCH.Clearnet Ltd provides CCP services to Euronext.LIFFE (the London International Financial Futures Exchange), the London Metal Exchange (LME), ICE Futures (formerly the International Petroleum Exchange (IPE)) and virt-x (jointly with SIS x-clear). It also clears cash and repo transactions in Belgian and German government bonds and OTC interest rate swap transactions and provides a CCP service for equities traded on the LSE's Stock Exchange Electronic Trading Service (SETS) system.

CREST is the United Kingdom's securities settlement system, settling transactions in equities, government bonds, corporate bonds and money market instruments held in dematerialised form. The system is operated by CRESTCo, which became part of the Euroclear Group in September 2002. The settlement of gilts and non-British government sterling debt was successfully absorbed into an enhanced CREST in July 2000, followed by the integration of money market instruments into CREST in November 2003, thus creating a single unified

UK securities settlement system. CREST has also established international links to other settlement systems in order to enable transactions in foreign securities to be settled in CREST.

### ***The Bank of England***

The Bank of England's involvement with payment systems takes a variety of forms. In its operational role, the Bank of England maintains the settlement accounts and the processor which applies RTGS payments and multilateral settlement amounts to those accounts, and facilitates the smooth flow of payments by providing intraday credit to CHAPS and CREST settlement banks through repo agreements.

In addition, the Bank of England is responsible for the oversight of UK payment systems, focusing on those systems whose reliable functioning is critical to financial stability, and seeks to ensure that sufficient weight is given to risk reduction and management in these systems' design and operation. The Bank of England also participates in a number of international cooperative oversight arrangements. More broadly, the Bank of England has responsibility for contributing to the maintenance of the stability of the financial system as a whole, in which payment and settlement systems play a vital role.

The Bank of England has limited direct involvement in the operation of securities trading, clearing and settlement. The Bank of England provides settlement accounts to CREST settlement banks, to which it also extends intraday credit through the self-collateralising repo (SCR) mechanism. The Bank of England became the sterling and euro concentration bank for LCH.Clearnet Ltd in 2005.

## I INSTITUTIONAL ASPECTS

### 1.1 THE GENERAL REGULATORY FRAMEWORK

The UK payment clearing systems described below have evolved through the actions of commercial institutions and are not, in the main, the subject of specific legislation or regulatory provisions.

#### *Authorised participants*

A large majority of the settlement members of the payment systems are authorised as banks or building societies under the FSMA and account for a very large proportion of the flows through these systems. The FSMA is concerned with the regulation of financial services and markets: any person who carries on a regulated activity in the United Kingdom must be authorised by the Financial Services Authority (FSA), unless exempted. The regulated activities are detailed in secondary legislation under the FSMA<sup>1</sup> and include accepting deposits and issuing e-money. In addition, a licence under the Consumer Credit Act, subject to certain exceptions, is required to carry on consumer credit business, consumer hire business or an ancillary credit business.

The FSA Register carries the names of firms which are either authorised in the United Kingdom or which are authorised in another EEA Member State and have chosen to "passport" into the United Kingdom under the relevant EC Directive. These Directives cover banking, insurance, insurance mediation, UCITS management and investment services businesses. Such institutions are supervised by their home state supervisory authority, and the FSA retains only a limited role as a host supervisor. In addition, CLS Bank, which joined CHAPS Sterling in November 2005, is supervised as an Edge Corporation bank by the Federal Reserve in the United States.

#### *Payment services*

Other statute law relates directly to payment services in the United Kingdom. The four statutes comprising the main body of this law

deal with the technical usage of cheques and other bills of exchange. The Bills of Exchange Act 1882 is a comprehensive codification of the previous law on bills of exchange, while the Cheques Acts, 1957 and 1992, modify the general principles of the 1882 Act as applied to cheques. More recently, the Deregulation (Bills of Exchange) Order 1996 allowed for the collecting bank truncation of cheques, although members of the C&CC have chosen not to pursue this option.

#### *Competition law*

UK competition law relevant to payment systems is largely embodied in the Competition Act 1998, which came fully into force on 1 March 2000. The provisions of European Union competition law will also apply to the extent that the activities of undertakings have cross-border implications.

#### *Securities transfer*

Statutes relevant to the issuance and transfer of securities, other than bills of exchange, include the Companies Act 1985, under which all companies must maintain a register of members (i.e. shareholders). Some listed bonds are also registered. Commercial registrars generally undertake the task of recording ownership. The Bank of England acted as registrar for UK government stocks until December 2004, when the task was transferred to Computershare. (The Bank also acted as registrar for some other overseas government stocks until the same time, when these roles were transferred to other registrars.)

The Uncertificated Securities Regulations 2001 (USRs 2001), made under the Companies Act 1989, re-enacted, with modifications, the USRs 1995, which provided for the dematerialisation of UK equities by enabling the CREST book-entry securities transfer system to be introduced in July 1996. CREST is subject to regulation by the FSA, both as an RCH under the FSMA and as the operator of a relevant system under the

<sup>1</sup> The Financial Services and Markets Act 2000 (Regulated Activities) Order 2001 (RAO).

USRs 2001. The USRs 2001 introduced electronic transfer of title, so that transfers through CREST conveyed immediate full legal title to securities, removing the previous lag between settlement and registration. At the same time, CREST moved to real-time settlement between CREST settlement banks across accounts at the Bank of England (full delivery versus payment in central bank money). Government stocks have been settled through CREST since July 2000. Further amendments were introduced in the Uncertificated Securities Regulations 2003 (USRs 2003) to allow the settlement of dematerialised versions of money market instruments through CREST. The Central Gilts Office and Central Moneymarkets Office, previously operated by the Bank of England and transferred to the ownership of CRESTCo in 1999, were closed in July 2000 and October 2003 respectively.

#### ***Recognised Clearing Houses (RCHs) and Recognised Investment Exchanges (RIEs)***

The FSA is also responsible for the recognition and supervision of UK RIEs and RCHs under the FSMA. Recognition confers an exemption from the need to be authorised to carry on regulated activities in the United Kingdom. In order to be recognised, RIEs and RCHs must comply with the recognition requirements laid down in the Financial Services and Markets Act 2000 (Recognition Requirements for Investment Exchanges and Clearing Houses) Regulations 2001.

Together with the two securities RIEs mentioned in the introduction (LSE and virt-x), Euronext, LIFFE, ICE Futures (formerly the IPE), the LME, EDX London Ltd and NYMEX Europe Ltd. are also RIEs. LCH.Clearnet Ltd and CRESTCo are RCHs. The FSA has also recognised and supervises, under the FSMA, a number of Recognised Overseas Investment Exchanges (ROIEs) and Recognised Overseas Clearing Houses (ROCHs).<sup>2</sup>

Under Part VII of the Companies Act 1989, special protection is available for transactions carried out on RIEs and cleared through RCHs. Market contracts, the provision of margin,

market charges levied by an RIE or RCH, action taken under the default rules of an RIE or RCH and cleared OTC transactions are protected from certain provisions of insolvency law. The transposition into UK law of the EC Settlement Finality Directive (SFD) through the UK Financial Markets and Insolvency (Settlement Finality) Regulations 1999 (FMIRs) has provided similar protection for payment and securities settlement systems by protecting their rules from the operation of insolvency procedures. As regards UK law, therefore, the protection under the SFD is conferred upon those payment and settlement systems that are formally designated under the FMIRs. The Bank of England is responsible for designating payment systems, and the FSA for designating SSSs. In the case of embedded payment systems, the FSA is obliged to consult with the Bank of England. The Bank of England has designated CHAPS Sterling and CHAPS Euro, CLS Bank and BACS; the FSA has designated CREST and LCH.Clearnet Ltd.

In addition to the United Kingdom's seven RIEs, a wide range of alternative trading systems operate in the United Kingdom, including systems such as Brokertec, EuroMTS and Instinet. These systems choose to be authorised by the FSA as authorised firms rather than exchanges.

The UK Listing Authority (UKLA) function was transferred from the LSE to the FSA on 1 May 2000, following the demutualisation of the LSE. The FSA now undertakes the role of maintaining the UK Official List. It also approves prospectuses for securities admitted to trading on UK regulated markets or offers of securities to the public in the United Kingdom, and accepts prospectuses that have been

<sup>2</sup> ROIEs (as at March 2006) are the Cantor Financial Futures Exchange (CFEE), Chicago Board of Trade (CBOT), EUREX (Zurich), National Association of Securities Dealers Automated Quotations (NASDAQ), New York Mercantile Exchange Inc (NYMEX Inc), NQLX LLC, Sydney Futures Exchange Ltd, Chicago Mercantile Exchange (CME), Swiss Stock Exchange (SWX), US Futures Exchange LLC and Warenterminbörse Hannover. SIS x-clear is a ROCH.

approved by a non-UK EU competent authority and passported to the UKLA under the EC Prospectus Directive.

## 1.2 ROLE OF THE BANK OF ENGLAND

### 1.2.1 GENERAL RESPONSIBILITIES

The Bank of England's responsibilities are set out in a statement of its two core purposes and a memorandum of understanding between the Bank of England, the FSA, and HM Treasury, issued following the transfer of banking supervision responsibilities to the FSA in 1998. An updated memorandum was issued in March 2006.<sup>3</sup> In addition to a broad responsibility for contributing to the maintenance of the stability of the financial system as a whole, the Bank of England Act 1998 and the memorandum of understanding both recognise the Bank of England's oversight function with respect to payment systems. The Bank of England also has certain powers and responsibilities under the FMIRs.

### 1.2.2 PAYMENT SYSTEMS OVERSIGHT

In addition to overseeing those "clean" payment systems whose reliable functioning is critical to financial stability, the Bank of England works closely with the FSA on the oversight of CREST and LCH.Clearnet Ltd, dovetailing its responsibilities for oversight of the embedded payment arrangements in these systems with the FSA's responsibilities as supervisor of CRESTCo and LCH.Clearnet Ltd. The Bank of England is also a member of the international cooperative oversight arrangements for the Euroclear and LCH.Clearnet Groups, as well as those for the CLS system, which settles foreign exchange transactions in 15 currencies including sterling, and SWIFT, which supplies messaging services in over 200 countries.

Further details on the Bank of England's oversight role, as well as descriptions of developments in UK payment systems and assessments of a number of the overseen systems against the internationally recognised Core Principles for Systemically Important

Payment Systems, can be found in the Bank of England's annual Payment Systems Oversight Report.<sup>4</sup>

### 1.2.3 OPERATIONAL ROLE

#### *Provision of cash settlement facilities*

The Bank of England also acts as settlement agent for a number of domestic payment and settlement systems (CHAPS, CREST, BACS, C&CC, LINK) and in consequence provides settlement accounts for members of those clearings. There is, however, no general requirement for banks to hold operational accounts with the Bank of England.

The main UK clearing companies require their members to hold settlement accounts at the Bank of England in order to participate directly in their clearing processes. The Bank of England's policy on granting settlement accounts is set out in its Settlement Accounts Policy Paper.<sup>5</sup> Institutions which belong to more than one clearing company maintain a single account through which their clearing obligations are settled (although since January 1999 the Bank of England has provided separate settlement accounts for sterling and euro clearings). Since May 2006, the sterling accounts have also functioned as reserve accounts.<sup>6</sup>

Settlement of obligations arising between CHAPS members and between CREST settlement banks takes place on a gross basis and in real time across settlement accounts. Settlement of other clearings takes place on a multilateral net basis with a single net amount posted to each clearing member's account per clearing at specific times during the day. Regardless of the clearing to which it relates, each credit and debit applied to a settlement

3 See <http://www.bankofengland.co.uk/financialstability/mou.htm>

4 See <http://www.bankofengland.co.uk/publications/psor/index.htm>

5 [www.bankofengland.co.uk/financialstability/paymentsettlementsystems/pdf/boesettleaccs021128.pdf](http://www.bankofengland.co.uk/financialstability/paymentsettlementsystems/pdf/boesettleaccs021128.pdf)

6 For more information on the Bank of England's money market operations, see <http://www.bankofengland.co.uk/markets/money/index.htm>

account is final and irrevocable from the time it is posted.

#### ***Provision of credit facilities***

To facilitate efficient settlement within the high-value clearings, the Bank of England provides intraday credit against eligible collateral to members of CHAPS<sup>7</sup> and to CREST settlement banks via intraday repos (some of which are generated automatically within the CREST system to finance the settlement of purchases of eligible securities by settlement banks or their customers).

#### ***Pricing policies***

The Bank of England's charging policy in respect of its general banking operations is based on the principle of fully recovering the costs of the banking services it provides.

#### ***Banking activities***

The Bank of England's banking operations cover a range of other activities, in addition to the operation of settlement accounts on behalf of UK payment and clearing systems.

- the issuance of banknotes;
- the provision of deposit, money transmission, settlement, custody and FX services to UK government departments, overseas central banks and, where appropriate, financial market infrastructure providers; and
- the settlement of official operations, the management of collateral and the provision of sterling reserve accounts.

In 2004, following a strategic review to align its banking business more closely with the Bank of England's core purposes, it was decided that the Bank of England would cease to provide retail banking services that can be readily provided in the commercial banking sector. This will result in a significant reduction in the number of customers serviced by the Bank of England and will include, over the next few years, the retail banking services provided to government departments which, as part of their

own strategic initiatives, will be reorganising their retail banking needs with commercial banks.

This has allowed the Bank of England to focus its provision of financial services on those customers and in those areas most closely aligned with its core purposes – in other words, the provision of wholesale services to HM government, overseas central banks and, where appropriate, market infrastructure providers.

#### **1.2.4 ACTIVITIES IN THE AREA OF SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

The Bank of England has no general statutory responsibility for the establishment or operation of settlement or clearing systems. Since the transfer of the CGO and CMO to CRESTCo in 2000 and 2003 respectively, the Bank of England no longer provides facilities for British government stock and money market instruments (see Section 4.4). The Bank of England does, however, provide settlement accounts for CREST settlement banks and effects the settlement of obligations arising between CREST settlement banks at the end of each settlement cycle. The Bank of England also acts as a settlement bank in CREST for a number of its customers.

#### **1.2.5 COOPERATION WITH OTHER INSTITUTIONS**

The Bank of England works closely with HMT and the FSA in the discharge of its responsibility for contributing to the maintenance of the stability of the financial system as a whole. The Bank of England is also represented on a number of committees and working groups organised by the ECB and the BIS, and participates in the cooperative oversight arrangements described above. Domestically, the Bank of England is an observer on the Board of the Payments Council and is represented in numerous groups such as the Stock Lending and Repo Committee (SLRC), which it chairs.

<sup>7</sup> With the exception of CLS Bank, the rules of operation of which do not provide for the use of central bank credit in making its payments.

## 1.3 THE ROLE OF OTHER PRIVATE AND PUBLIC SECTOR BODIES

### 1.3.1 FINANCIAL SERVICES AUTHORITY (FSA)

The reform of the statutory framework for the regulation of financial institutions in the United Kingdom was announced in 1997. Responsibility for banking supervision was transferred from the Bank of England to the FSA in 1998. The FSMA, which received Royal Assent in June 2000, then made the FSA the single statutory regulator for all financial markets in the United Kingdom. The FSA's objectives in regulating markets are: maintaining confidence in the financial system; the protection of consumers; the promotion of public understanding of the financial system; and the reduction of financial crime. Within the scope of the FSMA, the FSA is responsible for: the authorisation and prudential supervision of banks, building societies, investment firms, insurance companies and brokers, credit unions and friendly societies; the supervision of financial markets, securities listings and clearing and settlement systems; and the conduct of operations in response to problem cases affecting firms, markets and clearing and settlement systems within its responsibilities.

### 1.3.2 ASSOCIATION FOR PAYMENT CLEARING SERVICES (APACS)

APACS is the UK trade association for institutions that deliver payment services to customers. There are currently 29 members, whose payment traffic volumes are estimated to account for approximately 97% of the total UK non-cash payments market.

Until March 2000, APACS acted as an umbrella organisation for the companies responsible for the provision of the main interbank payment clearing mechanisms in the United Kingdom, operating under a mutual governance model. Under the APACS Constitution adopted in September 2002, the three clearing companies – CHAPSCo, BPSL and the C&CCC – became independent scheme companies. Responsibility for the operation, development and membership

of each clearing now lies with the relevant clearing company.

The Bank of England is a member of APACS and of the individual clearing companies and is entitled to appoint a Director to the Boards of each of the clearing companies and to participate in all of APACS' policy-making committees. The legal powers which the Bank of England enjoys from this representation are no greater than those of other members.

There are several APACS interest groups, which have focused on specific payment issues. The Card Payments Group, composed of the 15 largest card issuers and acquirers in the United Kingdom, has formulated and implemented policy on non-competitive matters. Other interest groups have included the Cash Services Group, Liquidity Managers Group and Electronic Commerce Group.

APACS has also played a leading role in standards development for payment systems, both domestically and internationally within various industry and public domain fora, such as the United Nations, the International Organization for Standardization, the Comité Européen de Normalisation (the European standards body) and the European Committee for Banking Standards. This activity is primarily focused on messaging standards (for areas ranging from e-commerce for the personal and SME sectors through to major corporates, and for cross-border payments) and on security (for example, public key infrastructure (PKI), digital signatures and digital certificates). In recent times, APACS has been heavily involved in activities to tackle payment-related fraud, including the introduction of chip and PIN.

### 1.3.3 THE PAYMENTS COUNCIL

The United Kingdom's Payments Council was established in March 2007, and took over from APACS the responsibility for coordinating discussion of a range of non-competitive payments issues. The PC sets strategy for UK payments. Specifically, it has three core objectives: (i) to lead the future development of

cooperative payment services in the United Kingdom; (ii) to ensure that the payment system is open, accountable and transparent; and (iii) to ensure the operational efficiency, effectiveness and integrity of payment services in the United Kingdom. The PC is currently developing a strategic vision for the UK payments industry, consulting widely in putting together a National Payments Plan (which is expected to be finalised in 2008).

