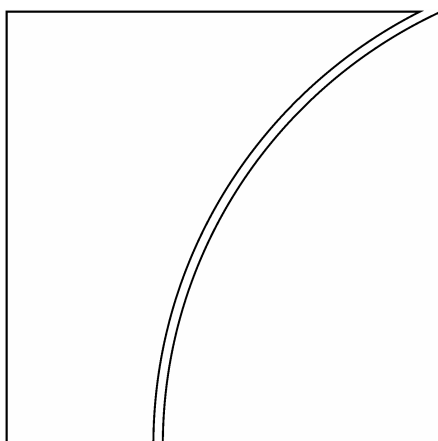


# Committee on Payment and Settlement Systems



## Payment systems in Kazakhstan

Prepared by the National Bank of the Republic of Kazakhstan and the Committee on Payment and Settlement Systems of the central banks of the Group of Ten countries

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## Foreword

The Committee on Payment and Settlement Systems (CPSS) periodically publishes - under the aegis of the Bank for International Settlements (BIS) - reference works on payment systems, widely known as "Red Books". The CPSS has invited the central banks of a number of countries where important developments in payment systems are under way to prepare - in collaboration with its Secretariat at the BIS - separate volumes on their respective payment systems. The present volume, the first edition of the Red Book for Kazakhstan, is a further step towards increasing our understanding of the way payment systems work in different countries.

Properly functioning payment systems enhance the stability of the financial system, reduce transaction costs in the economy, promote the efficient use of financial resources, improve financial market liquidity and facilitate the conduct of monetary policy. In recent years, issues relating to the economic efficiency and financial risks of all types of payment systems have come to the fore.

Central banks have a strong interest in promoting safety and improving efficiency in payment systems. They play a key role in domestic payment system development and, in many cases, operate large-value payment systems. Central banks in many countries have been influential in improving public understanding of payment and settlement arrangements in their countries as well as public awareness of the various policy issues connected with such arrangements.

Payment systems include not only retail money transfer systems used by businesses and consumers for commercial purposes but also large-value interbank funds transfer systems that underpin the money and credit markets of market-oriented economies. Systems for the settlement of securities transactions and related payments are also key elements in financial system infrastructure.

We hope that this volume will contribute to the general understanding and awareness of payment and settlement arrangements in Kazakhstan, both domestically and internationally.

Tommaso Padoa-Schioppa  
Chairman  
Committee on Payment  
and Settlement Systems

Grigori Marchenko  
Governor  
National Bank of the  
Republic of Kazakhstan



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## Abbreviations

AFINEX	Almaty Financial Instruments Exchange
BMES	Banking Message Exchange System
CSD	Central Securities Depository
FASTI	Financial Automated System of Transfer Information
ISMT	Interbank System of Money Transfer
KASE	Kazakhstan Stock Exchange
KISC	Kazakhstan Interbank Settlement Centre
KZT	Kazakh tenge
NBK	National Bank of the Republic of Kazakhstan
NISPC	National Interbank System of Payment Cards
PSD	Payment Systems Division
SLP	System of Large Payments
SRP	System of Retail Payments





## **Introduction**

The payment system is a vital component of the financial system of any country. That is why the Republic of Kazakhstan has paid special attention to the development of payment systems since the beginning of the transition period.

Following a dedicated effort to improve payment systems, there are now two major payment systems in Kazakhstan. These are the Interbank System of Money Transfer (ISMT) and the System of Retail Payments (SRP).

The ISMT is a real-time gross settlement (RTGS) system which conducts funds transfers between ISMT participants' accounts at the National Bank of the Republic of Kazakhstan (NBK). Large-value and high-priority payments are made through the ISMT. It provides settlement with finality in the national currency (KZT: Kazakh tenge) during the operating day for system participants.

The SRP is the clearing system for low-value payments. It is a multilateral net settlement system; payments are not processed individually, but instead multilateral net positions are settled. At the end of the business day, the net positions of each participant are calculated according to the inflows and outflows of payments, and are settled via the ISMT.

The NBK started its payment system reforms in 1994. Its basic purpose was to facilitate payments between banks and their clients.

In 1995, Kazakhstan's first clearing house was established in Almaty. The Almaty Clearing House was operated by the NBK and settlement was on a multilateral netting basis. Other local clearing houses also carried out local clearing. At this stage, all payment instructions were paper-based.

In 1996, the Almaty Clearing House introduced electronic interchange of payment messages using SWIFT formats. In the same year, it was reorganised into the Kazakhstan Interbank Settlement Centre (KISC) as a subsidiary of the NBK. The KISC is the operator of payment systems including the ISMT and the SRP. In August 1996, the KISC introduced the System of Large Payments (SLP), which could process payment orders electronically. In addition, the SLP was an RTGS system.

After the introduction of the SLP, the correspondent accounts held at the NBK were centralised to the head office from distributed accounts at each branch of the NBK. The NBK also worked on improvements to the SLP. As a result, at the end of 2000, the SLP became the Interbank System of Money Transfer (ISMT).

In retail payments, cash and credit transfers are the most common method of payment in Kazakhstan. Debit transfers, such as cheque and direct debit, are not widely used. Payment cards including credit cards and debit cards are at the early stage of development, with high growth rates.

With regard to securities trading, the Kazakhstan Stock Exchange (KASE) and the over-the-counter (OTC) market provide: the foreign exchange market, the government bond market, the shares and corporate bond market, and the derivatives market. The settlement methods differ from one market to another. Securities are settled via the CSD (Central Securities Depository) on a DVP basis (government bonds are T+0, the others are T+3), while for foreign exchange transactions the local currency leg is settled through the correspondent accounts of the KASE at the NBK, and the foreign currency leg is settled through foreign correspondent banks. Final settlement of the cash leg of a securities trade is made through the ISMT on the settlement day.