The PC has entered into contracts with the main UK schemes (including CHAPSCo, BPSL, C&CCC and LINK), under the terms of which these schemes agree to comply with directions given by the PC's Board. More schemes are set to enter into a contractual relationship with the PC in due course. While the PC is responsible for (among other things) the integrity of payment services in the United Kingdom, payment schemes remain responsible for the day-to-day management of their payment systems, including risk management.

Individual payment service providers can become members of the PC; as members, they become bound by the PC Board's decisions.

#### 1.3.4 PAYMENT SYSTEMS TASK FORCE

Following the conclusion of the work of the Payment Systems Task Force (PSTF), chaired by the Office of Fair Trading (OFT). The PSTF was established in 2003 to address competition concerns in UK payment systems. These concerns were first raised in the Crickshank Report (2000), at a time when the payments industry had already begun to investigate or prepare for a number of reforms to both infrastructure – e.g. the initiation of the NewBACS programme – and governance arrangements.

A further review of the industry in 2003 by the OFT revealed that competition concerns remained. In response to this, a PSTF was created to bring together a range of stakeholders to identify, consider and seek to resolve competition, efficiency and incentive issues related to payment systems. The PSTF has

included representatives from consumer and business associations, as well as the operators of UK payment systems. The Bank of England and HM Treasury have participated in the PSTF as observers.

The first issue considered by the PSTF was the scope for, and costs and benefits of, innovation in BACS. In May 2005 the PSTF published a report which, while showing that BACS met many of its users' needs, identified a demand for, and the benefits of, shorter clearing cycles for telephone and internet banking payments in the United Kingdom. The payment industry subsequently committed itself to delivering a new, faster electronic payments service. The PSTF also considered the demand for, and costs and benefits of, innovation in the cheque clearings, and examined access and governance issues in the BACS system and LINK, the United Kingdom's largest ATM network.

The PSTF met for the final time in December 2006. Responsibility for most of its outstanding workstreams has been passed to the PC.

#### 1.3.5 FINANCIAL OMBUDSMAN SERVICE

The Financial Ombudsman Service was created by the FSMA to resolve disputes between consumers and financial services firms, merging eight existing independent ombudsman and complaint-handling schemes. The Ombudsman can also consider complaints from individuals, small businesses, charities and trusts. The Ombudsman is funded by levies and case fees: all firms covered by the ombudsman service pay an annual general levy, collected by the FSA. The Directors of the Financial Ombudsman Service are independent from the FSA but are accountable to the FSA in a number of respects, including the approval of the budget.

#### 1.3.6 CODES OF BEST PRACTICE

A committee to review banking services law was appointed in 1987 by HM Treasury in association with the Bank of England. Its 1989 report, entitled "Banking Services: Law and Practice" recommended that banks and building societies in the United Kingdom should draw

up a Code of Banking Practice, setting out the standards of good banking practice to be observed in dealings with personal customers in the United Kingdom. The Code was established in 1991 and is now in its seventh edition. The first Business Banking Code, covering small businesses with a turnover of up to GBP 1 million (€1.5 million) a year, was introduced in March 2002; a revised edition became effective in March 2005.

The Banking Code is a voluntary code followed by banks and building societies in their relations with personal customers in the United Kingdom. The vast majority of banks and building societies providing retail services have agreed to adopt the provisions of the Code. The Code covers current accounts, personal loans, savings (including Independent Savings Accounts) and credit cards. It includes references to certain payment systems services, including electronic funds transfers. The Banking Code is produced by the British Bankers' Association (BBA), the Building Societies' Association (BSA) and APACS; and the Business Banking Code by APACS and the BBA. Compliance by the subscribers to the Codes is monitored by the Banking Code Standards Board (BCSB).

Activities in the securities markets are similarly supported by a range of widely endorsed codes and legal documentation. Equity Repo and Gilt Repo Codes of Best Practice, drawn up under the aegis of the SLRC, chaired by the Bank of England, set out standards of best practice for repo activity in UK equities and government stock. The SLRC Code of Guidance for stock borrowing and lending sets out the basic procedures which UK-based participants in stock lending/borrowing of both UK domestic and overseas securities should observe as a matter of best practice.

## 2 PAYMENT MEDIA USED BY NON-BANKS

### 2.1 CASH PAYMENTS

The Bank of England has the sole right to issue banknotes in England and Wales, under the Bank Charter Act 1844. The Bank of England currently issues banknotes in four denominations – GBP 5, 10, 20 and 50 (€7, 15, 30 and 75) – and these banknotes circulate freely throughout the United Kingdom. Three banks in Scotland and four banks in Northern Ireland retain the right to issue their own sterling banknotes, but, apart from a very small fiduciary issue, these must be covered by holdings of Bank of England banknotes, or of approved coins.<sup>8</sup>

The wholesale distribution and circulation of Bank of England banknotes is managed under the Note Circulation Scheme (NCS). The NCS promotes the processing and distribution of notes by the commercial sector by allowing its members (which currently comprise two commercial banks, two cash-in-transit companies and the Post Office) to hold notes in custody for the Bank of England within their network of cash centres. Members receive off-balance-sheet treatment for a significant quantity of the notes that are in their possession. They thus avoid much of the funding cost of the notes handled, which would otherwise make it prohibitively expensive to undertake the wholesale processing of notes. The rules of the NCS are framed to minimise the risks to the Bank of England that arise by virtue of allowing the custody of its notes to be held in this way by commercial organisations, and to promote efficiency in the distribution and processing of notes in a way that meets the demands of cash users. The Bank of England's direct involvement in wholesale note processing and distribution is limited to the issuance of new notes via NCS members, the withdrawal of notes superseded

<sup>8</sup> This is subject to the provisions of the Bankers (Northern Ireland) Act 1845 and the Bank Notes (Scotland) Act 1845. Bank of England banknotes may be regarded as legal tender in England and Wales and coins are legal tender throughout the United Kingdom subject to certain limits as specified in the Currency Act 1983. Banknotes issued by banks in Scotland and Northern Ireland are not legal tender.

by new designs, and the authentication and destruction of notes received from NCS members that are no longer fit for circulation.

The Royal Mint meets demand by delivering coins to bank cash centres against payment by the banks.

Discussions between organisations involved in the wholesale processing and distribution of cash (including the NCS members, commercial banks, building societies and cash-in-transit companies) and the Bank of England and the Royal Mint are held under the auspices of the APACS Cash Services Group. This group acts as a focal point for the provision of strategic direction on cooperative (non-commercial) issues relating to cash as a component of the UK money transmission/payments industry.

At the end of 2006 the value of banknotes in circulation totalled GBP 41.1 billion (€61.3 billion). Figures produced by APACS show that, in 2006, cash payments accounted for 63% of all transactions by volume (down from around 67% in 1999).

## 2.2 NON-CASH PAYMENTS

### 2.2.1 CREDIT TRANSFERS

The usage of paper-based credit transfers has fallen in recent years. The total volume of interbank paper credits cleared in the United Kingdom, for example, declined from 177 million in 1999 to 111 million in 2006, while the values processed declined from GBP 95 billion (€139 billion) to GBP 61 billion (€91 billion). Paper-based credits are often used for making consumer payments to large organisations, such as utilities and mail-order companies. They can also be used for payments to individuals, but this is increasingly rare.

CHAPS remains the main vehicle for transferring high-value automated credits that need to be settled on a same-day basis. In 2006 CHAPS Sterling handled a daily average of 130,526 payments, with a value of GBP 231 billion (€345 billion). However, since 2000 there has

been a general flattening in the average daily value of payments processed by CHAPS Sterling at around GBP 200 billion (€298 billion), reflecting, *inter alia*, consolidation in the UK banking sector, the introduction of CLS and improvements in the infrastructure supporting UK money markets. CHAPS Euro handled a daily average volume of 30,245 domestic and cross-border payments in 2006, with a value of GBP 195 billion (€291 billion). CHAPS Euro remains the second largest cross-border component of the TARGET system in terms of both volume and value.

The great majority of interbank electronic credits (including standing orders) are processed by Voca Ltd, the infrastructure provider to the BACS payment system, under contract on behalf of BPSL. These are mainly small and medium-value items. Standing orders are used largely by individuals for the payment of regular fixed sums. As companies and other institutions have encouraged customers to make greater use of direct debit payment instruments (and despite the use of standing orders for internet and telephone-based customer banking), standing orders have accounted for a steadily declining proportion of total BACS volumes. In 1999 these payment instruments accounted for 7.6% of all BACS volumes, but by 2006 this had declined to 6.2%. In contrast, there has been a continued rise in the number and value of credits other than standing orders handled by BACS, which rose from 998 million items in 1999 to 2.2 billion items in 2006. In the past, such credits tended to be used for the disbursement of regular bulk payments such as salaries and wages. Increasingly, however, they are also being used for other transactions, most importantly the payment of State benefits to individuals.

The BACS payment system also offers a separate credit transfer system for domestic euro transactions, which operates in a similar way to its sterling direct credit service and is offered by member banks to their corporate customers. However, the number of payments cleared through the BACS euro scheme is low,

with annual volumes of around 156,700 in 2006 (less than 0.01% of total BACS volumes).

### 2.2.2 CHEQUES

As with paper-based credit transfers, the volume of payments cleared by means of cheque has fallen both in absolute and in relative terms since 1999. The number of interbank and inter-branch items processed in the United Kingdom fell from 2,410 million in 1999 to 1,514 million in 2006. Values processed annually for interbank cheques between 1999 and 2006 also fell, from GBP 1,343 billion (€2,039 billion) to GBP 1,174 billion (€1,751 billion). Cheques accounted for 12.3% (by volume) of non-cash payments in 2006 (excluding cash acquisition but including an estimate for cheques drawn by customers payable to other customers within the same bank branch), compared with almost 28.5% in 1999. In many cases, cheques have been substituted by electronic payments. Automated payments (direct debits and automated credits) accounted for 41% of non-cash payments in 2006.

Payment by cheque to retailers is generally acceptable at the point of sale only if the drawer presents a cheque guarantee card issued by the institution on which the cheque is drawn. At the end of 2006 over 58 million cards with a domestic cheque guarantee function had been issued in the United Kingdom by 60 institutions cooperating within the UK Domestic Cheque Guarantee Card Scheme. The standard maximum guarantee limit on these cards was GBP 50 (€75) until 1989, when two higher limits of GBP 100 (€149) and GBP 250 (€373) were introduced (the amount is printed on the card). Individual institutions are free to decide whether and how to offer these higher limits to their customers, although cards with upper limits of GBP 250 (€373) may be less common. The same card may function as a cheque guarantee card, a debit card and an ATM card. The use of cheques at the point of sale has declined dramatically since the widespread introduction of debit cards, but cheques are still used relatively frequently for the remote payment of

utility and credit card bills and for business-to-business payments.

Cheques are cleared in the United Kingdom by the C&CCC. In addition to sterling clearing, the C&CCC operates a euro bulk paper clearing which handles UK-issued cheques drawn in euro and presented in the UK cheque clearing. However, the number of payments cleared through the euro scheme remains very low, with annual volumes of around 637,000 in 2005 and 586,000 in 2006 (with a total value of around GBP 3.2 billion (€4.7 billion) for 2005 and GBP 3.1 billion (€4.6 billion) for 2006).

### 2.2.3 DIRECT DEBITS

Direct debits allow the originators of payments (such as service utilities and insurance companies) to collect payments automatically from bank or building society accounts. A direct debit is therefore an instruction to a customer's bank or building society which authorises the payment originator to collect varying amounts from the customer's account, provided the customer has been given prior notification of collection amounts and the date of collection. Interbank transfers originating from the direct debit process are cleared through BACS. Under the rules of the direct debit scheme, should any money be taken in error, then the customer's bank or building society must, on request, make an immediate refund to the customer's account – this is the direct debit guarantee. This covers situations where the originator has not given the required advance notice regarding a change of amount or date. It also protects customers in the event that an incorrect amount should be debited, or if a debit occurs earlier than the specified agreed date or in error.

During the 1990s the volume of direct debit payments grew by 9% per annum on average as penetration of the payment instrument increased rapidly, supported by a high-profile annual TV advertising campaign. By end-2006 that growth had slowed to 4% per annum. During 2006 direct debit payments totalled 2,858 million, with a value of GBP 845 billion (€1,260 billion).

## 2.2.4 PAYMENT CARDS

There has been major growth in EFTPOS use in the United Kingdom in recent years. At the end of 2006, there were 1,053,215 EFTPOS terminals in the United Kingdom (compared with 700,000 in 1999) which accepted, variously, credit cards, debit cards and travel and entertainment cards. A competitive market still exists in both the issuing and acquiring of payment cards.

### *Debit cards*

A large number of UK banks and building societies now provide their customers with debit card facilities. UK debit cards enable cardholders to make payments that are automatically debited from their current accounts, usually one or two days after the transaction has taken place.

In the United Kingdom, there are two main debit card schemes. The SWITCH scheme was launched in October 1988, and re-branded as Maestro with effect from 1 July 2004. The Solo brand was launched by SWITCH in 1997. The Solo card operates in the same way as a conventional debit card, such as Maestro, except that it requires every transaction made to be authorised online, regardless of value. This allows them to be issued to customers who would not normally qualify for a debit card. By the end of 2006 24.9 million Maestro and Solo cards had been issued by UK banks and building societies, up from 23 million in 1999. In addition, Visa Delta was launched in February 1991, though UK-issued Visa debit cards had existed under different brand names since late 1987. Visa also has an online debit card, Visa Electron, that works on the same principle as Maestro Solo. At the end of 2006 there were 43.4 million Visa/Visa Electron debit cards in circulation, up from 23 million in 1999. Maestro, Solo and Visa branded debit cards can be used at EFTPOS terminals and remotely (by phone, mail or internet). Solo and Visa Electron are primarily domestic schemes. By contrast, MasterCard (Maestro) debit cards were introduced in the United Kingdom in 1993 and so far these cards

have been primarily targeted at UK residents wishing to make payments overseas.

The total volume of debit card purchases in the United Kingdom has risen markedly in recent years and reached 4,512 million payments in 2006, up from 2,062 million in 1999. The number of debit card transactions is now over double the number of credit card transactions and sixteen times the number of guaranteed cheques drawn at the point of sale. The average value of domestic debit card transactions (approximately GBP 43 (€64) in 2006) tends, however, to be lower than those where payment is effected with credit cards (approximately GBP 59 (€88) in 2006). A number of retailers offer "cash back" facilities operated through the EFTPOS systems in their stores. These facilities enable debit cardholders to obtain cash as well as goods. It is estimated that there were 284 million cash back transactions in 2006.

### *Credit cards*

Credit cards issued by banks and building societies generally have a credit facility with a pre-set limit ranging from GBP 200 (€293) upwards. Customers' credit card accounts are separate from their bank accounts, which may well be with another bank or building society, and cardholders receive a statement of the outstanding balance on their credit card account on a regular basis (usually monthly). Cardholders may either pay off the full amount of the balance, or they may choose to pay a portion (usually a minimum of 5%) of the total amount outstanding. Where the full balance is not settled each month, interest is generally charged on the outstanding balance from the date the transaction appears on the cardholder's statement, although the specific interest-charging arrangements vary between credit card companies. Some banks charge their credit card-holding customers a flat-rate annual fee, although this is often waived when a certain level of annual usage is achieved.

At the end of 2006 there were 45 banks issuing Visa credit cards in the United Kingdom and 29

banks issuing MasterCard credit cards. Of these issuing banks, 19 issued both types of card. The credit card market is now very open, with a large number of new entrants in recent years. Of particular note is the number of specialist US credit card-issuing banks, which are now offering a range of different cards aimed at different payment behaviours. By the end of 2006, there were some 70 million credit cards in issue. During that year there were over 1,800 million credit card transactions, valued at around GBP 115 billion (€172 billion).

#### *Retailer cards*

Many retailers issue their own “in-store” cards. These typically only serve one store group and some operate on the basis of a monthly subscription and a revolving credit facility, which is a significant multiple of this amount. Other retailer cards operate in the same way as travel and entertainment cards or bank charge cards. Store card use is a relatively small proportion of the total credit business; interest rates are significantly higher than those charged on credit cards.

#### *Electronic money and similar*

Electronic money (e-money) activities in the United Kingdom are still relatively small-scale. The number of e-money providers is, however, increasing. These providers offer a range of both internet-based and prepaid card schemes.

PayPal is the world’s largest person-to-person/small business online payment service. It is a subsidiary of eBay, the US-based provider of online auctions, and is authorised by the FSA as an e-money issuer in the United Kingdom. From its authorisation as an e-money issuer in the United Kingdom, PayPal now passports into five other EU Member States. PayPal is growing rapidly in the United Kingdom. In 2004 PayPal reported that 10% of the UK population had a PayPal account. The value of e-money outstanding in PayPal accounts rose by 50% between June and December 2004. The continued growth of PayPal in 2005 is likely to have been aided by the closure of similar online

payment schemes offered by NatWest (FastPay) and HSBC (Yahoo! Paydirect).

The majority of prepaid cards that exist in the United Kingdom are single-purpose cards, such as phone cards. Transport for London’s Oyster card scheme involves a prepaid contactless card, used to pay for travel on the central London transport network. The use of Oyster cards has grown rapidly since their launch in 2003. Transport for London recently announced a partnership with a major UK bank which will see Oyster functionality incorporated into new cards that will also offer the option of contactless and traditional chip and PIN payment methods.

The Mondex and VisaCash pilot prepaid debit card schemes launched in the United Kingdom in the late 1990s were unsuccessful. However, prepaid debit card schemes re-emerged in 2004 and 2005, with greater success. MasterCard has joined up with Advanced Payment Solutions to launch a MasterCard-branded prepaid debit card, the Cashplus card, while Visa also offers a similar card. Prepaid debit cards are aimed largely at the “unbanked” market, including people with a poor credit history or immigrant workers. Consumers are able to load funds onto the prepaid cards and use them to withdraw cash from ATMs and make purchases on the internet and in some retail outlets.