## **1. Institutional aspects**

### **1.1 General institutional framework**

#### **1.1.1 Legal and regulatory framework**

Basic legislation regulating banking systems in Kazakhstan comprise the "Law on the National Bank of the Republic of Kazakhstan" (central bank law) and the "Law on banks and banking" (banking law). According to the central bank law, Kazakhstan has a two-tier banking system. The NBK represents the

first level of the banking system and commercial banks the second level. The NBK, as a central bank, defines the system and method of payments, and operates the payment systems. The banking law and other legal acts regulate the second-tier banks, which are the participants in the payment systems and securities settlement systems.

The NBK develops and approves the regulations and rules prescribing the issue, circulation and processing of cheques, promissory notes, payment cards, letters of credit and direct debiting.

With respect to the payment system and funds transfers, the “Law on payments and funds transfers” was enacted in June 1998.

The “Rules on the use of payment documents and accomplishment of non-cash payments and funds transfers on the territory of the Republic of Kazakhstan” regulate the types and usage of “payment documents”,<sup>1</sup> as well as the responsibilities and liabilities of the participants in payment systems.

Regarding the activities of the Kazakhstan Interbank Settlement Centre, the “Rules on funds transfers in the Interbank System of Money Transfer” and the “Rules on clearing in the Republic of Kazakhstan” define the structure, organisation and operation of the systems.

### **1.1.2 Financial intermediaries providing payment services**

#### *Commercial banks*

Commercial banks are major participants in payment systems and conduct payments and money transfers in Kazakhstan. The banking law and other regulations govern the operation of these second-tier banks, which offer a wide range of services to their clients, including payment services for individuals and businesses, and make their own interbank payments.

At the end of 2002, there were 38 commercial banks in Kazakhstan, with 368 branches across the country. All the commercial banks are participants in the ISMT and most of them (27) participate in the SRP.

#### *Non-bank financial institutions*

Non-bank financial institutions are also participants in payment systems and conduct payments and funds transfers. Non-bank financial institutions deliver a variety of banking services to individuals, small and medium-sized enterprises, agricultural producers and others. One of their banking services is favourable lending to certain sectors, which include credit-deposit cooperatives, pawnshops, and entities engaged in lending operations and financial leasing. Some non-bank institutions also provide specialised banking services. As of December 2002, 14 non-bank financial institutions were participants of the ISMT and five participated in the SRP.

#### *Post office (KazPost)*

The Kazakhstan postal service was reorganised by government decree into the open joint-stock company KazPost in 1999. The government owns 100% of the stock. KazPost had 3,572 postal offices throughout the country at the end of 2002.

KazPost has a correspondent account at the NBK and is a participant in both the ISMT and the SRP. KazPost also has correspondent accounts at several commercial banks. It provides the following types of financial services:

- payment of pensions and allowances from the government;
- receiving payments from local governments;
- deposit transactions (receiving deposits from individuals);
- retail transfers (traditional postal orders and money transfers by individuals).

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<sup>1</sup> Documents that are used for non-cash payments and to transfer money.

## **1.2 Role of the NBK**

The central bank law was enacted on 30 March 1995. Under this law, the NBK acts as the central bank of the country and is responsible for conducting monetary policy as well as prudential policy. According to this law, the NBK defines the order, system and method of payments and funds transfers in Kazakhstan, and manages the operation of payment systems, ensuring the timely and smooth transfer of funds between banks in Kazakh tenge. The NBK also regulates the ratio of reserve requirements, the security of computers and networks used by banks and the data protection of banking systems.

According to this law, the NBK is the only issuer of banknotes and coins in Kazakhstan. The NBK has its head office in Almaty, with 16 regional branches across the country and two branches in Almaty.

The role of the NBK in overseeing and regulating payment systems is also set down in the "Law on the National Bank of the Republic of Kazakhstan". Article 48 of the central bank law stipulates that the NBK organises, coordinates and regulates the operation of payment systems. The law defines these roles as follows:

- making rules and regulations concerning payments and (or) funds transfers, and basic requirements for payment instructions;
- controlling the order and terms of cash transactions.

In addition, Article 8 of the Law stipulates that all banks and their clients are obliged to comply with the regulations issued by the NBK on payments and money transfers, banking activity and accounting. A major task of the NBK is the oversight of second-tier banks. The NBK and other state bodies supervise and check the reliability and stability of the banks.

The NBK manages the ISMT and the SRP, in cooperation with the Kazakhstan Interbank Settlement Centre, the operator of both payment systems. The legal basis for these systems is provided by agreements between the KISC and participants in the payment systems. All banks and non-bank institutions which maintain correspondent accounts at the NBK can become participants in the payment systems.

According to the central bank law, the NBK is also the overseer of the securities market, including securities settlement.

## **1.3 Role of other private and public sector bodies**

### **1.3.1 Kazakhstan Interbank Settlement Centre**

The Kazakhstan Interbank Settlement Centre (KISC) is the operator of the payment systems, which include the ISMT and the SRP. The activity of the KISC is regulated by the NBK.

The KISC is a non-profit organisation and a subsidiary of the NBK. The KISC was established in April 1996 from the reorganisation of the Almaty Clearing House in order to provide effective and stable functioning of payment systems.

The KISC provides the following services:

- transfer of funds in the ISMT;
- clearing at the SRP;
- exchange of files by means of FASTI (Financial Automated System of Transfer Information);
- information interchange by means of the Banking Message Exchange System (BMES).

The KISC also acts as settlement agent for the Kazakhstan National Net Settlement System, which is the settlement scheme for net positions arising out of local Visa transactions. Settlement of payment card transactions is achieved in two steps: first, the Visa office in London sorts the transactions, separating "local" transactions in tenge from international transactions. For the local transactions in tenge, Visa calculates the net positions among the member banks (transactions made by foreigners who have their accounts outside Kazakhstan are settled abroad). Second, the net positions in tenge are sent to the KISC and settlement is made through the ISMT.

### 1.3.2 *Kazakhstan Stock Exchange*

The Kazakhstan Stock Exchange (KASE) is a closed joint-stock company and a non-commercial self-regulated organisation. Originally set up as the Kazakhstan Interbank Currency Exchange in November 1993, the Exchange changed its name to Kazakhstan Interbank Currency-Stock Exchange in June 1995, after extending its business to cover stock trading. In April 1996, the Exchange was renamed the Kazakhstan Stock Exchange (KASE). Trades in foreign exchange were separated from the KASE into the Almaty Financial Instruments Exchange (AFINEX) in September 1997, and merged with the KASE again in April 1999.