Two different accounts are available for MasterCard’s Cashplus card, charging either a monthly subscription or per transaction. Numerous other fees apply, including fees for withdrawals from ATMs and banks, foreign transactions, card replacement, and cancellation of the card, though no fee is charged for reloading money onto the card. The card can be reloaded at Cashplus retail outlets, at the Post Office or by standing order with amounts of a minimum of GBP 10 (€15) and a maximum of GBP 5,000 (€7,312). Several UK banks have already announced their intention to issue Cashplus cards.

Visa's prepaid debit card works in a similar fashion to that of MasterCard, and can be used at all Visa POS terminals and ATMs. The card can currently only be reloaded at Natwest Bank, though the option to reload at the Post Office will be available shortly. There is an initial start-up cost, and a monthly account maintenance fee also applies, along with other fees for withdrawals, reloading, and foreign transactions, among others. As with MasterCard's offering, no lines of credit are extended and no credit checks are required when applying for the card.

#### ***Automated teller machines***

At the end of 2006 over 60,000 ATMs were in service in the United Kingdom, compared with around 27,000 machines at the end of 1999. Ownership of ATMs is split between banks and building societies and non-financial organisations, known collectively as independent ATM deployers (IADs). 55% of ATMs in the United Kingdom are owned by banks and building societies, and the remaining 45% are owned by IADs. Almost all of these ATMs are connected via the LINK interchange network, which allows cardholders to access their accounts through the ATMs of any LINK member institution. In 2006 there were 2.8 billion ATM withdrawals, totalling around GBP 180 billion (€268 billion).

In addition to cash withdrawals, some ATMs owned by banks and building societies enable their users to make balance enquiries and change their PINs. Most of these ATMs also produce mini-statements and permit mobile phone top-ups. More advanced ATMs allow customers to make bill payments and transfers between accounts and to request statements or new cheque books.

Approximately one-third of ATMs are located within banking halls or in the external fabric of banks' and building societies' branches. A trend towards the remote siting of ATMs in locations such as supermarkets and convenience stores, social and leisure centres, motorway service areas, railway stations and post offices means

that such sites represented approximately two-thirds of all ATM locations as at the end of 2005. Most of these "off-site" ATMs are owned by IADs.

#### ***2.2.5 POSTAL INSTRUMENTS***

Cashless payments can also be made through the Post Office. Small-value payments can be made using postal orders, which are particularly convenient for those who do not have a bank account.

#### ***2.3 RECENT DEVELOPMENTS***

##### ***Faster payments***

In 2005 the UK payments industry and user-representative groups considered the case for shortening clearing cycles for BACS payments. This work took place under the aegis of the Payment Systems Task Force, led by the OFT. The work of the Task Force identified a clear demand for a faster payments service offering same or next-day clearing for telephone and internet banking payments. In response to the Task Force's findings, the payments industry committed itself to creating a new, faster payments service, for delivery by the end of 2007. This service is being developed on the basis of a near real-time service for users, with multiple settlement cycles occurring during the course of a processing day.

##### ***Remote banking***

Remote banking services enable customers to view their account balances and recent transactions, move money between their accounts, pay bills, set up, amend or cancel standing orders and regular payments, and request and amend overdraft facilities. Use of remote banking services has increased rapidly. In 2005 over half of the adults in the United Kingdom (around 25 million people) used an internet or telephone banking service. Internet banking has increased most rapidly: use of internet banking services was eight times higher in 2005 than in 1999. Similar remote banking services are being developed using the WAP (Wireless Application Protocol) technology within modern mobile phones, which would

enable banks to offer wireless, mobile phone-based, personal banking facilities.

#### *Chip and PIN*

Chip technology in debit and credit cards was trialled in the United Kingdom in 1997 and 1998. These trials tested the practicality of replacing magnetic strip cards with chip cards for conventional debit, credit and charge card applications. In 1999 the UK payments industry took the decision to introduce chip technology nationwide. This was followed between 2004 and 2006 by the introduction of chip and PIN technology to credit and debit cards in the United Kingdom. This technology was designed to reduce plastic card fraud. Instead of using a signature to verify payments made by credit and debit card, customers now enter a four-digit PIN that is known only to the customer. As of 14 February 2006, unless the retailer does not yet have a chip and PIN terminal, all chip and PIN cardholders need to use their PIN to ensure they can pay with their chip and PIN card: liability for fraud falls on the retailer where payment is not made via chip and PIN.

### 3 INTERBANK EXCHANGE AND SETTLEMENT SYSTEMS

#### 3.1 GENERAL OVERVIEW

This section provides a detailed description of the main interbank payment systems: CHAPS Sterling and Euro, BACS and the C&CC.

CHAPS Sterling and CHAPS Euro are RTGS systems designed primarily for high-value payments, although there is no lower (or upper) limit on the value of payments that may pass through the clearings. Three other major interbank payment systems (BACS Sterling, BACS Euro and the Cheque & Credit Clearings) deal with high volumes of relatively small-value payments, although they are able to accommodate non-urgent large-value transfers if required. All three “retail” clearings work on a three-day processing cycle and are not suited for use by those wholesale financial markets

(e.g. foreign exchange and money markets) that are geared to shorter settlement cycles. As a result, the average value of transactions in these clearings is much smaller than those processed through either of the CHAPS clearings. The average value of individual payments passing through the clearings in 2006 ranged from GBP 640 (€955) for BACS to an average value for CHAPS Sterling items of around GBP 1.77 million (€2.64 million) for 2006 (and around €10 million for CHAPS Euro).

The rules governing the operations of each of the interbank clearing systems are laid down by their members through the relevant clearing company. Any institution applying for membership of a system must agree to pay an entry fee, and a share of the relevant system’s operating costs. It must also meet the technical and operational requirements of the clearing, and the applicant must obtain explicit agreement from the Bank of England to provide settlement account facilities for the purpose of settling obligations arising in these clearings.

#### 3.2 CHAPS

CHAPS started operating in 1984 as a nationwide, electronic interbank system for sending irrevocable, guaranteed and unconditional sterling credit transfers from one settlement member to another for same-day value operating on an end-of-day multilateral net settlement basis. In April 1996 CHAPS became an RTGS system, handling nearly all large-value, same-day sterling payments between banks, other than those which are specifically related to the settlement of purchases of UK government securities or money market instruments. CHAPS is used for a growing number of retail payments, where there is a particular need for same-day finality. In January 1999 a second CHAPS system – for euro-denominated payments – began operations. This system connects to the EU-wide TARGET system and is separate from the original CHAPS Sterling system (although both are run by CHAPSCo). Membership of the two CHAPS clearings is also independent.

### 3.2.1 OPERATING RULES

CHAPSCo sets the operational rules for the CHAPS clearings and is responsible for the development of the network. The settlement members of CHAPS are involved in setting these rules through their membership of the Board of CHAPSCo and its committees.

### 3.2.2 PARTICIPANTS IN THE SYSTEM

The members of the clearings are the institutions responsible for settling all CHAPS payments and consequently all interbank obligations arising through this system.

In addition, there are also around 400 financial institutions that access the clearings through agency agreements with one or more members. Access may be achieved by using a member's own proprietary electronic banking package or through SWIFT. In so doing, such a financial institution will initiate its payments electronically and route these payments through its payment service provider, a service that is likely to be subject to intraday credit limits agreed between the parties. Other secure means of transmission of payment instructions may also be adopted.

Global corporate, commercial, retail and individual customers can also access the clearing system directly through a member or through one of the financial institutions receiving agency facilities. Such an institution will then effectively on-sell the service to its own client base.

Access to CHAPS Euro operates on a similar basis. Membership of the clearings at the end of 2006 amounted to 15 CHAPS Sterling members and 19 CHAPS Euro members, both including the Bank of England.

### 3.2.3 TYPES OF TRANSACTION HANDLED

There is no restriction on the types of transaction (or value of transactions) handled, provided that it is an unconditional sterling payment (or euro payment for CHAPS Euro). A significant proportion of CHAPS payments, by value, originate in the foreign exchange market and

other wholesale markets owing to their requirement for a prompt settlement service. However, CHAPS is also used to facilitate same-day transfers arising from a range of other activities (e.g. general commercial transactions and the purchase of domestic property), and some transfers can be quite small.

### 3.2.4 OPERATION OF THE TRANSFER SYSTEM

The SWIFT FIN network is used in both CHAPS clearings for message-based communication between CHAPS members, and between members and the Bank of England's RTGS system. CHAPS payment messages are exchanged using the SWIFT FIN Copy service which is a store-copy-authorise-forward facility. There is a separate SWIFT FIN Copy service for each CHAPS clearing. All payment messages passing through the clearings are subject to authentication and encryption as provided by SWIFT. In addition, each SWIFT FIN Copy service has an associated closed user group, which prevents unauthorised CHAPS payments from being sent by non-CHAPS members and prevents payments being sent by CHAPS members to non-CHAPS members.

The CHAPS systems (both Sterling and Euro) currently open for normal service at 6 a.m. GMT. CHAPS banks can initiate transfers on behalf of themselves and their customers until 4 p.m. GMT. Most settlement members will, however, negotiate cut-off points with their customers so that any requests to make CHAPS transfers received after a set deadline will be handled on a "best efforts" basis. (After the 4 p.m. GMT cut-off, settlement members can make transfers on their own behalf or on behalf of other credit institutions and certain money market participants for the purpose of settling their end-of-day positions; they cannot process normal customer payments after this time.) The CHAPS Sterling day ends at 4.20 p.m. GMT. After this time, CHAPS Sterling settlement banks can use the Enquiry Link to make transfers under the Late Transfer Scheme (until 5 p.m. GMT).

### 3.2.5 TRANSACTION PROCESSING ENVIRONMENT

Each CHAPS payment is settled at the Bank of England before details are sent to the receiving bank. The SWIFT FIN Copy service is designed so that, for each payment instruction generated by a sending bank, a settlement request (a subset of the information contained in the main message) is first sent to the Bank of England, while the main message is retained in the SWIFT FIN Copy service. Only if the sending bank has sufficient funds on its account does the Bank of England settle the transaction by debiting the account and crediting the receiving bank. The Bank of England then returns a confirmation message to the sending bank. As soon as this confirmation is received by the SWIFT FIN Copy service, the main message containing the full payment details is released automatically to the receiving bank, which has the assurance that it has received final and irrevocable funds on its account at the Bank of England.

In order to guard against contingency situations, the Bank of England's real-time accounting system is duplicated at a remote standby site. All entries to accounts held at the main site are copied to this second location and the standby site is able to take over the functions of the main site if its ability to operate is impaired. As a final resort, the CHAPS Sterling system has the ability to operate as a multilateral net end-of-day system in the very unlikely event that both the primary and secondary sites are rendered inoperable. This method of operation is termed RTGS Bypass Mode.

Each settlement member has its own contingency arrangements to address the possibility of an internal systems failure during the day. These may take a variety of forms and are the responsibility of the settlement member, within the requirements established by the CHAPS Security Code of Conduct. Member compliance with that code is monitored through an annual self-certification exercise.

### 3.2.6 SETTLEMENT PROCEDURES

As they are RTGS systems, interbank settlement for both CHAPS Sterling and CHAPS Euro, as well as the transfer of payment messages between banks, occurs in real time. Moreover, the CHAPS systems only permit a transfer to be passed to a receiving settlement member if it has already been irrevocably settled across accounts maintained at the Bank of England.

CHAPS is designated under the FMIRs. Amongst other things, designation protects, from insolvency rules in the United Kingdom and elsewhere in the EEA, those parts of its rules which determine the point of entry of "transfer orders" (payment instructions) into the system, the point at which those orders become irrevocable and the point at which instructions are deemed finally to have settled. It also protects the netting arrangements which would apply in RTGS Bypass Mode.

The CHAPS rules determine the point at which payment instructions are irrevocable. In normal operation, an instruction is irrevocable from the point at which the relevant member's settlement account has been debited. When in RTGS Bypass Mode, payments are irrevocable from the point in time at which the sending member is unconditionally and irrevocably liable to pay the receiving member the amount specified in the payment message; that is when a UAK<sup>9</sup> has been transmitted by the receiving member's computer-based terminal to SWIFT. These points of irrevocability are protected by designation under the FMIRs.

ECB rules stipulate that TARGET payment instructions are irrevocable by the sending central bank from the moment when the RTGS account of the sending participant in the local RTGS system has been debited with the funds. After this point no action may be taken to unwind a payment instruction (this includes cancelling a payment instruction and re-

<sup>9</sup> Positive User Acknowledgement sent by a user to the SWIFT system confirming safe receipt and acceptance of an output message.

crediting the sending participant's RTGS account) without the formal and authenticated confirmation of the receiving NCB.

### 3.2.7 CREDIT AND LIQUIDITY RISKS AND THEIR MANAGEMENT

As an RTGS system, the settlement process in CHAPS does not give rise to the credit risk that can be involved in deferred settlement. Domestic payments are both irrevocable and final at the point at which the relevant member's settlement account is debited.

The main form of financial risk associated with RTGS is liquidity risk. CHAPS payments cannot be made unless the paying bank has sufficient funds (or liquidity) available on its settlement account with the Bank of England. If there were insufficient liquidity in the system as a whole (or it were not distributed sufficiently well) to permit a regular flow of payments, the result could be gridlock. Liquidity pressures could also arise as a result of time-critical payments, such as those associated with CLS pay-ins, being delayed. However, there is no evidence of CHAPS members experiencing liquidity management difficulties in meeting CLS pay-in deadlines.

To reduce liquidity risk, the Bank of England provides intraday liquidity to all CHAPS Sterling members, limited only by the availability of eligible collateral. For CHAPS Euro, this credit is further limited to approximately €3 billion in aggregate each day. However, members are able to raise additional liquidity within the euro area and transfer this through TARGET to CHAPS Euro. To aid liquidity management, all banks have real-time information on balances and the status of payment messages, with additional real-time monitoring by Bank of England operators. Both central and local schedulers enable members to manage the order in which payments settle, though the majority of members use local scheduling controls. In addition, throughput guidelines (the requirements for banks to settle certain proportions of their total payments by certain times) are in place, partly to stop

settlement banks "hoarding" liquidity. In extreme scenarios, the Sterling Liquidity Contingency Scheme can be invoked if there is a risk that liquidity might be drained from the system because a member is unable to send payments (though it can still receive them).

In 2005 the Bank of England introduced an additional liquidity-saving feature. Members are now allowed to submit CHAPS Sterling payment messages to the RTGS processor without necessarily posting sufficient liquidity for the payments to settle. Instead, a member can queue outgoing payment messages within the RTGS processor until liquidity becomes available from, for example, incoming payments. "Circles" processing – whereby offsetting payments are settled on a "simultaneous gross" basis – can be used to clear any build-up of queues.

### 3.2.8 PRICING POLICIES

The fee which a settlement member charges its customers for a CHAPS transfer is a matter for commercial negotiation between the parties concerned. These charges may be on a per-debit item basis or part of a package negotiated by the bank with its customer.

Settlement banks which are members of either of the CHAPS systems have to pay an entry fee to CHAPSCo upon joining the system and also an annual charge to CHAPS to cover their share of the company's operating costs (with this charge normally being fixed in proportion to each bank's share of the total volumes processed through the system).

In addition, the Bank of England charges a per-item tariff in respect of each CHAPS Sterling transfer settled and an annual fee for settlement accounts in order to cover the costs of running its real-time accounting system. The costs of the Enquiry Link are recovered by an annual charge levied on each terminal connection. Similar principles are applied to domestic CHAPS Euro payments. However, cross-border TARGET payments (including those initiated via CHAPS Euro) are subject to a separate framework whereby there is a degressive per-

item charge determined by the Governing Council of the ECB.

### 3.2.9 STATISTICAL DATA

The average value of payments passing through the CHAPS Sterling system was GBP 231 billion (€345 billion) per day in 2006 and, on a peak day, the CHAPS Sterling system has been responsible for processing transfers with a total value of over GBP 343 billion (€512 billion).

### 3.2.10 FUTURE DEVELOPMENTS

The introduction of TARGET2 (expected to go live in 2007) will see the existing TARGET network and its component RTGS systems – including CHAPS Euro – replaced by a single technical platform for processing and settling payments. The Bank of England will not be one of the NCBs participating as direct members of TARGET2, meaning that CHAPS Euro will cease operation when all current members have migrated to the new platform. This is currently expected to be in 2008.

## 3.3 BACS

BACS is the UK's largest retail payment system by volume, providing ACH services for bulk clearing of electronic transfers in both debit and credit form. BACS Payment Schemes Ltd (BPSL) is responsible for the direct credit, direct debit and standing order payment instruments, with processing of these payment instruments outsourced to a member-owned third party – Voca Ltd. In July 2006 Voca delivered a new processing platform for BACS payment instruments, providing greater capacity and risk-reducing functionality. BPSL has also recently introduced a new form of membership, described below, and in December 2005 was designated under the FMIRs.

### 3.3.1 OPERATING RULES

BPSL sets operational rules for users and for the banks and building societies that are settlement members of the scheme. Settlement members are involved in setting these rules through their membership of the Board of BPSL and its committees.

### 3.3.2 PARTICIPATION IN THE SYSTEM

The membership of BACS consists of 15 banks, including the Bank of England, and one building society. These credit institutions are responsible for settling all settlement obligations arising from the BACS clearing process. At the present time all but one of the BPSL members are also shareholders of Voca Ltd. These settlement members of BPSL are able to sponsor other organisations as indirect users of the BACS payment system. Users are allocated a user number by their sponsor, but are able to submit payment instructions directly to the central infrastructure. There are in the region of 35,000 users, including a wide range of commercial and public sector bodies. Settlement members must meet the membership criteria set by BPSL.