The stock exchange's business covers five main markets: foreign exchange, government securities, repos, shares and corporate bonds, and exchange-traded derivatives. Input and processing of trading data are done electronically. At the end of 2002, the exchange had a total of 56 members, which included the NBK and KazPost. There are five categories of trading in KASE. Under these categories, each member can make certain kind of trades.

Category	Trade	Number of members
K	Government bonds	45
H	Corporate securities	19
P	Listed corporate securities and block of state shares	39
B	Foreign currency	8
C	Futures	5

### 1.3.3 *Central Securities Depository*

The Central Securities Depository (CSD) was established in July 1997 as a specialised organisation. The role of the CSD comprises book-entry custody of securities, confirmation of the rights of the owners, and dematerialisation of the securities. It also performs storage and accounting of securities.

The functions of the CSD include:

- acting as the nominal holder of the participants' securities;
- transferring securities between participants with payment guarantee (upon delivery of funds by buyer, so-called DVP principle);
- setting participants' and their clients' rights on the securities, as well as issuing acknowledgements of these rights;
- dematerialisation of the securities;
- acting as a payment agent for fund transfers by participants.

## 2. **Payment media used by non-banks**

### 2.1 **Cash payments**

The NBK has sole authority and responsibility to issue and circulate banknotes and coins, according to the central bank law. At the end of 2002, cash in circulation was KZT 167.1 billion.

Notes are issued in denominations of 100, 200, 500, 1,000, 2,000 and 5,000 tenge. The 5,000 tenge note has the largest share of the currency in circulation. Coins are issued in denominations of 1, 5, 10, 20, 50 and 100 tenge.

The ratio of banknotes and coin in circulation to nominal GDP was 4.5% at the end of 2002. Cash makes up 58.2% of narrow money (M1).

## 2.2 Non-cash payments

### 2.2.1 Credit transfers

The credit transfer is the most common non-cash payment method in Kazakhstan. Credit transfers accounted for 91% in volume and 95% in value of non-cash payments in 2002. The customer submits the payment order to his/her bank mainly in paper form. Arrangements for making payment orders via internet banking, telephone banking and mobile phone have not yet been developed.

### 2.2.2 Debit transfers

Debit transfers in Kazakhstan are made using the following methods:

- Collection letter: this is used for withdrawing funds from the bank accounts of the payer without its consent, and is used only in cases stipulated by the law. The collection letter is mainly used by tax offices and customs offices. Collection letters accounted for 1.7% of the total volume of non-cash transactions in 2002.
- Cheque: signed by the issuer, it is used to pay the cheque recipient the amount entered on the cheque. Cheques accounted for 1.7% of the total volume of non-cash transactions in 2002.
- Payment request order: this represents claim by the beneficiary on the payer for the delivered services and goods on the basis of the documents confirming the request. Payment request orders accounted for 0.6% of the total volume of the non-cash transactions in 2002.
- Direct debits: carried out on the basis of agreements between the payer and its bank. The payer agrees in writing to withdraw money from its bank account upon a request from the beneficiary supported by appropriate documents. Debiting accounted for 1.1% of the total volume of non-cash transactions in 2002.

### 2.2.3 Payment cards

Some banks issue local payment cards, including Alem Card, Altyn, Caspian, City card and Irtysh-card. By the end of 2002, 235,700 cards were in circulation. During 2002, 2.0 million transactions, with a value of KZT 17.3 billion, were carried out with these local payment cards. They are mainly used for withdrawing cash. Only about 0.2% of transactions with these cards involved non-cash payments.

On the other hand, some large banks also issue international payment cards, including those of Europay, Visa, American Express, Diners Club, Union Card and HSBC. By the end of 2002, 1,260,200 such cards were in circulation. During 2002, 18.9 million transactions, with a value of KZT 233.7 billion, were carried out using international payment cards. Only 3.1% of transactions involved non-cash payment.

#### Value of transactions using payment cards

In millions of KZT

Kind of transaction	Local cards		International cards	
	2001	2002	2001	2002
Non-cash payment	122.1	39.0	5,766.2	9,550.1
Withdrawals of cash	15,089.9	17,239.4	125,671.3	224,179.0

#### **2.2.4 ATMs and POS terminals**

Automated teller machines (ATMs) were first introduced by several commercial banks in 1997. At the end of 2002, 702 ATMs were installed in Kazakhstan, an increase of 30% compared with the previous year. The number of ATMs per million inhabitants was 47.1 at the end of 2002.

At the end of 2002, 5,285 POS terminals were installed in retail outlets, including department stores, supermarkets and retail stores. The number of POS terminals per million inhabitants was 355 at the end of 2002. Almost all local and international cards are equipped with a debit function. The number of transactions by POS terminal has been increasing substantially. There are four networks for ATM and POS transactions. Service providers manage the networks for a bank or banking group.

#### **2.3 Recent developments**

In 2000, a processing centre for card transactions was set up by the NBK as a closed joint-stock company. The main purpose of the centre is to provide a single centre for switching and clearing of both local and international card transactions and to provide services for banks that do not have their own processing centre. The processing centre is developing a system for card transactions called the National Interbank System of Payment Cards (NISPC). The NISPC is expected to be the unified system for the highly secure chip-based cards that will be introduced in the future.

### **3. Interbank exchange and settlement systems**

#### **3.1 General overview**

In Kazakhstan, there are two interbank electronic payment systems:

- The ISMT
- The SRP

These two systems are the main mechanisms of funds transfer in Kazakhstan. The KISC has been operating the ISMT since 1996. Previously, the ISMT was known as System of Large Payments (SLP), and its operation was governed by the "Rules on KISC settlement in the System of Large Payments". After the SLP became the ISMT at the end of 2000, the "Rules on money transfers in the Interbank Money Transfer System" were approved, which regulate the procedures for funds transfer by the KISC, and define the structure, organisation and operation of the system.