In 2005 BPSL also introduced an affiliate proposition, allowing other BACS stakeholders to contribute views to the BPSL Board on certain issues without taking on any operational and settlement responsibilities. As at May 2006 there were 21 affiliates.

### 3.3.3 TYPES OF TRANSACTION HANDLED

BACS processes direct debits and is also used for the direct crediting of payments (including standing orders). A high proportion of the transfers handled represent regular disbursements, such as the payment of wages, salaries and pensions or the payment of utility bills, insurance premiums or subscriptions. Various types of payment can be accommodated, and there is no general restriction on the purpose of the underlying transaction. Similarly, there are no restrictions on the value of transactions handled, but most transfers are retail payments, and average per-item values tend to be small as compared with the CHAPS clearings.

### 3.3.4 TRANSACTION PROCESSING ENVIRONMENT

Users submit payment data to the central infrastructure through BACSTEL-IP, a telecommunications service which offers direct connection to the processing platform. Some of the major users of the BACS payment system (e.g. BPSL settlement members) use direct

high-speed links. BPSL has established common standards for the format in which payment information is supplied to the central infrastructure, to which users can submit payment instructions from between 2 and 71 days ahead of the date for payment.

### 3.3.5 OPERATION OF THE SYSTEM

Payments submitted to BACS are subject to a three-day processing and settlement cycle. The deadline for receipt of payment information from users is 10.30 p.m. GMT on Day 1 of the cycle. These data are then sorted into bank order by the central infrastructure and transmitted onwards to destination credit institutions. A destination bank may be either a receiving bank or a paying bank, depending on whether the transaction under consideration is a credit or a debit. This process should be completed by 6 a.m. the following day (i.e. Day 2). On Day 3, transfers are debited/credited to the respective payer/payee accounts, usually at the beginning of the operating day. However, the debiting and crediting of accounts may not occur simultaneously during Day 3 and is left to the discretion of members.

### 3.3.6 SETTLEMENT PROCEDURES

The interbank obligations which arise in BACS are settled at the Bank of England on a multilateral net basis on Day 3 of the processing cycle. This settlement occurs at 9.30 a.m. GMT daily through the posting of the multilateral net amounts directly to the settlement accounts using the RTGS processing system.

### 3.3.7 CREDIT AND LIQUIDITY RISKS

Each settlement member is responsible for settling the payments generated by itself and the users it sponsors. There is no system of limits or other controls enforced by central infrastructure to inhibit the volume or value of payments for which a particular settlement member is responsible. However, in May 2005 BPSL and its members implemented a legally-binding loss-sharing agreement, the Liquidity Funding and Collateralisation Agreement (LFCA), to ensure that settlement can be completed in the event of a member defaulting

on its obligations to other members of the payment system (see below). The extent to which a user can initiate BACS transfers and its arrangements for funding the resultant outflow are a matter to be decided bilaterally with its settlement bank.

The LFCA covers both BACS and the C&CC and is designed in such a way that, in the event of a default on the part of a settlement member, other members are obliged collectively to provide liquidity to fund the affected member's settlement position, up to a limit determined by reference to net debit positions of members across both clearings during the previous twelve months. In 2005 that limit was a little over GBP 2 billion (€3 billion). Each member also pledges collateral. In the event of default, collateral pledged by the defaulter is used to reimburse survivors either in full or in part. Members commit liquidity and pledge collateral in proportion to the degree of risk that they bring to the two systems. As the level of committed liquidity is based on historical exposures, a small risk remains that the affected member's net debit position could exceed the committed liquidity of surviving members. The probability of such exposures arising is very low.

### 3.3.8 PRICING

Voca Ltd applies an annual tariff to settlement members of BPSL to recover processing and other service costs. Sponsoring banks negotiate independently with users and other customers the charges which they will incur as a result of generating transfers or receiving credits through the payment system. BPSL's rules require its members to meet the operating expenses of the scheme through payment of an annual fee.

### 3.3.9 FUTURE DEVELOPMENTS

As described in Section 2.3, the UK payments industry and user-representative groups have considered the case for shortening processing cycles for BACS payments. The Payment Systems Task Force identified a clear demand for a faster payments service offering same or next-day clearing for telephone and internet banking payments. In response to these findings,

the payments industry committed itself to creating a new, faster payments service, for delivery by the end of 2007. This service is being developed on the basis of a near real-time service for users, with multiple settlement cycles occurring during the course of a processing day.

### 3.4 CHEQUE AND CREDIT CLEARINGS SYSTEM

#### 3.4.1 OPERATING RULES

The Cheque and Credit Clearing Company Ltd (C&CCC) is responsible for the C&CC system for England, Wales and (since December 1996) Scotland. A separate clearing operates in Northern Ireland under local paper clearing arrangements, with its own rules and membership criteria.

Unlike other payment instruments in the United Kingdom, there is a substantial body of English law pertaining to cheques (see Section 1.1). The C&CC must operate in accordance with these statutes.

#### 3.4.2 PARTICIPATION IN THE SYSTEM

The C&CCC has 12 direct settlement members, including the Bank of England, which settle all interbank items passing across the two clearing arrangements organised by it. The settlement members comprise 11 banks and one building society. Other banks and building societies can have access to both cheque and credit clearings through agency arrangements with the direct members. Settlement members must meet the membership criteria set by the C&CCC.

#### 3.4.3 TYPES OF TRANSACTION HANDLED

The cheque clearing and the credit clearing systems handle paper debit items (i.e. cheques) and credit items (i.e. bank giro transfers) respectively, and operate within rules set by the C&CCC. Cheques processed through the cheque clearing and paper credits passed through the credit clearing must meet the physical specifications (relating to layout and paper specifications) laid out in the relevant clearing rules. There are, however, no restrictions on the

value of individual transfers or on the nature of the original transaction.

#### 3.4.4 OPERATION OF THE SYSTEM AND TRANSACTION PROCESSING ENVIRONMENT

The cheque and credit clearings both operate on a three-day payment and settlement cycle, though an additional day is sometimes required for items cleared between England and Scotland. In the case of the cheque clearing, a cheque presented to a branch of a member bank during banking hours will be sent to that bank's clearing centre at the end of the working day (Day 1), to arrive late that night or early the following day (Day 2). At the clearing centre, the cheques are automatically "read" by reader/sorter machines, which evaluate the amount of the cheque and the codeline at the bottom of the cheque and sort the cheques by drawee bank. Data containing codeline and amount details of sterling cheques is transmitted over the Inter-Bank Data Exchange (IBDE) network to the relevant paying bank by 11 a.m. GMT on Day 2. In parallel with the exchange of data, cheques are batched up and sent by the collecting bank to the clearing exchange centres, where they are passed to the paying bank. However, an increasing number of banks have chosen to outsource the processing of cheques to a third-party supplier. If two banks use the same third-party supplier, cheques relating to these two banks do not pass through the clearing exchange centres, provided that this is registered with the C&CCC as a direct exchange.

On Day 3, data generated by the collecting bank is used to ascertain the value of settlement between the paying bank and other settlement members. The paying bank also debits customer accounts on the basis of data received from the collecting bank. The paying bank's clearing centre processes cheques received from the clearing exchange centres the previous day and sorts between its own branches. A change in the law in 1996 removed the requirement for cheques to be presented physically at the branch on which they were drawn. Most banks now follow a partially truncated process whereby cheques are retained at a central point and

reviewed as necessary. Whether in physical or electronic form, the instruments arrive at the relevant branch, or designated central point, of the paying bank by Day 3 of the clearing cycle, and staff review them to see whether the instruments in question should be accepted or returned (e.g. owing to insufficient funds being available to meet the value of the cheque). The point at which the collecting bank credits funds to the payee's account and allows the payee to draw against these is a commercial decision and varies between banks.

Paper credits follow a reverse process to cheques, in which the collecting bank is generally the payer's bank. The processing procedures for the credit clearing are very similar to those employed in the cheque clearing. However, pre-printed codeline details on credits are not transmitted over the IBDE network.

In January 1999 a euro bulk debit clearing was introduced by the members of the C&CCC (see Section 2.2.2). This is largely a manual operation, and processing is based on the pre-IBDE clearing (although settlement figures are collected by collecting banks). There is no euro paper credit clearing service available in the United Kingdom.

#### 3.4.5 SETTLEMENT PROCEDURES

The interbank settlement of items processed through the C&CC occurs on the third day of the cycle. In respect of each clearing, multilateral net amounts for each member are determined by the C&CCC, passed to the Bank of England, and then posted to settlement accounts no later than 11.30 a.m. GMT. Settlement is effected by multilateral net entries to settlement accounts at the Bank of England. Postings take place in real time via the RTGS system.

#### 3.4.6 CREDIT AND LIQUIDITY RISKS

There is no system of limits or other controls enforced by the C&CCC to inhibit the volume or value of payments for which a particular settlement member is responsible. However, in May 2005 the C&CCC and its members

implemented a legally-binding loss-sharing agreement to ensure that settlement can be completed in the event of a member defaulting on its obligations to other members of the payment system. This agreement – the LFCA – covers both the cheque and credit clearings and BACS. A small risk remains that a settlement member could default on an amount greater than the value of liquidity committed under the agreement (see Section 3.3.7 for further explanation of the agreement). The value of interbank settlement obligations is typically much smaller than with CHAPS.

#### 3.4.7 PRICING

The C&CCC does not impose a per-item charge on cheques or credits handled; its costs are met through direct contributions by shareholders (the settlement members). Banks negotiate charges with their business customers for processing debits and credits arising from paper instruments; most banks do not impose such direct fees on their personal customers.

#### 3.4.8 FUTURE DEVELOPMENTS

The OFT-led Payment Systems Task Force investigated the costs and benefits of, and demand for, innovation in the cheque clearings during 2006. The main recommendations of the Task Force have now been agreed and are expected to be implemented by November 2007 to coincide with the launch of the new faster payments service. The key change will be a "T + 2-4-6" proposition offered by the banking industry, where "T" is defined as the day of deposit of the cheque. The "2-4-6" proposition sets maximum clearing times for value (T plus two), withdrawal (T plus four) and certainty of fate (T plus six) for cheques deposited in the United Kingdom. The maximum times for value and certainty of fate will apply to all current, savings and basic bank accounts. The 2-4-6 proposition represents a core offering: financial institutions will, as now, be able to compete to offer shorter timescales.

The T + 2-4-6 proposition will not require changes to the core interbank clearing cycle. It will, however, require a number of changes to

the current arrangements for processing physical cheques. The delivery of cheques to and from Scotland and Northern Ireland will need to be accelerated to fall into line with the English cheque clearing cycle. The current process for returning cheques as unpaid will also have to be improved. While the T + 2-4-6 proposition will not reduce the length of the core clearing cycle, it does represent an improvement on the current offering for cheque users.

#### 4 TRADING, CLEARING AND SETTLEMENT

##### 4.1 GENERAL OVERVIEW AND RECENT DEVELOPMENTS

###### *UK markets*

The United Kingdom has major securities markets in UK government stock, domestic and international equities, debt securities (including eurobonds) and money market instruments. There is also a highly developed market in derivatives based on these and other instruments. The most active participants in these markets are domestic and international banks and securities houses, as well as institutional investors, such as pension funds and insurance companies.

Equities, debentures, loan stocks and other securities listed in the United Kingdom are mainly traded through the London Stock Exchange (LSE). UK government stock is mainly traded through gilt-edged market-makers, subject to the rules of the LSE. Eurobonds and short-term euro-denominated paper are generally listed in the United Kingdom or on the Luxembourg Stock Exchange, but are traded OTC under the rules of the International Capital Markets Association (ICMA). A significant proportion of all eurobond trading takes place in London.

There is also a very large volume of OTC derivatives activity in London, and standardised derivatives contracts are traded on Euronext, LIFFE, the LME and ICE Futures. Euronext, LIFFE's contracts comprise futures and options

on UK and foreign government bonds, short-term interest rates, equity indices and individual equities. The LME and ICE Futures offer contracts on metals and energy products respectively.

Sterling and euro-denominated money market instruments are traded OTC.

###### *The trading infrastructure*

UK exchanges, clearing houses and settlement systems have undergone significant change in recent years. Like many of their European counterparts, the UK's exchanges have responded in a variety of ways to the opportunities offered and challenges posed by the integration of (particularly European) capital markets, technological advances, member consolidation and increases in global cross-border trade.

Consolidation has been a major theme in the UK trading landscape. In 2001, LIFFE and Euronext announced their merger and the Intercontinental Exchange acquired the IPE. Virt-x was created in 2001 as a joint venture between SWX Swiss Exchange and the former Tradepoint Consortium; virt-x became wholly owned by the Swiss Stock Exchange in 2003. The LSE has also been subject to a number of unsuccessful takeover bids, by both European and international institutions.

More than 200 securities are now traded on the LSE's SETS electronic order book, although a proportion of trading in these securities still takes place over the telephone or via automated systems provided by the major market liquidity providers and, in particular, the so-called retail service providers. In 2003, the LSE introduced SETSmm, a hybrid trading system combining an electronic order book with continuous liquidity provision by dedicated market-makers, for mid-cap stocks. AIM (Alternative Investment Market) was introduced in 1995 and is the market for smaller, growing companies. The LSE also supports the SEATS Plus trading system, a quote-driven order-matching system used for less liquid securities,

in addition to securities listed on AIM. Virt-x, a subsidiary of the Swiss Stock Exchange, provides trading in the constituents of the Swiss Market Index as well as other major European securities indices such as the FTSE 100. Electronic trading has become more prevalent. All LIFFE contracts are now traded on LIFFEConnect, and ICE Futures (formerly the IPE) has migrated fully to electronic trading. The LME has also introduced electronic trading facilities in addition to its existing open outcry and telephone trading markets.

#### ***Clearing***

The London Clearing House merged with the French-based CCP, Clearnet, in 2003 to form the LCH.Clearnet Group. LCH.Clearnet Ltd, which serves the business area formerly covered by the LCH, remains the UK's principal CCP clearing house.

LCH.Clearnet Ltd continues to provide CCP services for the LSE, EDX, virt-x, Euronext, LIFFE, the LME, ICE Futures (formerly the IPE), ICE and other energy and related markets, as well as clearing European government and international repo and cash bonds (through RepoClear) and interest rate swaps (through SwapClear).

#### ***Settlement***

Settlement infrastructures have also undergone a process of consolidation in recent years, both domestically and internationally. This process reflects the considerable operational savings and efficiencies and the potential reductions in risk available from rationalisation. The operator of the UK's securities settlement system, CRESTCo, became part of the Euroclear Group in September 2002. Following the integration of the CGO and CMO into CREST in 2000 and 2003 respectively, CREST now settles UK and Irish equities and corporate bonds, government debt and money market instruments. Values settling through CREST now average over GBP 340 billion (€507 billion) per day.

CRESTCo has direct links to (I)CSDs in Belgium (Euroclear Bank), Switzerland (SIS

SegaInterSettle) and the United States (DTCC), enabling CREST members to hold securities which settle in those systems.

## **4.2 TRADING**

### **4.2.1 LONDON STOCK EXCHANGE (LSE)**

#### ***Ownership and governance of the system***

The LSE demutualised into a for-profit limited liability public company in March 2000. Shares in London Stock Exchange PLC were initially transferable through a matched bargain facility, operated by a broking firm, Cazenove & Co, with a 4.9% limit on shareholdings by individuals or corporations. This limit was removed when the LSE moved to a full listing in July 2001. Shares in the exchange are now traded on the order book SETS, and included in the FTSE All Share and FTSE 250 indices. Shares are settled in CREST or in the Shareview service operated by Lloyds TSB Registrars Ltd.

The LSE's Board of Directors consists of its Chairman, Chief Executive and seven other members, of which six are non-executive. The Remuneration and Nomination Committees and the Audit Committee of the Board are concerned with the governance of the exchange.

#### ***Regulatory status***

The LSE is an RIE under the FSMA. The London Stock Exchange is also designated a "regulated market" under the Investment Services Directive.

#### ***Participation***

The LSE has 322 member firms in 29 countries worldwide.

Firms from a number of countries are eligible for membership. UK firms need to be authorised under the FSMA. Non-United Kingdom firms must be authorised in their home state to provide investment services in the United Kingdom. Within the EEA a "passport" can be arranged under the Investment Services Directive, or the Second Banking Co-ordination Directive,

which allows authorised investment firms to operate in every European Union (and EEA) Member State. Firms unable to obtain this passport are considered on an individual basis.

#### **Members**

Only member firms may add and delete orders to/from the order books, execute against existing orders or report business. Member firms accessing the trading system will act either as a principal, i.e. the trades will be conducted only for their own purposes, or as an agent, conducting trades on behalf of a client. Member firms are also able to act as a riskless principal, i.e. trades are conducted on behalf of a client using the member firm's own account.

#### **SETS participants**

SETS participants can enter and delete orders on the SETS and SETSmm order books in the same way as any other member firm. However, any business executed away from the order books will not be classified as on-exchange, even if the security is a CCP-eligible security, and will not be reported.

Following the introduction of a CCP, membership has been divided into clearing and non-clearing members. Clearing members need to satisfy the membership criteria of LCH.Clearnet Ltd.

#### **Types of security**

The following classes of security are admitted to trading on the London Stock Exchange:

- UK equities;
- international equities;
- shares and fixed interest stocks of companies admitted to AIM;
- securities issued by the UK government (gilts);
- sterling bonds issued by companies or local authorities;

- eurobonds and medium-term notes issued by UK and international companies;
- depository receipts and negotiable certificates;
- exchange-traded funds; and
- covered warrants.

During 2005, UK equity market volumes reached 68 million bargains, while the average number of order book trades per day reached 170,000. This amounted to a turnover of GBP 260 billion (€380 billion).

#### **System operating procedures**

The exchange currently offers four trading services for UK shares:

- the Stock Exchange Electronic Trading System (SETS) is an electronic limit order book used to trade blue-chip stocks including all FTSE 100 securities, leading FTSE 250 securities, FTSE 100 Reserves, plus those with traded options;
- SETSmm is a SETS-style order book supported by market-makers for FTSE 250 securities not trading on SETS, all UK FTSE Eurotop300 securities and exchange-traded funds (ETFs);
- SEAQ is a quote-display system used as the price reference point for telephone execution between market participants and registered market-makers. All domestic securities – which are not on SETS or SETSmm – with two or more registered market-makers are traded in this manner; and
- the Stock Exchange Automated Trading System (SEATS PLUS) is the trading service used for less liquid domestic securities with less than two registered market-makers.

The LSE also offers three trading services for overseas shares: (i) the International Order Book (IOB) is an open and flexible order book

for the most liquid international securities; (ii) the International Retail Service (IRS) is a service tailored for UK retail investors, providing easy access to trading in international stocks. The service supports trading in major European and US blue chips, using sterling prices; and (iii) the International Bulletin Board (ITBB).

AIM is the LSE's global market for smaller, growing companies. There are no specific suitability criteria for AIM, but all companies must produce an admission document making certain disclosures.

#### ***Clearing/settlement***

A CCP service for trades executed in SETS and SEAQ auctions was developed by the London Stock Exchange, CRESTCo and LCH.Clearnet Ltd and implemented in February 2001. The service was subsequently expanded to implement settlement netting.

Trades in UK equities settle through CREST. The standard settlement cycle is T+3. Participants may, however, agree to use a different cycle for individual trades ranging from same-day to 25-day settlement. Trades in overseas equities settle through the relevant domestic or international CSD in accordance with local market deadlines. Certain securities can be settled through Euroclear Bank, and Dutch securities traded on EUROSETS settle through Euroclear Netherlands.

#### ***Operating hours***

The SETS trading day is split into three main trading periods. The day commences with an opening auction followed by a period of continuous trading in which orders are automatically executed against one another. The trading day ends with a closing auction where an official closing price is set. Trades can be reported to the exchange from 7.15 a.m. to 5.15 p.m. GMT. Trades executed outside of these hours are reported when the system next opens.

The SETS order book execution period operates from 8 a.m. to 4.30 p.m. GMT.

The SETS opening auction call period runs from 7.50 a.m. to 10 p.m. GMT, and the closing auction call period from 4.30 p.m. to 4.35 p.m. GMT (with a random close in each case to discourage market manipulation).

SEAQ International mandatory quote periods run mostly from 8 a.m. to 4.30 p.m. GMT, although these vary slightly between markets.

#### **4.2.2 VIRT-X**

Virt-x Exchange Limited (virt-x), a wholly-owned subsidiary of SWX Group, was founded in 2001. As an RIE based in London, virt-x is supervised by the FSA. Virt-x is the home market for trading in the constituents of the Swiss Market Index (SMI), listed by the SWX Swiss Stock Exchange. It also offers trading in the most liquid European stocks and exchange-traded funds, which are subject to their domestic listing regimes.

Virt-x members have the choice of clearing their transactions through either LCH.Clearnet Ltd or SIS x-clear. Settlement can be effected in CREST, Euroclear Bank or SIS SegalInterSettle. Settlement is on T+3.

Electronic trading can take place in either of two ways. First, on-order-book orders are routed directly into the virt-x trading system, and buy and sell orders are matched against each other. Trades executed via the central order book, with certain exceptions, trigger an automatic clearing and settlement instruction which is routed to SIS SegalInterSettle AG, CRESTCo or Euroclear Bank. Second, off-order-book orders are executed directly between two market participants and the trade is subsequently reported on virt-x. Members can choose to settle off-order-book trades manually or automatically depending on the transaction type.

Virt-x trading hours are from 8 a.m. to 4.30 p.m. GMT.

## 4.3 CLEARING

### 4.3.1 LCH.CLEARNET LTD

LCH.Clearnet Ltd is part of the LCH.Clearnet Group. The Group was formed in December 2003 at the time of the merger between the LCH and the French-based CCP, Clearnet. LCH.Clearnet Ltd serves the business area formerly covered by the LCH, while the business area formerly covered by Clearnet falls under LCH.Clearnet SA. LCH.Clearnet Ltd acts as CCP to all trades executed on the following exchanges: Euronext.LIFFE, the LME, ICE Futures, and EDX. RepoClear is a service provided by LCH.Clearnet Ltd to clear OTC European government and international repo and cash bond trades, while another service, SwapClear, provides clearing facilities for compounding and plain vanilla interest rate swaps, and EnClear clears energy contracts conducted through ICE OTC and Endex, as well as OTC freight and emissions contracts. LCH.Clearnet Ltd also clears cash equity trades conducted on the LSE and virt-x through its EquityClear service. Users of exchange markets served by LCH.Clearnet Ltd must either be LCH.Clearnet Ltd members or have a direct or indirect clearing relationship with a member.

#### *Major legislation and regulation governing the system*

LCH.Clearnet Ltd is an RCH subject to the supervision of the FSA under the FSMA, and the embedded payment arrangements are designated under the FMIRs.

#### *Ownership and governance*

LCH.Clearnet Ltd is wholly owned by the LCH.Clearnet Group. LCH.Clearnet Group is a for-profit, private company, incorporated in the United Kingdom. It is 45.1% owned by some of the exchanges it clears for (comprising 41.5% by Euronext, 3.6% by LME/ICE Futures) and 45.1% by members, with the balance held by Euroclear. While Euronext is the largest individual shareholder, its voting rights are limited to 24.9%.

#### *Financial resources*

LCH.Clearnet Ltd assumes default risk when it accepts trades into clearing, and it covers that risk by requiring payment of margin. Initial margin, which is collected on all trades, is intended to protect LCH.Clearnet Ltd against the potential loss of a defaulter's positions before close-out. LCH.Clearnet Ltd also collects variation margin to re-establish this protection at close of business and, if necessary in fast-moving markets, makes intraday calls for additional margin. Variation margin must be provided in cash for most contracts, while initial margin may be provided in cash or acceptable non-cash collateral. LCH.Clearnet Ltd receives and makes cash margin payments via the Protected Payments System, or PPS (see below). It restricts, mainly to government bonds, cash and bank guarantees, the types and amounts of collateral that it will accept as initial margin. Clearing members allocate business to house accounts (for the members' own trades, related companies and non-segregated customers, if any) and to customer accounts (for segregated customers, if they have any), and the two accounts are maintained and margined independently.

In the event that a default by a clearing member leads to LCH.Clearnet Ltd incurring a loss greater than the defaulter's margin, LCH.Clearnet Ltd has the following financial resources at its disposal:

- a cash-based default fund, to which all members contribute (GBP 583 million (€853 million) as at December 2005) and where the defaulter's contribution would be used first;
- up to GBP 10 million (€15 million) of LCH.Clearnet Ltd's current year's pre-tax earnings, which would be used after the defaulter's default fund contribution and ahead of the rest of the default fund;
- up to GBP 100 million (€146 million) in the event of one member defaulting and the

default fund being insufficient, and up to GBP 200 million (€292 million) of insurance cover in the event of two or more members defaulting and the default fund being insufficient; and

- LCH.Clearnet Ltd's capital base, of approximately GBP 70 million (€102 million) as at December 2005.

In the four defaults by clearing members of LCH.Clearnet to date, losses have been within the defaulter's margin.

#### *Credit and liquidity risk control measures*

In addition to the above, LCH.Clearnet Ltd sets minimum capital requirements for clearing members. These members must also satisfy LCH.Clearnet Ltd regarding their ability to meet day-to-day operational requirements, including the adequacy of their back office and banking arrangements. Liquidity risk is subject to periodic worst-case scenario analysis: LCH.Clearnet Ltd currently ensures that it has GBP 1.15 billion (€1.62 billion) of daily liquidity.

#### *Participation in LCH.Clearnet Ltd's Protected Payments System*

Margin payments are made via LCH.Clearnet Ltd's PPS. Every clearing member maintains an account with at least one participating bank, and LCH.Clearnet Ltd maintains accounts with all participating banks. Initial and variation margin is regularly collected and paid in the morning following the overnight margin calculation. However, initial and variation margin can also be collected at regular times of the day according to observed movements in the prices and positions as a result of new trades. These calls are made only if the member's new margin requirements are not covered by sufficient excess collateral held at the clearing house (which can be caused by favourable intraday moves in other contracts), and the change in margin requirements exceeds GBP 10,000 (€14,669). Once a bank has confirmed to LCH.Clearnet Ltd that it will

make the margin payment required on the member's behalf, it is irrevocably committed to do so. Payments are made by internal branch transfers between the accounts of the clearing members and LCH.Clearnet Ltd at each participating bank.

#### *Transaction processing environment*

LCH.Clearnet Ltd is linked electronically to the exchanges for which it acts as a CCP. SWIFT messages are used to transmit details of margin requirements to members' PPS banks.

### **4.4 SECURITIES SETTLEMENT SYSTEMS**

Following the integration of the CGO and CMO into CREST in 2000 and 2003 respectively, the markets for UK and Irish equities and corporate bonds, government debt and money market instruments are served by CREST, now part of the Euroclear Group.

#### **4.4.1 INSTITUTIONAL AND LEGAL ASPECTS**

##### *Ownership and governance*

CREST was inaugurated in July 1996. It is operated by CRESTCo, which, since September 2002, has been part of the Euroclear Group, the world's largest settlement organisation for domestic and international securities transactions. The Nominations and Remuneration Committee of Euroclear SA/NV is responsible for implementing the established and transparent procedure for appointments of new directors to the Board, using Board-approved criteria. The Board has voluntarily adopted the UK Combined Code of Corporate Governance. Euroclear SA/NV Board committees include a Risk Policy Committee, an Audit Committee, a Strategy Committee, an Executive Compensation Committee and a Business Model Implementation Committee.

##### *Major legislation and regulation governing the system*

The dematerialisation of equities and other corporate securities was made possible by regulations made under Section 207 of the

Companies Act 1989 (the Uncertificated Securities Regulations 1995 – re-enacted with modifications in 2001). Those regulations were amended in 2003 to permit the integration of dematerialised equivalents of money market instruments into CREST.

CREST is subject to regulation by the FSA, both as an RCH under the FSMA and as the operator of a relevant system under the USRs 2001. The embedded payment arrangements in CREST are designated under the FMIRs.

#### *Types of transaction handled*

CREST settles the purchase, sale, loan and repo of UK and Irish equities, UK government and corporate debt and money market instruments. CREST is used by the Bank of England to settle its daily open market operations and to deliver and hold RTGS collateral provided by its market counterparties.

Through its links to other settlement systems in Europe and the United States, members are also able to hold foreign securities. The regulations governing CREST permit only the holding of securities governed by English, Scottish and Northern Irish laws (securities governed by Irish, Jersey and Guernsey laws are held pursuant to the laws of those jurisdictions). Accordingly, a transferee of a foreign security receives a CREST Depository Interest (CDI), an English law instrument representing the holder's proprietary interest in the underlying foreign security, which is held on its behalf in the issuer SSS by a special-purpose CREST nominee. A deed poll executed by CREST Depository Limited (CDL) sets out the holder's right against the CDL to the underlying securities. The CDI holder has legal title to the CDI and beneficially owns the underlying foreign security.

CREST provides payment facilities in three designated currencies: sterling, euro and US dollars.

#### *Participation in the system*

Membership is open to bodies corporate and individuals regardless of domicile or location

(although there are rules relating to the location of gateway computers). Its membership comprises most firms active in the United Kingdom and Irish equity markets and the gilt market (or their custodians), and a large number of individuals.

In CREST terminology, there is a distinction between "participants" and "users". Participants hold securities in CREST ("members") or provide payment services ("settlement banks") or registration services ("registrars"). Users communicate with CRESTCo on behalf of participants.

Most corporate members maintain and operate their own securities accounts in CREST ("direct members"). "Personal members" (mainly individuals) maintain accounts in their own name, but use the facilities of a user (a "sponsor") to communicate with CREST. Sponsors are required to be authorised under the FSMA. Non-members of CREST which are active participants in the equity or gilt markets typically hold their accounts with custodians or brokers which are direct members of the system, although individuals often choose to hold their securities outside the system altogether, in paper form.

Applicants must enter a contractual agreement with CREST and arrange a daylight credit limit for payment settlement with an approved settlement bank. CRESTCo may require participants and users incorporated or resident outside the United Kingdom to provide a legal opinion confirming the participant's or user's ability to be bound by the terms of the agreement executed by CRESTCo and the participant or user.

#### **4.4.2 OPERATIONAL ASPECTS**

##### *Operation of the transfer system*

CREST accepts transfer instructions only from those legally entitled to give them. In many cases this is either the actual or intended legal owner of the assets in question, or somebody who has what is in effect a power of attorney from that owner. In these cases, the terms of the

transfer must be confirmed by both the transferor and the transferee, who input independent instructions to CREST, which are matched before proceeding to settlement.

Direct input is the mechanism by which transactions in the CREST system are created on a participant's behalf when the participant has opted into the central sponsor arrangements. These facilities eliminate the need for the participant (or its sponsor) to input settlement instructions into CREST and provide for straight-through processing where CRESTCo provides functionality for central counterparty services.

The settlement process is continuous between 6 a.m. and 4.40 p.m. GMT, with settlement against payment ceasing at 4.10 p.m. GMT. The system remains open for input and matching of forward-dated transactions until 8 p.m. GMT. These timings are under constant review.

#### ***Transaction processing environment***

All communication between CREST and members must currently occur via one of the three competing accredited network providers, SWIFT, British Telecom or the LSE.

#### ***Settlement procedures***

Securities in CREST are transferred continuously in real time. Following the introduction of electronic transfer of title in 2001, CREST records act as the register for dematerialised securities, so that full legal title is transferred at the point of settlement in CREST.

Since November 2001 CREST has provided real-time settlement in central bank money for transactions in sterling and euro. Settlement takes place throughout the day at the end of each of over 600 processing cycles. The Bank of England provides intraday credit via the SCR mechanism to facilitate the settlement process.

Obligations arising from transactions in US dollars are settled through correspondents in the United States, on an end-of-US-day bilateral net basis.

In August 2006 transaction processing in CREST migrated onto Euroclear's Single Settlement Engine. In order to comply with the United Kingdom's USRs, which require that records of legal title reside in the United Kingdom, a separate system located in the United Kingdom – the "Local Legal Record" – has been built and incorporated into the settlement process.

#### ***Credit and liquidity risk control measures***

CREST settlement banks are bound by contract to settle debts incurred in the CREST system by their customers. The settlement banks provide their customers with intraday credit in CREST, limiting their exposure by setting up debit caps within the system; CREST itself provides no credit facilities. The debit cap represents the maximum debit position which a settlement bank is willing to assume for a given customer and is a combination of unsecured credit and credit advanced in return for charge over securities held by their customer in CREST.

#### ***Pricing policies***

CRESTCo sets prices to cover its costs, including the cost of capital.



## GLOSSARY<sup>1</sup>



Term	Definition
<b>Acceptance for settlement:</b>	the stage in the processing of a payment at which it has passed all risk management and other tests and can be settled under the system's rules and procedures.
<b>Access:</b>	the right of or opportunity for an institution to use the services of a particular payment or securities settlement system to settle payments/ transactions on its own account or for customers. See also <i>Participant in an IFTS</i> , <i>Direct participant in an IFTS</i> , <i>Indirect participant</i> .
<b>Acquirer:</b>	entity or entities holding deposit accounts for card acceptors (retailers) and to which the card acceptor transmits the data relating to the transaction. The acquirer is responsible for the collection of transaction information and settlement with the acceptors.
<b>Acquiring technical operator:</b>	the party providing the technical facilities for each acquiring entity to accept the data relating to each transaction.
<b>Ancillary system:</b>	a system in which payments or securities are exchanged and/or cleared, while the ensuing monetary obligations are settled in another system, typically an RTGS system.
<b>Asymmetric cryptography:</b>	a set of cryptographic techniques in which two different keys (private and public keys) are used for encrypting and decrypting data. The private key is kept secret by its holder, while the public key is made available to communicating entities. Also called "public key cryptography".
<b>Authentication:</b>	the methods used to verify the origin of a message or to verify the identity of a participant connected to a system and to confirm that a message has not been modified or replaced in transit.
<b>Automated clearing house (ACH):</b>	an electronic clearing system in which payment orders are exchanged among financial institutions, primarily by using magnetic media or via telecommunication networks, and handled by a data processing centre. See also <i>Clearing/clearance</i> .
<b>Automated teller machine (ATM):</b>	an electromechanical device which permits authorised users, typically using machine-readable plastic cards, to withdraw cash from their accounts and/or access other services (allowing them, for example, to make balance enquiries, transfer funds or make deposits). ATMs may be operated either online, with real-time access to an authorisation database, or offline.
<b>Availability:</b>	criterion for evaluating a system on the basis of its backup facilities and the possibility of switching over to them.
<b>Balance-based system:</b>	an electronic money system in which the electronic funds are stored on a device as a numerical ledger, with transactions performed as debits from or credits to a balance.
<b>Bank draft:</b>	a term which generally refers to a draft drawn by a bank on itself. The draft is purchased by the payer and sent to the payee, which presents it to its bank for payment. That bank presents it to the payer's bank for reimbursement. See also <i>Draft</i> .
<b>Bank Identifier Code (BIC):</b>	a universal means of identifying financial institutions in order to facilitate the automated processing of telecommunication messages in financial environments.

<sup>1</sup> The terms and definitions contained in this glossary are the same as those in previous editions of the Blue Book. However, the Eurosystem is currently revising and updating these definitions. Once this process has been completed, the new definitions will supersede those in this glossary.