The ISMT provides irrevocable and unconditional payment in national currency, with settlement finality during the operating day. Balances on the participants' correspondent accounts at the NBK are used as the main source of liquidity for the smooth functioning of the system.

At the end of 2002, there were 72 participants in the ISMT: 38 commercial banks, 17 regional treasury departments, the NBK, the state pensions payment centre, KazPost and some non-bank institutions.

The ISMT handles both credit and debit transfers. Participants must send payment orders electronically, according to the formats established by the NBK.

The SRP is the multilateral clearing system for low-value payments. A feature of the SRP is that payments are not processed individually. Payment orders are sent to the KISC during the operating day. At the end of the day, the net positions of each participant are calculated by multilateral netting according to their inflows and outflows of payments. The net positions are then settled through the ISMT. The SRP is operated along similar lines to the ACH (automated clearing house) in the United States, which allows participants to effectively manage liquidity and to use counterflows of payments.

Until August 1999, the retail payment systems in Kazakhstan were made up of the Almaty Clearing House and some local clearing houses at regional branches of the NBK. In each clearing house, various methods for risk management were used, setting debit and credit limits. In August 1999, the NBK closed all the clearing houses in the regional branches and handed operations over to the KISC and a private clearing house, Timei. Timei is a limited partnership company located in the north of Kazakhstan.

At the end of 2002, there were 50 participants in the KISC, 27 commercial banks, 17 regional treasury departments, the NBK, the Bank-Custodian of the State Accumulation Pension Fund (Department of Monetary Operations of the NBK), the state pensions payment centre, KazPost and two non-bank institutions. On the other hand, participants in Timei comprised three banks, one regional treasury department and Timei itself.

There is no paper cheque clearing system in Kazakhstan. The banks conduct the settlement of cheques through their bilateral correspondent relationships.

### **3.2 Interbank System of Money Transfer**

In December 2000, the Interbank System of Money Transfer (ISMT) was introduced by the KISC. The ISMT, owned and operated by the KISC, is an RTGS system.

The purpose of the ISMT is to carry out the irrevocable and unconditional payment in national currency, with settlement finality throughout the operating day.

From the end of 1996, the system was operated as the SLP. In the SLP, participants' correspondent accounts at the NBK were used for conducting funds transfer. In December 2000, the system became the ISMT. In the ISMT, participants' accounts are set up at the ISMT, separately from the correspondent account at the NBK. Before the start of the operating day, each participant transfers a certain amount of funds for settlement during the day from the correspondent account to the special account of the ISMT at the NBK. Settlement is made with finality during the day using the liquidity in each participant's account at the ISMT. After the close of the ISMT, the remaining balances are paid out to the correspondent account of each participant at the NBK. In this sense, the ISMT can be characterised as a prefunding system. Unlike the correspondent account, the funds in the account at the ISMT cannot be blocked by the NBK.

#### **3.2.1 Operating rules**

The legal basis for the organisation and operation of the ISMT is provided by the three contracts between the concerned parties, ie between the participants and the NBK, between the NBK and the KISC, and between the participants and the KISC. The "Rules of the Interbank System of Money Transfer" also regulate the procedures and functioning of the system, as well as the finality of payments at the ISMT.

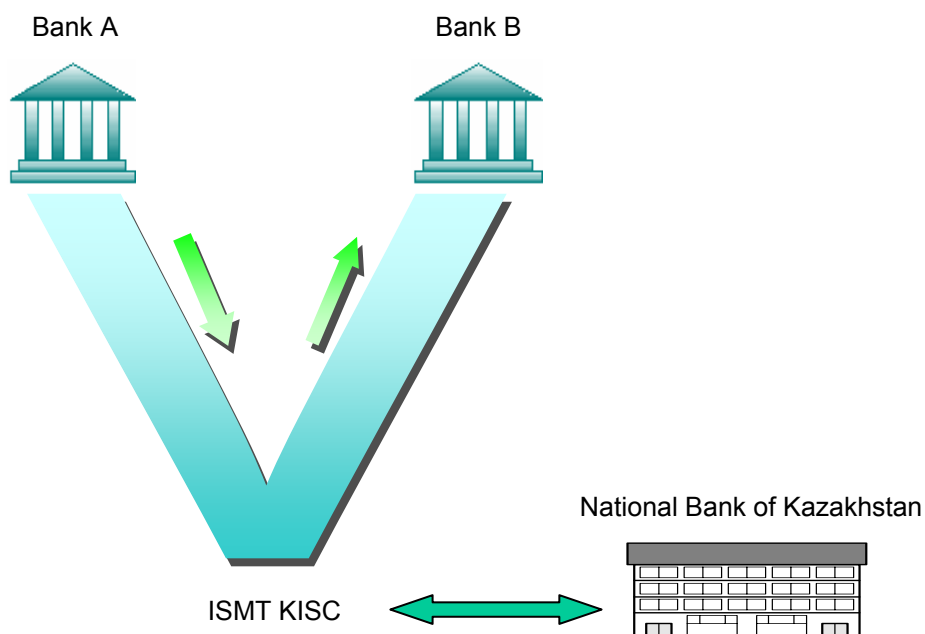
#### **3.2.2 Participation**

At the end of 2002, 72 institutions participated directly in the ISMT. These were: 38 commercial banks, the NBK, the Treasury of the Ministry of Finance and its 16 branches, the Kazakhstan Stock Exchange, KazPost, the CSD, the participants in the securities market, the state pensions payment centre and a private regional clearing house.

Participants can send payment instructions directly to the ISMT using dedicated terminals. Payment orders must only be sent to the ISMT electronically. MT100 and MT102 messages (in a format similar to SWIFT), which were established by the KISC, are used. Participants can access the KISC through several kinds of network connection, which include dial-up, dedicated lines, the internet, X.25, etc.

There is a separation of responsibilities between the NBK, the KISC and the participants. The participants bear responsibility for preparing and submitting correct and valid electronic payment orders to the KISC. The KISC bears responsibility for processing the payment orders received from the participants, and transferring the funds from one participant to another during the day. The NBK is responsible for the transfer of funds between the account at the ISMT and the correspondent account held at the NBK.

Figure 1  
Structure of the ISMT



### 3.2.3 Types of transaction handled

Both credit and debit transfers are executed through the ISMT. However debit transfers are carried out only if there is prior written agreement between the payer and the payee. A copy of this agreement should be sent to the KISC in advance.

As an exception of this rule, debit transfers can be executed without the consent of the payer in the case of a funds transfer between the head office and branches of a bank, and also some transfers stipulated by the law. There is no limit on the maximum and minimum amount of a payment. The ISMT is mainly used to conduct high-value payments in connection with interbank money market, foreign exchange and securities transactions. For securities transactions, the ISMT act as the settlement agent for the CSD to carry out DVP settlement (see Section 4.3).

### 3.2.4 System operation

For risk management purposes, before the start of the operating day at 09:00, the NBK transfers funds from each correspondent account held at the NBK to the special account of the ISMT at the NBK (the ISMT account), according to the standing payment order of the participants. The payment order amount should be within the limit of the remaining balance in each correspondent account. The amount transferred to the ISMT account becomes the opening position for each participant and is used for settlement in the ISMT during the day. Funds can be transferred to the ISMT account several times during the operating day.

The NBK sends the KISC an electronic slip showing the amount transferred to the ISMT account and the relevant participant's bank identification code. The ISMT keeps a record of funds transfers between participants during the day. At the end of the operating day, any balances remaining in the ISMT account are credited to each participant's correspondent account at the NBK.

Fund transfers in the ISMT are made within the limits of each participant's balance in the ISMT account, which is made up of the funds transferred from each participant's correspondent account and funds received from other participants. During the operating day, the KISC conducts bookkeeping of each participant's balance on the basis of the debit and credit instructions.



If a participant's balance at the ISMT is not sufficient to execute payment, the payment order is kept in a centralised queue, and remains pending until sufficient funds become available as a result of incoming payments. Payment orders in the queue are processed according to priority. There are 100 priority codes in the ISMT; the highest is "0" and the lowest "99". It is the participants' responsibility to decide what priority to set and how to change the priority in the queue for liquidity management purposes. The maximum permissible sum of payment orders which can be placed at the queue is set for each participant by the NBK for risk management purposes. If an additional payment order would cause the sum of the payment orders in the queue to exceed the maximum amount, the payment order is rejected.

Queued payment orders with the same priority code are processed on FIFO (first in, first out) basis. Participants can change the order of a payment order in the queue, except for those stipulated by the law. Participants can also withdraw a payment order from the queue at any time. During the operating day, participants can request a position statement on the following items:

- executed payment orders;
- the remaining balance in the ISMT;
- payment orders in the queue (listed by priority code).

With regard to customer payments, the receiving bank should credit its customers' accounts no later than the next operating day.

The ISMT has a gridlock resolution mechanism. The system checks the queue periodically during the day and at the end of the operating day. If it encounters gridlock, it executes multilateral netting of the payment orders involved in the gridlock. But this mechanism is seldom activated because participants usually keep sufficient balances at the ISMT.

At the end of the day, the KISC transmits an electronic slip showing the net positions of all participants to the Payment Systems Division (PSD) of the NBK. Having received the electronic slip, the PSD checks the data on the transferred funds and position of each participant. In the event of a discrepancy, the KISC and the PSD work together to eliminate the divergence in the transfer amounts and positions. After successful completion of the check, the NBK transfers the position balance from the ISMT account to the correspondent account of each participant. The participant receives a statement on the results of the executed payment orders from the KISC.

### **3.2.5 Operating hours**

The ISMT operates from 08:00 to 20:00, Monday to Friday. In exceptional cases, the NBK has the authority to extend the operating hours until 22:00.

### **3.2.6 Settlement procedure**

Fund transfer is performed only after the KISC has accepted the payment order. The rights and responsibilities of the participants and the KISC also arise from the moment the KISC accepts the payment order. Once accepted by the KISC, the electronic payment order cannot be withdrawn and cancelled by the participant, unless it has been placed in the queue.

Conditions for acceptance of the payment order by the KISC are as follows:

- (1) successful authentication (by electronic digital signature);
- (2) both the payer and the recipient of funds must be participants in the ISMT;
- (3) possibility to debit the amount of the payment order from the account of the payer.

If these three requirements are fulfilled, the ISMT processes the payment order and the funds transfer is made. The ISMT then informs the payer by MT900 message that its account has been debited, and notifies the recipient by MT910 message that its account has been credited.

If conditions (1) and (2) are not met, the sender of the payment order receives a rejection notice citing the reason for the rejection.

If conditions (1) and (2) are met but condition (3) is not, the payment order is placed in the queue.

In the case of debit transfers, prior agreement between payer and payee is necessary for the payment order to be processed.

Settlement becomes final and irrevocable when the debit and credit are booked to the participants' accounts at the ISMT.

### **3.2.7 Credit and liquidity risk management**

In order to manage risks, the NBK closely monitors the positions of the participants based on the information from the KISC. The KISC sends this information electronically in real time during the operating day. This information contains details of the current balance of each participant in the ISMT, the turnover of debit and credit transfers and the total amount of payment orders in the queue.

There are three ways in which participants can manage liquidity in the ISMT.

First, they can transfer funds from their correspondent account at the NBK to the ISMT account, if there is any remaining balance. However, this is not often the case, because many participants transfer all their funds to the ISMT before it opens.

Second, they can obtain funds by borrowing from other banks through the money market.

Third, ISMT participants can use the credit facility provided by the NBK, which includes both collateralised and non-collateralised credit. The Payment Systems Division of the NBK grants credit to banks within the limits established by the NBK. The banks can obtain intraday overdrafts and overnight credit if they meet the following requirements:

- the bank must be a participant in the ISMT;
- the bank must observe prudential and other requirements set by the NBK;
- the bank must not have outstanding liabilities on its payments and payments of its customers (eg liabilities to the tax office and customs office in the form of a collection letter);
- the bank must conclude general agreements on overnight credit and on intraday overdrafts with the NBK.