Term	Definition
<b>Batch processing:</b>	the transmission or processing of a group of payment orders and/or securities transfer instructions in batches at discrete intervals of time.
<b>Beneficial ownership/ interest:</b>	the entitlement to receive some or all of the benefits of ownership of a security or other financial instrument (e.g. income, voting rights and power to transfer). Beneficial ownership is usually distinguished from “legal ownership” of a security or financial instrument.
<b>Bilateral credit limit:</b>	see <i>Credit limit</i> .
<b>Bilateral exposure:</b>	one party’s exposure to another party. See also <i>Credit risk/exposure</i> .
<b>Bilateral net settlement system:</b>	a settlement system in which participants’ bilateral net settlement positions are settled between each bilateral combination of participants. See also <i>Net credit (or net debit) position</i> .
<b>Bilateral netting:</b>	an arrangement between two parties to net their bilateral obligations. The obligations covered by the arrangement may arise from financial contracts, transfers, or both. See also <i>Netting, Multilateral netting, Net settlement</i> .
<b>Bill of exchange:</b>	a written order from one party (the drawer) to another (the drawee) to pay a specified sum on demand or on a specified date to the drawer or to a third party specified by the drawer. Widely used to finance trade and, when discounted with a financial institution, to obtain credit. See also <i>Draft</i> .
<b>Book-entry system:</b>	an accounting system which permits the transfer of claims without the physical movement of paper documents or certificates (e.g. electronic transfer of securities). See also <i>Debt book-entry system, Share book-entry system, Dematerialisation, Immobilisation</i> .
<b>Broker:</b>	a firm which communicates bid and offer levels to potential principals and otherwise arranges transactions as agent for a fee, without acting as a party to the transactions.
<b>Broker-dealer:</b>	a person or firm sometimes acting as broker and sometimes as principal intermediary in securities transactions. See also <i>Broker</i> .
<b>Bulk funds transfer system:</b>	see <i>Retail funds transfer system</i> .
<b>Business continuity:</b>	a payment system or securities settlement system arrangement which aims to ensure that the system in question meets agreed service levels even if one or more components of the system fail or it is affected by another abnormal event. This includes both preventative measures and arrangements to deal with these events.
<b>Capital risk:</b>	see <i>Principal risk</i> .
<b>Caps:</b>	quantitative limits on the funds transfer activity of individual participants in a system; limits may be set by each individual participant or may be imposed by the body managing the system. Limits can be placed on the net debit position or net credit position of participants in the system.
<b>Card:</b>	see <i>Cash card, Cheque guarantee card, Chip card, Credit card, Debit card, Delayed debit card, Prepaid card, Retailer card, Travel and entertainment card</i> .
<b>Card-based products:</b>	electronic money products which provide the customer with a portable, specialised computer device, typically an IC card containing a microprocessor chip. See also <i>IC (integrated circuit) card</i> .
<b>Cash card:</b>	card for use only in ATMs or cash dispensers. (Other cards often have a cash function which permits the holder to withdraw cash.)

Term	Definition
<b>Cash correspondents:</b>	banks (or similar institutions) used by the SSS to make or receive payments.
<b>Cash dispenser:</b>	an electromechanical device which permits consumers, typically using machine-readable plastic cards, to withdraw banknotes (currency) and, in some cases, coins. See also <i>Automated teller machine (ATM)</i> .
<b>Cashier's cheque:</b>	see <i>Bank draft</i> .
<b>Central bank bills:</b>	short-term securities issued by the central bank; can be marketable or tradable.
<b>Central bank credit (liquidity) facility:</b>	a standing credit facility at a central bank which can be drawn upon by certain designated account holders (e.g. banks). The facility can be used automatically at the initiative of the account holder. The loans typically take the form of either advances or overdrafts on an account holder's current account. These may be secured by a pledge of securities or by repurchase agreements. See also <i>Daylight credit (or daylight overdraft, daylight exposure, intraday credit)</i> , <i>Marginal lending facility</i> .
<b>Central counterparty:</b>	an entity which interposes itself as the buyer to every seller and as the seller to every buyer for a specified set of contracts.
<b>Central securities depository (CSD):</b>	an entity which holds and administers securities and enables securities transactions to be processed by book entry. Securities can be held in a physical but immobilised or dematerialised form (i.e. such that they exist only as electronic records). In addition to the safekeeping and administration of securities, a CSD may incorporate clearing and settlement functions.
<b>Certification authority:</b>	an entity entrusted with creating and assigning public key certificates.
<b>Chaining:</b>	a method used in certain transfer systems (mostly for securities) for processing instructions. It involves the manipulation of the sequence in which transfer instructions are processed in order to increase the number or value of transfers which may be settled with available funds and/or securities balances (or available credit or securities lending lines).
<b>Charge card:</b>	see <i>Travel and entertainment card</i> .
<b>Cheque:</b>	a written order from one party (the drawer) to another (the drawee; normally a bank) requiring the drawee to pay a specified sum on demand to the drawer or to a third party specified by the drawer. Cheques may be used for settling debts and withdrawing money from banks. See also <i>Bill of exchange</i> .
<b>Cheque guarantee card:</b>	a card issued as part of a cheque guarantee system. This function may be combined with other functions in the same card, e.g. those of a cash card or debit card. See also <i>Cheque guarantee system</i> .
<b>Cheque guarantee system:</b>	a system to guarantee cheques, typically up to a specified amount, which have been validated by the retailer either on the basis of a card issued to the cheque writer or through a central database accessible to retailers. Validated cheques are guaranteed by the issuer of the guarantee card, the drawee bank or the system operator.
<b>Chip card:</b>	also known as an "IC (integrated circuit) card". A card containing one or more computer chips or integrated circuits for identification, data storage or special-purpose processing used to validate personal identification numbers (PINs), authorise purchases, verify account balances and store personal records. In some cases, the memory in the card is updated every time the card is used (e.g. an account balance is updated).

Term	Definition
<b>Clearing/ clearance:</b>	the process of transmitting, reconciling and, in some cases, confirming payment orders or security transfer instructions prior to settlement, possibly including the netting of instructions and the establishment of final positions for settlement. Sometimes the terms are used (imprecisely) to include settlement.
<b>Clearing and settling institution:</b>	an institution which transmits information and funds through a payment system network. It may operate as an agent or a principal.
<b>Clearing house:</b>	a department of an exchange or a separate legal entity which provides a range of services related both to the clearing and settlement of transactions and payments and to the management of risks associated with the resulting contracts. In many cases, the clearing house acts as central counterparty. See also <i>Central counterparty</i> , <i>Clearing/clearance</i> .
<b>Clearing system:</b>	a set of procedures whereby financial institutions present and exchange data and/or documents relating to funds or securities transfers to other financial institutions. The procedures often also include a mechanism for the calculation of participants' bilateral and/or multilateral net positions with a view to facilitating the settlement of their obligations on a net or net net basis. See also <i>Netting</i> .
<b>Closed network:</b>	telecommunications network used for a specific purpose, such as a payment system, and to which access is restricted.
<b>Close-out netting:</b>	a special form of netting which occurs following a number of predefined events (e.g. defaults). Close-out netting is intended to reduce exposures on open contracts if one party falls foul of certain conditions specified by the contract (e.g. by becoming subject to insolvency procedures) before the settlement date. (This is also referred to as "default netting", "open contract netting" or "replacement contract netting".)
<b>Collateral:</b>	assets pledged as a guarantee for the repayment of the short-term liquidity loans which credit institutions receive from central banks, as well as the assets sold to central banks by credit institutions as part of repurchase operations.
<b>Collateral pool:</b>	pool account on which a pooling system's participant holds securities pledged in favour of the central bank in charge of the system when obtaining credit (for intraday, overnight or monetary policy operations). See also <i>Collateral pooling system</i> .
<b>Collateral pooling system:</b>	a central bank system for managing collateral whereby counterparties open a pool account in which they deposit assets to serve as collateral in their transactions with the central bank. In a pooling system, by contrast with an earmarking system, the underlying assets are not earmarked for individual transactions. See also <i>Collateral pool</i> .
<b>Computer-based terminal (CBT):</b>	a network interface device, provided and operated by the user, consisting of both hardware and software.
<b>Confidentiality:</b>	the quality of being protected against unauthorised disclosure.
<b>Confirmation:</b>	a particular connotation of this widely used term is the process whereby a market participant notifies its counterparties or customers of the details of a trade and, typically, allows them time to confirm or question the trade.

Term	Definition
<b>Correspondent banking:</b>	an arrangement under which one bank provides payment services and other services to another bank. Payments through correspondents are often executed through reciprocal accounts (nostro and loro accounts), to which standing credit lines may be attached. Correspondent banking services are primarily provided across international boundaries, but are also found as agency relationships in some domestic contexts. “Loro account” is the term used by a correspondent to describe an account held on behalf of a foreign bank; the foreign bank would regard this account as its “nostro account”.
<b>Correspondent central banking model (CCBM):</b>	a model established by the European System of Central Banks with the aim of enabling counterparties to transfer eligible assets as collateral in a cross-border context. In the CCBM, NCBs act as custodians for one another. This means that each NCB has a securities account in its securities administration for each of the other NCBs (and for the European Central Bank).
<b>Counterparty:</b>	the opposite party in a financial transaction (e.g. the other party in any transaction with the central bank).
<b>Credit caps:</b>	see <i>Caps</i> .
<b>Credit card:</b>	a card indicating that the holder has been granted a line of credit. It enables the holder to make purchases and/or withdraw cash up to a prearranged ceiling; the credit granted can be settled in full by the end of a specified period or can be settled in part, with the balance taken as extended credit. Interest is charged on the amount of any extended credit, and the holder is sometimes charged an annual fee.
<b>Credit card company:</b>	a company which owns the trademark of a particular credit card, and may also provide a number of marketing, processing or other services to members using the card services.
<b>Credit institution:</b>	a credit institution is an institution covered by the definition contained in Article 1(1) of Directive 2000/12/EC of the European Parliament and of the Council of 20 March 2000 relating to the taking up and pursuit of the business of credit institutions, i.e. “an undertaking whose business is to receive deposits or other repayable funds from the public and to grant credits for its own account”.
<b>Credit limit:</b>	the limit on the credit exposure which a payment system participant incurs vis-à-vis another participant (bilateral credit limit) or vis-à-vis all other participants (multilateral credit limit) as a result of receiving payments which have not yet been settled.
<b>Credit risk/exposure:</b>	the risk that a counterparty will not settle an obligation in full, either when due or at any time thereafter. In exchange-for-value systems, credit risk is generally defined as including replacement cost risk and principal risk.
<b>Credit transfer:</b>	a payment order or, occasionally, a sequence of payment orders, made for the purpose of placing funds at the disposal of a beneficiary. Both the payment instructions and the funds described therein move from the bank of the payer/originator to the bank of the beneficiary, possibly via several other banks as intermediaries and/or more than one credit transfer system.
<b>Credit transfer system:</b>	a funds transfer system through which payment orders move from (the bank of) the originator of the transfer message or payer to (the bank of) the receiver of the message or beneficiary.
<b>Cross-border netting scheme:</b>	an arrangement to net positions or obligations between or among parties in more than one country or jurisdiction. See also <i>Netting</i> .
<b>Cross-border settlement:</b>	settlement which takes place in a country other than the country or countries in which one or both of the parties to the trade are located.

Term	Definition
<b>Cross-system settlement:</b>	settlement of a trade which is effected through a link between two separate securities transfer systems.
<b>Cryptography:</b>	the application of mathematical methods to develop techniques and algorithms which can be applied to data in order to ensure goals such as confidentiality, data integrity and/or authentication.
<b>Current exposure:</b>	the loss that would be incurred today on a contract or set of contracts if a counterparty failed to perform on its obligations. Also known as “replacement cost”, current exposure is what it would cost to replace a given contract if the counterparty defaulted today.
<b>Custodian:</b>	an entity, often a bank, which is responsible for the safekeeping and administration of securities and other financial assets on behalf of others and which may also provide various other services, including clearance and settlement, cash management, foreign exchange and securities lending.
<b>Custody:</b>	the safekeeping and administration of securities and financial instruments on behalf of others.
<b>Custody risk:</b>	the risk of loss of securities held in custody occasioned by the insolvency, negligence or fraudulent actions of the entity responsible for the safekeeping of the securities.
<b>Customer-to-customer transfer:</b>	see <i>Transferability</i> .
<b>Daily processing:</b>	the complete cycle of processing tasks which needs to be completed in a typical business day, from start-of-day procedures to end-of-day procedures, including the backing up of data.
<b>Daily settlement:</b>	the completion of settlement on the day of value of all payments accepted for settlement.
<b>Day of value:</b>	the day on which a payment is due to be credited to the receiving participant in the payment system. The day of value for the receiving participant’s customer (i.e. the day on which the receiving participant credits the customer in its books) may or may not be the same day, depending on specific arrangements or local practice.
<b>Daylight credit (or daylight overdraft, daylight exposure, intraday credit):</b>	credit extended for a period of less than one business day. Daylight credit may be extended by central banks to even out mismatches in payment settlements. In a credit transfer system with end-of-day final settlement, daylight credit is, in effect, extended by a receiving institution if it accepts and acts on a payment order even though it will not receive final funds until the end of the business day.
<b>Dealer:</b>	a firm that enters into transactions as a counterparty on both sides of the market in one or more products. OTC derivatives dealers are primarily large international financial institutions – mostly commercial banks, but also, occasionally, securities firms and insurance companies. A few are affiliates of what are primarily non-financial firms.
<b>Debit caps:</b>	see <i>Caps</i> .
<b>Debit card:</b>	a card enabling the holder to have his purchases directly charged to funds on his account at a deposit-taking institution. (This may sometimes be combined with another function, e.g. that of a cash card or cheque guarantee card.)
<b>Debit transfer system:</b>	a funds transfer system in which debit collection orders made or authorised by the payer move from (the bank of) the payee to (the bank of) the payer and result in a charge (debit) to the account of the payer; for example, cheque-based systems are typical debit transfer systems. Also called a “debit collection system”.

Term	Definition
<b>Debt book-entry system:</b>	a computerised system for the issue and registration of debt securities in book-entry form. See also <i>Book-entry system</i> , <i>Share book-entry system</i> .
<b>Default:</b>	the failure to complete a funds or securities transfer in accordance with its terms for reasons which are not technical or temporary, usually as a result of bankruptcy. Default is usually distinguished from a “failed transaction”.
<b>Defaulter pays:</b>	a loss-sharing arrangement whereby each participant is required to collateralise any exposures which it creates for other participants. As a result, losses from a party’s default are borne by the defaulting party.
<b>Deferred net settlement system:</b>	a system which effects the settlement of obligations or transfers between or among parties on a net basis at some later time.
<b>Delayed debit card:</b>	a card issued by banks indicating that the holder may charge his account up to an authorised limit. It allows holders to make purchases but does not offer extended credit, the full amount of the debt incurred having to be settled at the end of a specified period. The holder is usually charged an annual fee.
<b>Delivery:</b>	final transfer of a security or financial instrument.
<b>Delivery-versus-payment system (or delivery against payment; DvP):</b>	a mechanism in an exchange-for-value settlement system which ensures that the final transfer of one asset occurs if, and only if, the final transfer of another asset (or other assets) occurs. Assets could include securities or other financial instruments.
<b>Dematerialisation:</b>	the elimination of physical certificates or documents of title which represent ownership of securities so that securities exist only as accounting records.
<b>Depository:</b>	an agent with the primary role of recording securities either physically or electronically and keeping records of the ownership of these securities.
<b>Deposit facility:</b>	a standing facility of the Eurosystem which counterparties may use to make overnight deposits at an NCB and which are remunerated at a pre-specified interest rate.
<b>Derivative:</b>	a financial contract, the value of which depends on the value of one or more underlying reference assets, rates or indices. For analytical purposes, all derivatives contracts can be divided into basic building blocks of forward contracts, options or combinations thereof.
<b>Digital signature:</b>	a string of data, generated by a cryptographic method, which is attached to a message in order to ensure its authenticity and protect the recipient against repudiation by the sender.
<b>Direct debit:</b>	a pre-authorised debit on the payer’s bank account initiated by the payee.
<b>Direct participant in an IFTS:</b>	a participant in an interbank funds transfer system (IFTS) which is responsible to the settlement agent (or to all other direct participants) for the settlement of its own payments, those of its customers, and those of the indirect participants on whose behalf it is settling.
<b>Discharge:</b>	the release from a legal obligation imposed by contract or law.
<b>Disclosure:</b>	see <i>Public disclosure</i> .
<b>Domestic settlement:</b>	settlement which takes place in the country in which both parties to the trade are located.
<b>Domestic trade:</b>	a trade between parties located in the same country.