The basic terms of the intraday overdraft are: the credit is granted to the bank within the established limits; repayment should be made no later than 18:00. In the event that the overdraft is not repaid by 18:00 on Day T, the overdraft is extended to an overnight credit at a penalty rate. This overnight credit must be repaid by 15:00 on Day T+1. If the liability to the NBK remains after the deadline, the NBK has the power to block the bank's account at the NBK and collect the necessary value of overnight credit, plus interest.

If there are payment orders in the queue at the end of the day because of an insufficient balance in a participant's account at the ISMT, the remaining payment orders will be cancelled and a notification will be sent to the participants.

### **3.2.8 Pricing**

The cost of the ISMT depends on the time of input of the payment order. This pricing scheme was introduced to encourage the earlier input of payment orders to the system and to facilitate the efficient processing of funds transfers.

<b>Time of input of payment order</b>	<b>Cost in KZT</b>
08:00 to 13:00	57
13:00 to 20:00	114
After 20:00	740

### **3.2.9 Statistical data**

In 2002, the monthly average volume of payments in the ISMT was 268,060. The daily average volume and value of payments were 12,765 payments and KZT 58.7 billion respectively. The five largest participants accounted for 38% in volume and 53% in value of the transactions in the ISMT.

### **3.3 System of Retail Payments**

The System of Retail Payments (SRP) is a net settlement system. The KISC acts as a clearing house, under a licence issued by the NBK. From 1995, the Almaty Clearing House (later - the KISC) and other local clearing houses had carried out the local clearing. In the local clearing house, participants had to set their daily debit and credit limits vis-à-vis the other participants in the clearing. Such a risk management scheme restricted the local clearing participants to only a small number of large commercial banks. However, a growing need for efficient settlement at national level led to the establishment of a clearing system that was nationwide and open to all financial institutions in Kazakhstan.

In 1999, the NBK introduced the single correspondent account at national level, and regional clearing houses were closed and their functions passed to the KISC. The new clearing system introduced by the KISC allowed all banks and other financial institutions, including the Treasury and pension funds, to be connected. Positive features of the new clearing system were: (1) possibility to input payment orders for a future value date within three days, (2) withdrawal of payment orders before the final settlement time and (3) processing of messages in MT102 format.

Low-value and non-urgent payments are settled at the SRP. There is a limit on the maximum amount of one payment order in the SRP, which is set at KZT 3 million. If a payment order is larger than the limit, the SRP rejects it. As the retail payment system, the SRP's fees are lower than those of the ISMT (KZT 9-22 per payment order).

In 2002, the daily average volume and value in the SRP were 33,534 payments and KZT 2.7 billion respectively.

#### **3.3.1 Participation**

Commercial banks and other financial institutions can become the participants in the SRP by signing an agreement with the KISC.

At the end of 2002, the SRP had 51 participants: 27 commercial banks, 17 regional treasury departments, the NBK, the Bank-Custodian of the State Accumulation Pension Fund (Department of Monetary Operations of the NBK), the state pensions payment centre, KazPost, two non-bank institutions and "Timei".

Timei was a regional private clearing house in the north of the country. Timei settled the net positions of three branches of commercial banks and one regional treasury department through the SRP. But Timei gave up its clearing activity in July 2003.

Participants can access the KISC through several kinds of network connection, including dial-up, dedicated lines, the internet, X.25, etc. Only the electronic messages MT100 and MT102 (format similar to SWIFT) are used in the SRP. Participants use the same terminal as for the ISMT.

#### **3.3.2 System operation**

The Almaty Clearing House (later - the KISC) performed the activities of the SRP from 1996 and the KISC introduced the new clearing system in 1999. In the new system, participants are able to withdraw payment orders during the operating day and input payment orders for a future settlement date.

The SRP is based on netting, and there is only one clearing cycle a day. The system accepts payment orders from 16:00 on Day S-1 to 15:00 on Day S (the settlement day). After the cutoff time, the net positions of participants are calculated multilaterally on the basis of their inflows and outflows of payments during the day. The net positions are then sent to the ISMT for final settlement, which takes place between 15:00 and 16:00.

### **3.3.3 Settlement procedure**

As a net settlement system, the SRP requires only sufficient funds to cover the net amount at the end of the operating day. The net positions of SRP participants are calculated by the KISC after the cutoff time of 15:00. The net positions are then sent and settled through the ISMT.

Once the net positions have been settled, the KISC notifies participants that funds transfer has been completed. The notification shows not only the payment orders received and information on the net position resulting from the clearing, but also information on payment orders which have failed to process, and the reason for the failure.

### **3.3.4 Risk management**

There is no credit or debit limit for each participant. However, risks are managed by the queue release method. All payment orders are held in a queue until final settlement. The queue is managed according to the priority code, which is the same as for the ISMT. Each participant assigns a priority code to the payment order and payment orders with the same priority code are dealt with on a FIFO (first in, first out) basis. Participants can withdraw payment orders from the queue before the cutoff time.

Once the net position of each participant is calculated, the pre-settlement procedure begins. Net positions are sent to the ISMT and the availability of the participants' funds at the ISMT is checked. If there are sufficient funds to cover the net position, the amount for the net debit position is blocked at the ISMT. If the funds at the ISMT are insufficient, the entire available amount is blocked in the ISMT and an unwinding procedure is initiated for the shortfall. Payment orders corresponding to the shortfall of funds are cancelled from the queue according to the priority and FIFO rule, and the sender is notified. The new net positions are calculated and resubmitted to the ISMT for final settlement.

Participants receive automatic information reports from the system twice during the operating day (or more often upon request). Information shown includes payment orders sent and received and the net position in the SRP. This allows participants to manage their liquidity for the final settlement. In other words, participants can obtain the necessary liquidity before the settlement time from the money market or through the credit facility provided by the NBK (see Section 3.2.7).