Term	Definition
<b>Draft:</b>	a written order from one party (the drawer) to another (the drawee) to pay a party identified on the order (payee) or the bearer a specified sum, either on demand (sight draft) or on a specified date (time draft). See also <i>Cheque</i> , <i>Bank draft</i> , <i>Bill of exchange</i> .
<b>DvP schemes as defined by the G10:</b>	three schemes can be distinguished: in Model 1, transfer instructions for both securities and funds are settled on a trade-by-trade basis, with final transfer of the securities from the seller to the buyer (delivery) occurring at the same time as final transfer of the funds from the buyer to the seller (payment); in Model 2, securities transfer instructions are settled on a gross basis with final transfer of securities from the seller to the buyer (delivery) occurring throughout the processing cycle, but funds transfer instructions being settled on a net basis, with final transfer of funds from the buyer to the seller (payment) occurring at the end of the processing cycle; and, in Model 3, transfer instructions for both securities and funds are settled on a net basis, with final transfers of both securities and funds occurring at the end of the processing cycle.
<b>EEA (European Economic Area) countries:</b>	the EU Member States plus Iceland, Liechtenstein and Norway.
<b>EFTPOS:</b>	see <i>Point of sale (POS)</i> .
<b>Electronic data interchange (EDI):</b>	the electronic exchange between commercial entities (in some cases also public administrations), in a standard format, of data relating to a number of message categories, such as orders, invoices, customs documents, remittance advices and payments. EDI messages are sent through public data transmission networks or banking system channels. Any movement of funds initiated by EDI is reflected in payment instructions flowing through the banking system. EDIFACT, a United Nations body, has established standards for electronic data interchange.
<b>Electronic money (e-money):</b>	an electronic store of monetary value on a technical device that may be widely used for making payments to undertakings other than the issuer without necessarily involving bank accounts in the transaction, but acting as a prepaid bearer instrument (see also <i>Multi-purpose prepaid card</i> ).
<b>Electronic purse:</b>	a reloadable multi-purpose prepaid card which may be used for small retail or other payments instead of banknotes and coins. See also <i>Multi-purpose prepaid card</i> .
<b>Electronic wallet:</b>	a computer device used in some electronic money systems which can contain an IC card, or into which IC cards can be inserted, and which may perform more functions than an IC card. See also <i>IC (integrated circuit) card</i> .
<b>Encryption:</b>	the use of cryptographic algorithms to encode clear text data (plaintext) into ciphertext in order to prevent unauthorised observation.
<b>Exchange-for-value settlement system:</b>	a system which involves the exchange of assets, such as money, foreign exchange, securities or other financial instruments, in order to discharge settlement obligations. These systems may use one or more funds transfer systems in order to satisfy the payment obligations which are generated. The links between the exchange of assets and the payment system(s) may be manual or electronic. See also <i>Delivery-versus-payment system (or delivery against payment; DvP)</i> .
<b>Face-to-face payment:</b>	a payment carried out by the exchange of instruments between the payer and the payee in the same physical location.
<b>Failed transaction:</b>	a securities transaction which does not settle on the contractual settlement date.
<b>Final (finality):</b>	irrevocable and unconditional.

Term	Definition
<b>Final settlement:</b>	settlement which is irrevocable and unconditional.
<b>Final transfer:</b>	an irrevocable and unconditional transfer which effects a discharge of the obligation to make the transfer. The terms "delivery" and "payment" are each defined as a final transfer. See also <i>Provisional transfer</i> .
<b>Financial application (FIN):</b>	the SWIFT II application within which all SWIFT II user-to-user messages are input and output. Certain user-to-SWIFT and SWIFT-to-user messages may also be sent and received within FIN.
<b>Financial risk:</b>	term covering a range of risks incurred in financial transactions – both liquidity and credit risks. See also <i>Liquidity risk</i> , <i>Credit risk/exposure</i> .
<b>Firewall:</b>	a hardware and/or software-based system that is used as an interface between the internet and a computer system to monitor and filter incoming and outgoing communications.
<b>Foreign exchange settlement risk:</b>	the risk that one party to a foreign exchange transaction will pay the currency it has sold but not receive the currency it has bought. This is also called "cross-currency settlement risk" or "principal risk". It is also referred to as "Herstatt risk", although this is an inappropriate term given the differing circumstances in which that risk materialised.
<b>Free-of-payment (FOP) delivery:</b>	delivery of securities with no corresponding payment of funds.
<b>Funds transfer system (FTS):</b>	a formal arrangement, based on private contract or statute law, with multiple membership, common rules and standardised arrangements, for the transmission and settlement of money obligations arising between the members. See also <i>Interbank funds transfer system (IFTS)</i> .
<b>Fungibility:</b>	a concept that characterises the method of holding securities by a CSD or other financial intermediary in which each of a number of issues of physical or dematerialised securities is held in a separate fungible pool. No owner has the right to any particular physical or dematerialised security in a particular pool; an owner does, however have a right to such an amount of physical or dematerialised securities as is shown in its account with a CSD or other financial intermediary. see <i>Credit transfer system</i> .
<b>Giro system:</b>	a custodian which provides its customers with custody services in respect of securities traded and settled not only in the country in which the custodian is located, but also in numerous other countries throughout the world.
<b>Gridlock:</b>	a situation which can arise in a funds or securities transfer system in which the failure of some transfer instructions to be executed (because the necessary funds or securities balances are unavailable) prevents a substantial number of other instructions from other participants from being executed. See also <i>Failed transaction</i> , <i>Queuing</i> , <i>Systemic risk</i> .
<b>Gross settlement system:</b>	a transfer system in which the settlement of funds or securities transfer instructions occurs individually (on an instruction-by-instruction basis).
<b>Haircut:</b>	the difference between the market value of a security and its collateral value. Haircuts are taken by a lender of funds in order to protect the lender, should the need arise to liquidate the collateral, from losses owing to declines in the market value of the security. See also <i>Margin</i> . see <i>Principal risk</i> .
<b>Herstatt risk:</b>	banking services which a retail customer of a financial institution can access using a telephone, television set, terminal or personal computer as a telecommunication link to the institution's computer centre.

Term	Definition
<b>Hybrid system:</b>	a payment system which combines characteristics of RTGS systems and netting systems.
<b>IC (integrated circuit) card:</b>	a plastic card in which one or more integrated circuits are embedded. Also called a “chip card”.
<b>Immobilisation:</b>	placement of certificated securities and financial instruments in a central securities depository to facilitate book-entry transfers.
<b>Indirect participant:</b>	refers to a type of participant in a funds or securities transfer system in which there is a tiering arrangement. Indirect participants are distinguished from direct participants by their inability to perform some of the system activities (e.g. inputting of transfer orders or settlement) performed by direct participants. Indirect participants thus require the services of direct participants to perform those activities on their behalf. In an EU context, the term refers more specifically to participants in a transfer system which are responsible only to their direct participants for settling the payments input in the system. See also <i>Direct participant in an IFTS</i> , <i>Settling participant</i> , <i>Tiering arrangement</i> .
<b>Initial margin:</b>	a risk control measure applied in reverse transactions implying that the collateral required for a transaction is equal to the credit extended to the counterparty plus the value of the initial margin. More generally, cash or collateral which is deposited with the clearing house in order to ensure performance on obligations. (Also known as a “performance bond” or “original margin”.)
<b>Integrity:</b>	the quality of being protected against accidental or fraudulent alteration, or the quality of indicating whether or not alteration has occurred.
<b>Interbank funds transfer system (IFTS):</b>	a funds transfer system in which most (or all) direct participants are financial institutions, particularly banks and other credit institutions.
<b>Interchange fee:</b>	a transaction fee set by the network organisation and paid by the card-issuing institution to the acquiring institution for the cost of deploying and maintaining ATMs and EFTPOS terminals.
<b>Interlinking:</b>	within the TARGET system, Interlinking provides common procedures and an infrastructure which allow payment orders to move from one domestic RTGS system to another.
<b>International central securities depository (ICSD):</b>	a securities settlement system which clears and settles international securities or cross-border transactions in domestic securities. At present, there are two ICSDs located in EU countries: Clearstream Luxembourg and Euroclear Bank.
<b>Interoperability:</b>	a situation in which payment instruments belonging to a given scheme may be used in other countries and in systems installed by other schemes. Interoperability requires technical compatibility between systems, but can only take effect where commercial agreements have been concluded between the schemes concerned.
<b>Intraday credit:</b>	see <i>Daylight credit (or daylight overdraft, daylight exposure, intraday credit)</i> .
<b>Intraday liquidity:</b>	funds which can be accessed during the business day, usually to enable financial institutions to make payments in real time. See also <i>Intraday credit</i> .
<b>Irrevocable and unconditional transfer:</b>	a transfer which cannot be revoked by the transferor and is unconditional (and therefore final).

Term	Definition
Issuer:	the entity which is obligated by a security or other financial instrument. For example, a corporation or government with authority to issue and sell securities; or a bank which issues a letter of credit. The term is sometimes used to refer to a financial institution which issues credit or debit cards. In a stored value or similar prepaid electronic money system, the issuer is the entity which receives payment in exchange for value distributed in the system and which is obligated to pay or redeem transactions or balances presented to it.
Key:	a unique series of digits used in combination with a cryptographic algorithm.
Large-value funds transfer system:	a funds transfer system through which large-value and high-priority funds transfers are made between participants in the system for their own account or on behalf of their customers. Although, as a rule, no minimum value is set for the payments they carry, the average size of payments passed through such systems is usually relatively large. Large-value funds transfer systems are sometimes known as “wholesale funds transfer systems”.
Large-value payments:	payments, generally of very large amounts, which are mainly exchanged between banks or between participants in the financial markets and usually require urgent and timely settlement.
Legal risk:	the risk of loss because of the unexpected application of a law or regulation or because a contract cannot be enforced.
Letter of credit (L/C):	a promise by a bank or other issuer to a third party to make payment on behalf of a customer in accordance with specified conditions. Frequently used in international trade to make funds available in a foreign location.
Limit:	see <i>Credit limit</i> .
Limited-purpose prepaid card:	a prepaid card which can be used for a limited number of well-defined purposes. Its use is often restricted to a number of well-identified points of sale within a well-identified location (e.g. a building, corporation or university). In the case of single-purpose prepaid cards, the card issuer and the service provider may be identical (e.g. cards used in public telephones). See also <i>Prepaid card</i> .
Link between securities settlement systems:	a link consists of all the procedures and arrangements which exist between two SSSs for the transfer of securities between the two SSSs concerned through a book-entry process.
Liquidity risk:	the risk that a counterparty (or participant in a settlement system) will not settle an obligation for full value when due. Liquidity risk does not imply that a counterparty or participant is insolvent, since it may be able to settle the required debit obligations at some unspecified time thereafter.
Long position:	a situation in which the buyer or holder of securities owns more securities than it contracts to deliver.
Loss-sharing agreement:	an agreement among participants in a clearing or settlement system regarding the allocation of any losses arising from the default of a participant in the system or of the system itself.
Loss-sharing pools:	cash, securities or possibly other assets that are provided by the participants in advance and are held by the system to ensure that commitments arising from loss-sharing agreements can be met.
MAC:	Message Authentication Code: a hash algorithm parameterised with a key to generate a number which is attached to the message and used to authenticate it and guarantee the integrity of the data transmitted.

Term	Definition
<b>Margin:</b>	a term generally referring to the collateral used to secure an obligation, either realised or potential. In securities markets, it is the collateral deposited by a customer in order to secure a loan from a broker for the purchase of shares. In organisations with a central counterparty, the collateral deposited in order to guarantee performance of an obligation or to cover potential market movements on unsettled transactions is also sometimes referred to as a margin.
<b>Marginal lending facility:</b>	a standing facility of the Eurosystem which counterparties may use to receive overnight credit from an NCB against a pre-specified interest rate.
<b>Market risk:</b>	the risk of losses in on and off-balance sheet positions arising from movements in market prices.
<b>Marking to market:</b>	the practice of revaluing securities and financial instruments using current market prices. In some cases, unsettled contracts to purchase or sell securities are marked to market and the party with an as yet unrealised loss on the contract is required to transfer funds or securities equal to the value of the loss to the other party.
<b>Matching:</b>	the process used for comparing the trade or settlement details provided by parties in order to ensure that they agree on the terms of the transaction. Also called “comparison checking”.
<b>Money order:</b>	an instrument used to remit money to a named payee, often used by persons who do not have a current account with a financial institution, to pay bills or to transfer money to another person or to a company. There are three parties to a money order: the remitter (payer), the payee and the drawee. Drawees are usually financial institutions or post offices. Payees can either cash their money orders or present them to their bank for collection.
<b>Multifunction cards:</b>	a card which, in addition to a stored value card function, may include other payment facilities such as a debit or credit card function and/or non-payment facilities.
<b>Multilateral credit limit:</b>	see <i>Credit limit</i> .
<b>Multilateral net settlement position:</b>	the sum of the value of all the transfers a participant in a net settlement system has received during a certain period of time less the value of the transfers made by the participant to all other participants. If the sum is positive, the participant is in a multilateral net credit position; if the sum is negative, the participant is in a multilateral net debit position.
<b>Multilateral net settlement system:</b>	a settlement system in which each settling participant settles (typically by means of a single payment or receipt) the multilateral net settlement position which results from the transfers made and received by it, for its own account and on behalf of its customers or non-settling participants for which it is acting. See also <i>Multilateral netting</i> , <i>Multilateral net settlement position</i> , <i>Direct participant in an IFTS</i> .
<b>Multilateral netting:</b>	an arrangement among three or more parties to net their obligations. The obligations covered by the arrangement may arise from financial contracts, transfers or both. The multilateral netting of payment obligations normally takes place in the context of a multilateral net settlement system. Such netting is conducted through a central counterparty. The multilateral net position is also the bilateral net position between each participant and the central counterparty. See also <i>Bilateral netting</i> , <i>Multilateral net settlement position</i> , <i>Multilateral net settlement system</i> .

Term	Definition
<b>Multi-purpose prepaid card:</b>	a prepaid card which can be used at the outlets of several service providers for a wide range of purposes and which has the potential to be used on a national or international level, but which may sometimes be limited to a certain area. A reloadable multi-purpose prepaid card is also known as an “electronic purse”. See also <i>Electronic money (e-money)</i> .
<b>Multi-purpose prepaid card scheme:</b>	a scheme in which at least three parties are involved: the issuer, the cardholder and the acceptor of the card. (Where one acceptor currently exists, it must be possible for other legally distinct acceptors to join the scheme.)
<b>Net credit (or net debit) position</b>	a participant’s net credit or net debit position in a netting system is the sum of the value of all the transfers it has received up to a particular point in time less the value of all transfers it has sent. If the difference is positive, the participant is in a net credit position; if the difference is negative, the participant is in a net debit position. The net credit or net debit position at settlement time is called the net settlement position. These net positions may be calculated on a bilateral or multilateral basis.
<b>Net debit cap:</b>	see <i>Caps, Net credit (or net debit) position</i> .
<b>Net settlement:</b>	the settlement of a number of obligations or transfers between or among parties on a net basis. See also <i>Netting</i> .
<b>Net settlement system:</b>	a funds transfer or securities settlement system whose settlement operations are completed on a bilateral or multilateral net basis.
<b>Netting:</b>	an agreed offsetting of positions or obligations by trading partners or participants. The netting reduces a large number of individual positions or obligations to a smaller number of obligations or positions. Netting may take several forms, which have varying degrees of legal enforceability in the event of the default of one of the parties. See also <i>Bilateral netting, Multilateral netting, Position netting, Novation, Substitution (of party)</i> .
<b>Netting by novation:</b>	netting by novation agreements provide for individual forward-value contractual commitments (e.g. foreign exchange contracts) to be discharged at the time of their confirmation and replaced by new obligations forming part of a single agreement. Amounts due under a discharged contract will be added to running balances due between the parties in each currency at each future value date.
<b>Nominee:</b>	a person or entity named by another to act on its behalf. A nominee is commonly used in a securities transaction to obtain registration and legal ownership of a security.
<b>Non-repudiability:</b>	the ability to prevent denial or repudiation by the sender or receiver of a payment message.
<b>Novation:</b>	satisfaction and discharge of existing contractual obligations by means of their replacement by new obligations (whose effect, for example, is to replace gross with net payment obligations). The parties to the new obligations may be the same as to the existing obligations or, in the context of some clearing house arrangements, there may additionally be substitution of parties. See also <i>Substitution (of party)</i> .
<b>Offsetting:</b>	see <i>Netting</i> .
<b>Open network:</b>	telecommunications network to which access is not restricted.
<b>Operating system:</b>	that part of the software of a computer system (or chip) which is closely connected to the hardware on which it runs and performs basic input/output operations, computations, memory management, etc.

Term	Definition
<b>Operational risk:</b>	the risk of human error or a breakdown of some component of the hardware, software or communications systems which is crucial to settlement.
<b>Operational safe custody accounts:</b>	securities accounts run by the central bank in which credit institutions can place securities which are eligible as collateral for central bank operations. The securities held on these accounts are ultimately deposited with the CSD under the name of the NCB, so that the transfer to a safe custody account results in a transfer between the bank's and the NCB's account with the CSD. The securities deposited with the NCB are generally pledged to the NCB as collateral for (interest-bearing) overnight and (interest-free) intraday credit. They can also be used for open market transactions (repos) based on general authorisation given to the NCB to acquire securities.
<b>Optimisation routine:</b>	routine processes in a payment system to determine the order in which payments are accepted for settlement. Optimisation routines are used to improve system liquidity and increase settlement efficiency. See also <i>Queueing, Scheduling</i> .
<b>Overnight money (day-to-day money):</b>	a loan with a maturity of one business day.
<b>Oversight of payment systems:</b>	a central bank task, principally intended to promote the smooth functioning of payment systems. The objectives of oversight are: to protect the financial system from possible "domino effects", which may occur when one or more participants in the payment system incur credit or liquidity problems; and to foster the efficiency and soundness of payment systems. Payment systems oversight is aimed at a given system (e.g. a funds transfer system) rather than at individual participants. It also covers payment instruments.
<b>Oversight of securities settlement systems:</b>	a task principally intended to promote the smooth functioning of securities settlement systems and to protect the financial system from possible "domino effects", which may occur when one or more participants in the securities settlement system incur credit or liquidity problems. The oversight of securities settlement systems is aimed at a given system (e.g. a securities transfer system) rather than at individual participants. It is performed by the competent financial authority/authorities and/or the central bank in accordance with the local legal framework.
<b>Participant in an IFTS:</b>	a party which participates in a transfer system. This generic term refers to an institution which is identified by a transfer system (e.g. by a bank identification number) and is allowed to send payment orders directly to the system or which is directly bound by the rules governing the transfer system. See also <i>Direct participant in an IFTS, Indirect participant</i> .
<b>Payment:</b>	the payer's transfer of a monetary claim on a party acceptable to the payee. Typically, claims take the form of banknotes or deposit balances held at a financial institution or at a central bank.
<b>Payment instrument:</b>	any instrument enabling the holder/user to transfer funds.

Term	Definition
<b>Payment lag:</b>	the time-lag between the initiation of the payment order and its final settlement.
<b>Payment message/instruction/order:</b>	an order or message to transfer funds (in the form of a monetary claim on a party) to the account of a beneficiary. The order may relate either to a credit transfer or to a debit transfer. See also <i>Credit transfer, Debit transfer system, Payment</i> .
<b>Payment netting:</b>	settling payments due on the same date and in the same currency on a net basis.
<b>Payment system:</b>	a set of instruments, banking procedures and, typically, interbank funds transfer systems which facilitate the circulation of money.
<b>Payment versus payment (PvP):</b>	a mechanism in a foreign exchange settlement system which ensures that a final transfer of one currency occurs if, and only if, a final transfer of the other currency or currencies takes place.
<b>Personal identification number (PIN):</b>	a numerical code which the cardholder may need to quote for verification of identity. In electronic transactions, this is seen as the equivalent of a signature.
<b>Pledge:</b>	property delivered to secure the performance of an obligation owed by one party (the debtor/pledgor) to another (the secured party). A pledge creates a security interest (lien) in the property so delivered.
<b>Point of sale (POS):</b>	this term refers to the use of payment cards at a retail location (point of sale). The payment information is captured either on paper vouchers or by electronic terminals, which, in some cases, are designed to also transmit the information. Where this is the case, the arrangement may be referred to as an “electronic funds transfer at point of sale” (EFTPOS).
<b>Pooling system:</b>	see <i>Collateral pool, Collateral pooling system</i> .
<b>Position netting:</b>	netting of instructions in respect of obligations between two or more parties which neither satisfies nor discharges those original individual obligations. Also referred to as “payment netting”, in the case of payment instructions, or “advisory netting”.
<b>Prefunding:</b>	the requirement that funds be available in accounts at the settlement institution before institutions use these accounts to meet their settlement obligations.
<b>Prepaid card:</b>	a card on which value is stored, and for which the holder has paid the issuer in advance. See also <i>Limited-purpose prepaid card, Multi-purpose prepaid card, Stored value card, Electronic purse</i> .
<b>Prepaid card holder:</b>	the customer identified on a prepaid card or, in the case of anonymous card products not related to any account, the customer owning the card.
<b>Principal risk:</b>	the risk that a party will lose the full value involved in a transaction (credit risk). In the settlement process, this term is typically associated with exchange-for-value transactions when there is a lag between the final settlement of the various legs of a transaction (i.e. the absence of delivery versus payment). The principal risk which arises from the settlement of foreign exchange transactions (foreign exchange settlement risk) is sometimes called “cross-currency settlement risk” or “Herstatt risk”. See also <i>Credit risk/exposure</i> .
<b>Provider:</b>	an operator which establishes the hardware and software conditions for the conduct of transactions with electronic money, without necessarily being the issuer of the electronic money units.

Term	Definition
<b>Provisional transfer:</b>	a conditional transfer in which one or more parties retain the right by law or agreement to rescind the transfer.
<b>Public key cryptography:</b>	see <i>Asymmetric cryptography</i> .
<b>Queuing:</b>	an arrangement whereby transfer orders are held pending by the originator/deliverer or by the system until sufficient cover is available in the originator's/deliverer's clearing account or under the limits set against the payer; in some cases, cover may include unused credit lines or available collateral. See also <i>Caps</i> .
<b>Real time:</b>	the processing of instructions at the time they are received rather than at some later time.
<b>Real-time gross settlement (RTGS):</b>	the continuous (real-time) settlement of funds or securities transfers individually on an order-by-order basis (without netting).
<b>Real-time gross settlement (RTGS) system:</b>	a settlement system in which processing and settlement take place on an order-by-order basis (without netting) in real time (continuously).
<b>Real-time risk management:</b>	a process which allows the risk associated with payments between payment system participants to be managed immediately and continuously.
<b>Real-time transmission, processing or settlement:</b>	the transmission, processing or settlement of a funds or securities transfer instruction at the time it is initiated.
<b>Receiver finality:</b>	analytical rather than operational or legal term used to describe the point at which an unconditional obligation arises on the part of the receiving participant in a transfer system to make final funds available to its beneficiary customer on the value date. See also <i>Final settlement</i> .
<b>Registration:</b>	the listing of ownership of securities in the records of the issuer or its transfer agent/registrar.
<b>Remote access to an SSS:</b>	a facility whereby an SSS in one country ("home country") is able to become a direct participant in an SSS established in another country ("host country") and, for that purpose, to have a securities account in its own name with the SSS in the host country. See also <i>Securities settlement system (SSS)</i> .
<b>Remote access to an IFTS:</b>	a facility whereby a credit institution established in one country ("home country") is able to become a direct participant in an interbank funds transfer system (IFTS) established in another country ("host country") and, for that purpose, to have a settlement account in its own name with the central bank in the host country, if necessary, without having established a branch in the host country.
<b>Remote participant:</b>	a participant in a system which has neither its head office nor any of its branches located in the country where the system is based.
<b>Remote payment:</b>	payment carried out through the sending of payment orders or payment instruments (e.g. by post). Contrast with <i>Face-to-face payment</i> .
<b>Replacement cost risk:</b>	the risk that a counterparty to an outstanding transaction for completion at a future date will fail to perform on the settlement date. This failure may leave the solvent party with an unhedged or open market position or deny the solvent party unrealised gains on the position. The resulting exposure is the cost of replacing, at current market prices, the original transaction. Also called "market risk" or "price risk". See also <i>Credit risk/exposure</i> .

Term	Definition
<b>Repo:</b>	see <i>Repurchase agreement</i> .
<b>Repudiation:</b>	the denial by one of the parties to a transaction of participation in all or part of that transaction or of the content of a communication.
<b>Repurchase agreement:</b>	an arrangement whereby an asset is sold while the seller simultaneously obtains the right and obligation to repurchase it at a specific price on a future date or on demand. Such an arrangement is similar to collateralised borrowing, with the exception that ownership of the securities is not retained by the seller.
<b>Reserve requirement:</b>	the requirement for institutions to hold minimum reserves with the central bank. In the minimum reserve framework of the Eurosystem, the reserve requirement of a credit institution is calculated by multiplying the reserve ratio for each category of items in the reserve base by the amount of those items in the institution's balance sheet.
<b>Respondent:</b>	see <i>Correspondent banking</i> .
<b>Retail funds transfer system:</b>	a funds transfer system which handles a large volume of payments of relatively low value in such forms as cheques, credit transfers, direct debits, and ATM and EFTPOS transactions.
<b>Retail payments:</b>	this term describes all payments which are not included in the definition of large-value payments. Retail payments are mainly consumer payments of relatively low value and urgency.
<b>Retail transactions:</b>	transactions of small amounts, mainly initiated by individuals. See also <i>Retail payments</i> .
<b>Retailer card:</b>	a card issued by non-banking institutions, to be used in specified stores. The holder of the card has usually been granted a line of credit.
<b>Reverse repo:</b>	a contract with a counterparty to buy and subsequently resell securities at a specified date and price; the mirror image of a repo.
<b>Reverse transaction:</b>	an operation whereby an NCB buys or sells assets under a repurchase agreement or conducts credit operations against collateral.
<b>Same-day funds:</b>	money balances which the recipient has a right to transfer or withdraw from an account on the day of receipt.
<b>Scheduling:</b>	Technique for managing payment queues by determining the order in which payments are accepted for settlement. See also <i>Queuing, Optimisation routine</i> .
<b>Securities settlement system (SSS):</b>	a system which permits the holding and transfer of securities, either free of payment (FOP; for example in the case of a pledge) or against payment (DvP). It comprises all the institutional arrangements required for the clearing and settlement of securities trades and the safekeeping of securities. Settlement of securities occurs on securities deposit accounts held with the CSD, ICSD or institution in charge of operating the system. The final custodian is normally a CSD.
<b>Seigniorage:</b>	in a historical context the term "seigniorage" was used to refer to the share, fee or tax which the seignior, or sovereign, took to cover the expenses of coinage and for profit. With the introduction of paper money, larger profits could be made because banknotes cost much less to produce than their face value. When central banks became monopoly suppliers of banknotes, seigniorage came to be reflected in the profits made by them and ultimately their major or only shareholder, the government. Seigniorage can be estimated by multiplying outstanding banknotes and coins (non-interest-bearing central bank liabilities) by the long-term rate of interest on government securities (a proxy for the return on central bank assets).

Term	Definition
<b>Sender finality:</b>	analytical rather than operational or legal term used to describe the point at which an unconditional obligation arises on the part of the initiating participant in a funds transfer system to make final payment to the receiving participant on the value date. See also <i>Final settlement</i> .
<b>Settlement:</b>	an act which discharges obligations in respect of funds or securities transfers between two or more parties. A settlement may be final or provisional. See also <i>Gross settlement system</i> , <i>Net settlement system</i> , <i>Net settlement</i> , <i>Final settlement</i> .
<b>Settlement agent:</b>	an institution which manages the settlement process (e.g. the determination of settlement positions, monitoring the exchange of payments, etc.) for transfer systems or other arrangements which require settlement. See also <i>Final settlement</i> , <i>Settlement</i> , <i>Settlement institution</i> , <i>Multilateral net settlement system</i> .
<b>Settlement asset:</b>	an asset used for the discharge of settlement obligations as specified by the rules, regulations or customary practice of a payment system. see <i>Final settlement</i> .
<b>Settlement finality:</b>	the institution through which books transfers between participants take place in order to achieve settlement within a settlement system. See also <i>Settlement agent</i> , <i>Multilateral net settlement system</i> , <i>Bilateral net settlement system</i> .
<b>Settlement lag:</b>	in an exchange-for-value process, the time-lag between entering into a trade/bargain and its discharge by the final exchange of a financial asset for payment. See also <i>Payment lag</i> .
<b>Settlement obligation:</b>	an amount due from one financial institution to other financial institutions as a result of the clearing of payments. See also <i>Net credit (or net debit) position</i> .
<b>Settlement risk:</b>	general term used to designate the risk that settlement in a transfer system will not take place as expected. This risk may comprise both credit and liquidity risks.
<b>Settlement system:</b>	a system used to facilitate the settlement of transfers of funds or financial instruments.
<b>Settling participant:</b>	a participant which maintains one or more accounts with a settlement agent in order to settle funds or securities transfers on its own behalf or, potentially, for other market participants. See also <i>Tiering arrangement</i> , <i>Settlement agent</i> , <i>Settlement institution</i> .
<b>Share book-entry system:</b>	a computerised system for the issue and registration of equity securities in book-entry form. See also <i>Book-entry system</i> , <i>Debt book-entry system</i> .
<b>Single-purpose prepaid card:</b>	a stored value card for which the card issuer and merchant (card acceptor) are identical, thus representing prepayment for specific goods and services delivered by the issuer. See also <i>Prepaid card</i> .
<b>Smart card:</b>	an integrated circuit card with a microprocessor capable of performing calculations.
<b>Software-based electronic money products:</b>	electronic money products which employ specialised software on a personal computer and which can typically be used to transfer value in electronic form via telecommunications networks such as the internet.
<b>Standing facility:</b>	a central bank facility available to counterparties on their own initiative. The Eurosystem offers two overnight standing facilities, the marginal lending facility and the deposit facility.
<b>Standing order:</b>	an instruction from a customer to its bank to make a regular payment of a fixed amount to a named recipient.

Term	Definition
<b>Stored value card:</b>	a prepaid card in which the record of funds can be increased as well as decreased. Also called an “electronic purse”.
<b>Straight-through processing:</b>	the automated end-to-end processing of trades/payment transfers, including the automated completion of confirmation, generation, clearing and settlement of instructions.
<b>Substitution (of party):</b>	the substitution of one party for another in respect of an obligation. In a netting and settlement context the term typically refers to the process of amending a contract between two parties so that a third party is interposed as a counterparty to each of the two parties and the original contract between the two parties is satisfied and discharged. See also <i>Novation</i> .
<b>Substitution (of securities):</b>	recalling the securities lent to a borrower and replacing them with other securities of equivalent market value during the life of the lending.
<b>Supervision of financial institutions:</b>	the assessment and enforcement of compliance by financial institutions with laws, regulations or other rules intended to ensure that they operate in a safe and sound manner and that they hold capital and reserves sufficient to support the risks which arise in connection with the conduct of their business.
<b>Surcharge fee:</b>	a transaction fee set by an ATM owner and paid directly by the cardholder to the ATM owner for the cost of deploying and maintaining the ATM.
<b>Survivors pay:</b>	a loss-sharing arrangement which, in the event of a participant’s inability to settle, requires losses to be borne by the surviving participants in accordance with a predetermined formula.
<b>Swap:</b>	an agreement on the exchange of payments between two parties at some point(s) in the future in accordance with a specified formula.
<b>SWIFT:</b>	the Society for Worldwide Interbank Financial Telecommunication: a cooperative organisation created and owned by banks which operates a network to facilitate the exchange of payment and other financial messages between financial institutions (including broker-dealers and securities companies) throughout the world. A SWIFT payment message is an instruction to transfer funds; the exchange of funds (settlement) subsequently takes place via a payment system or through correspondent banking relationships.
<b>Switch fee:</b>	a transaction fee set by the network organisation and paid by the card-issuing institution to the organisation for the cost of routing transaction information.
<b>Symmetric cryptography:</b>	a set of cryptographic techniques in which devices share the same secret key in combination with algorithms. For encryption, the same key is used for encrypting and decrypting, and the decrypting algorithm is the reverse function of the encrypting algorithm.
<b>Systemic disruption:</b>	an event or events whose impact has the potential to threaten the stability of the financial system through transmission from one financial institution to another, including through the payment system. See also <i>Systemic risk</i> .
<b>Systemic risk:</b>	the risk that the failure of one participant in a transfer system, or in financial markets generally, to meet its required obligations will cause other participants or financial institutions to be unable to meet their obligations (including settlement obligations in a transfer system) when due. Such a failure may cause significant liquidity or credit problems and, as a result, might threaten the stability of financial markets.

Term	Definition
<b>Systemically important payment system:</b>	a payment system is systemically important where, if the system were insufficiently protected against risk, disruption within it could trigger or transmit further disruptions amongst participants or systemic disruptions in the financial area more widely.
<b>TCP/IP:</b>	Transmission Control Protocol/Internet Protocol: a set of commonly used communication and address protocols; TCP/IP is de facto the communication standard for the internet.
<b>Teller's cheque:</b>	see <i>Bank draft</i> .
<b>Tiering arrangement:</b>	an arrangement which may exist in a funds or securities transfer system whereby participants in one category require the services of participants in another category to exchange and/or settle their transactions. See also <i>Direct participant in an IFTS</i> , <i>Indirect participant</i> .
<b>Time-stamp:</b>	a value inserted in a message to indicate the time at which the message was created.
<b>Trade date:</b>	the date on which a trade/bargain is executed.
<b>Trade netting:</b>	legally enforceable consolidation and offsetting of individual trades into net amounts of securities and money due between trading partners or among members of a clearing system. Netting of trades which is not legally enforceable is called "position netting".
<b>Trade-for-trade (gross) settlement:</b>	the settlement of individual transactions between parties. See also <i>Gross settlement system</i> .
<b>Transfer:</b>	operationally, the sending (or movement) of funds or securities or of rights relating to funds or securities from one party to another party by (i) conveyance of physical instruments/money; (ii) accounting entries on the books of a financial intermediary; or (iii) accounting entries processed through a funds and/or securities transfer system. The act of transfer affects the legal rights of the transferor, the transferee and possibly third parties with regard to the money, security or other financial instrument being transferred.
<b>Transfer system:</b>	a generic term covering interbank funds transfer systems and exchange-for-value systems.
<b>Transferability:</b>	in electronic money systems, the degree to which an electronic balance can be transferred between devices without interaction with a central entity.
<b>Travel and entertainment card:</b>	a card issued by non-banks indicating that the holder has been granted a line of credit. It enables the holder to make purchases, but does not offer extended credit, the full amount of the debt incurred having to be settled at the end of a specified period. The holder is usually charged an annual fee. Also called a "charge card".
<b>Truncation:</b>	a procedure in which the physical movement of paper payment instruments (e.g. paid cheques or credit transfers) within a bank, between banks or between a bank and its customer is curtailed or eliminated, being replaced, in whole or in part, by electronic records of their content for further processing and transmission.
<b>Ultimate settlement:</b>	a term sometimes used to denote final settlement in central bank money.

Term	Definition
<b>Unwinding (or settlement unwind):</b>	a procedure followed in certain clearing and settlement systems in which transfers of securities or funds are settled on a net basis, at the end of the processing cycle, with all transfers being provisional until all participants have discharged their settlement obligations. If a participant fails to settle, some or all of the provisional transfers involving that participant are deleted from the system and the settlement obligations from the remaining transfers are then recalculated. Such a procedure has the effect of transferring liquidity pressures and possible losses arising from the failure to settle to other participants, and may, in an extreme case, result in significant and unpredictable systemic risks. Also called “settlement unwind”.
<b>User:</b>	payment system users comprise both participants and their payment service customers. See also <i>Direct participant in an IFTS</i> , <i>Indirect participant</i> , <i>Participant in an IFTS</i> .
<b>User fee:</b>	a transaction fee set by the card issuer and paid by the cardholder to the issuing institution for card payments or ATM cash withdrawals; other user fees, sometimes called foreign fees, are paid by the cardholder to the issuing institution for the use of ATMs not owned by the issuing institution.
<b>Variation margin (or marked-to-market payments):</b>	delivery or receipt of collateral (securities and/or cash) adjusting the initial margin which covers a market participant’s position. This adjustment is often carried out on a daily basis and allows any additional potential losses (or gains) on the market participant’s position which are implied by current market conditions to be offset.
<b>White list:</b>	in a card-based system, a database containing a list of all authorised card numbers.
<b>Wholesale funds transfer system:</b>	see <i>Large-value funds transfer system</i> .
<b>Zero-hour rule:</b>	a provision in the insolvency laws of some countries whereby any transaction on the part of a closed institution which takes place after midnight on the date on which that institution was ordered to close may be retroactively rendered ineffective.





## EDITORIAL GROUP – NON-EURO AREA VOLUME

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