## **4. Securities settlement systems**

The securities market in Kazakhstan has been developing in line with the transition to a market economy. Several privatisation initiatives have facilitated the growth of the stock market in Kazakhstan, including the creation of joint-stock companies, sales of government-owned companies to private investors, the promotion of market-oriented economic reforms and the creation of investment privatisation funds. Alongside these economic reforms, the issuance of government bonds and the improvement of the securities settlement infrastructure have also contributed to the development of the securities market. To reflect this development, the "Law on the securities market" was updated and enacted in July 2003.

### **4.1 Trading**

There is one stock exchange in Kazakhstan, the KASE, which was originally set up as the Kazakhstan Interbank Currency Exchange in 1993. The KASE started trading stocks in September 1997 and foreign exchange in April 1999. In 1997 it introduced remote access, allowing participation from anywhere in Kazakhstan. All kinds of securities can be traded at the OTC market as well as at the KASE.

At the end of 2002, there were amounts outstanding of KZT 181.2 billion in government securities, KZT 1,175.2 billion in shares and KZT 91.9 billion in corporate bonds in Kazakhstan.

The oversight body for the securities market is the NBK, according to the central bank law.

## 4.2 Clearing

There is no central counterparty for securities trades in Kazakhstan. All the settlements are on a trade by trade basis.

## 4.3 Settlement procedure

Securities are settled as follows:

- (1) Government securities are settled on a T+0 basis through the CSD.
- (2) Non-government issued securities are settled on a T+3 basis through the CSD.
- (3) Foreign exchange transactions are settled on a TOD, TOM and SPOT basis:
  - the tenge leg is settled through the correspondent account of the KASE at the NBK;
  - the foreign currency leg is settled through the foreign correspondent bank.

The CSD was established in July 1997. It is the only depository in Kazakhstan and covers government bonds, municipal bonds and corporate securities. The CSD provides a variety of services to participants, including book-entry custody of securities, record-keeping, confirmation of the rights of owners, and settlement of securities. It also provides services for corporate shares, such as principal and dividend distribution. The CSD acts as a paying agent for short-term notes issued by the NBK, and municipal bonds.

The CSD is owned by the NBK (50%), the KASE (26.66%), 15 commercial banks (16.66%) and six brokers (6.66%). At the end of 2002 the CSD had 42 participants: 19 commercial banks, 20 brokerage companies, KazPost, the CSD of the Kyrgyz Republic and the NBK.

All the securities deposited with the CSD are dematerialised. But use of the CSD is not mandatory for corporate securities. Customers' stocks are segregated from participants' own stocks and recorded on separate sub-accounts. The funds leg of securities transactions is settled through the ISMT. For this purpose, each participant has to have a cash account at the ISMT.

The settlement of securities transactions is made in real time and on a DVP basis. Model 1 DVP is used, and transfer of both securities and funds is on a trade by trade basis.

Trades at the KASE are notified to the CSD as matched trades. For OTC trades, dealers can send electronic messages directly to the CSD, and the CSD will conduct "trade matching" of the notices from both buyer and seller. After the receipt of matched trades or the matching, the CSD checks the availability of the securities on the seller's account at the CSD, and then blocks them. In the event of unavailability of the securities, the transaction is cancelled. After blocking the securities, the CSD sends an instruction to debit the buyer's account and credit its own account (the CSD account) at the ISMT. After transferring the securities to the buyer, the CSD debits the CSD account and credits the seller's account at the ISMT. In the event of insufficient funds in the buyer's account, the CSD cancels the transaction. After finalising the whole procedure, the CSD sends confirmation of the completion of the transaction to the buyer and the seller.

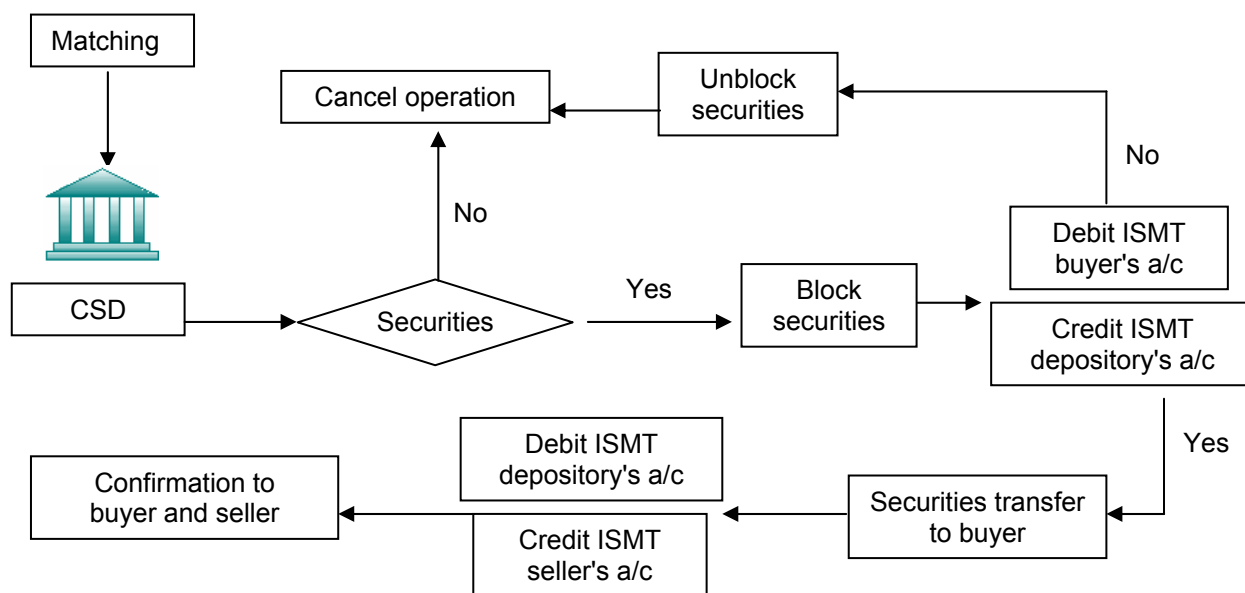
For the smooth functioning of the primary and secondary market in securities, electronic messages are exchanged among the parties concerned, including the CSD, the KISC, the KASE, the NBK and the participants. The settlement system of the CSD carries transactions from 09:30 to 20:00, but funds settlement stops about 40 minutes prior to the close of the ISMT operating day.

## 4.4 Use of the securities infrastructure by the central bank

The NBK is a direct participant in the CSD and performs a number of activities through this channel. First, the NBK uses the CSD to receive securities as collateral. This collateral is used to support the NBK's lending to financial institutions. Second, the NBK conducts open market operations as part of its monetary policy. The securities transactions for this purpose are all settled in the CSD. Third, the CSD acts as a paying agent for the short-term notes issued by the NBK and used for its monetary operations. As a paying agent, the CSD takes care of primary issuance, distributes interest payments and make redemptions to the holders.

Figure 2

**DVP mechanism between the CSD and the ISMT**



## **Statistical tables**





Table 1  
Basic statistical data

	1996	1997	1998	1999	2000	2001	2002
Population (millions, year-end)	15.4	15.2	15.0	14.9	14.9	14.8	14.9
GDP (KZT billions)	1,416	1,672	1,733	2,016	2,600	3,251	3,747
GDP per capita (KZT thousands)	91.9	110.0	115.5	135.3	174.5	219.7	251.5
Exchange rate (KZT/USD):							
Year-end	73.30	75.55	83.80	138.20	144.50	150.20	155.60
Average	67.30	75.44	78.30	119.52	142.13	146.74	153.28

Table 2  
Settlement media used by non-banks  
End of year, in billions of KZT

	1996	1997	1998	1999	2000	2001	2002
Notes and coin	63.5	93.3	69.8	104.6	108.8	136.1	167.1
Transferable deposits	46.5	47.8	34.6	57.5	86.6	88.1	120.2
Other	nap	nap	nap	nap	nap	nap	nap
Narrow money supply (M1)	110.0	141.1	104.4	162.1	195.4	224.2	287.3
<i>Memo:</i>							
<i>Broad money supply (M3)</i>	135.0	173.0	148.5	273.9	397.0	576.0	764.9
<i>Transferable deposits in foreign currencies</i>	nav	nav	nav	nav	nav	nav	nav
<i>Outstanding value on e-money schemes</i>	nap	nap	nap	nap	nap	nap	nap

Table 3  
Settlement media used by banks  
End of year, in billions of KZT

	1996	1997	1998	1999	2000	2001	2002
Transferable balances held at central bank	17.7	22.4	12.1	21.8	24.4	42.3	45.4
<i>Of which:</i>							
<i>Required reserves</i>	0.04	0.02	0.02	0.09	0.05	0.01	0.3
<i>Free reserves</i>	17.7	22.4	12.1	21.7	24.4	42.3	45.1
Transferable balances held at other banks	nav	nav	nav	nav	nav	0.18	0.21
<i>Memo: Institutions' borrowings from central bank</i>	8.7	8.2	2.1	4.6	2.8	1.8	3.8

Table 4  
**Banknotes and coin**  
 End of year, in billions of KZT

	1997	1998	1999	2000	2001	2002
Total banknotes issued	96.5	72.96	110.1	115.2	143.0	174.0
<i>Of which:</i>						
5,000	0	0	9.2	32.3	38.2	53.3
2,000	9.2	9.2	17.8	20.6	32.4	43.5
1,000	25.6	21.3	32.0	22.5	22.4	31.1
500	19.3	14.2	22.4	20.97	29.9	27.7
200	19.4	12.98	15.95	13.4	16.7	14.3
100	11.9	8.4	8.5	4.1	2.9	3.5
50	6.2	3.8	2.4	0.6	0.1	0.1
20	2.4	1.5	0.7	0.2	0.1	0.1
10	1.4	0.9	0.5	0.2	0.09	0.09
5	0.7	0.4	0.3	0.1	0.09	0.09
3	0.4	0.3	0.2	0.1	0.07	0.07
1	0.08	0.07	0.07	0.07	0.07	0.07
Total coin issued	0.3	0.4	0.7	1.6	2.9	4.4
<i>Of which:</i>						
100	0	0	0	0	0	0.6
50	0	0.07	0.1	0.6	1.2	1.6
20	0.2	0.2	0.3	0.4	0.8	1.0
10	0.05	0.05	0.1	0.3	0.4	0.6
5	0.03	0.04	0.1	0.2	0.3	0.4
3	0.01	0.02	0.02	0.02	0.02	0.02
1	0.0	0.01	0.02	0.06	0.1	0.2
Total banknotes and coin issued	96.8	73.4	110.9	116.9	146.0	178.4
Banknotes and coin held by credit institutions	3.5	3.6	6.3	8.1	9.9	11.3
Banknotes and coin in circulation outside credit institutions	93.3	69.8	104.6	108.8	136.1	167.1

Table 5  
**Institutional framework**  
 End of 2002

Categories	Number of institutions	Number of branches	Number of accounts (thousands)	Number of internet-linked accounts	Value of accounts (KZT billions)
Central bank	1	18	nav	nav	nav
Credit institutions	38	368	nav	nav	nav
Postal institution	1	3,572 <sup>1</sup>	nav	nav	nav
Total	40	3,958	nav	nav	nav
<i>Of which: virtual institutions</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>	<i>nap</i>
Branches of foreign banks	nap	nap	nap	nap	nap

<sup>1</sup> Number of postal offices.

Table 6  
**Payment card functions and accepting devices**  
End of year

	1997	1998	1999	2000	2001	2002
<b>Cash function</b>						
Cards with a cash function (thousands)	237.5	352.7	554.4	949.9	1,218.9	1,495.9
Number of networks	1	2	2	4	4	4
Number of ATMs with a cash dispensing function	48	182	248	394	539	702
<i>Of which:</i>						
<i>Open access</i>	48	182	248	394	539	702
<i>Limited access</i>	0	0	0	0	0	0
Volume of transactions (millions)	0.09	0.42	3.3	6.5	13.7	20.4
<i>Of which:</i>						
<i>At ATMs with open access</i>	0.09	0.42	3.3	6.5	13.7	20.4
<i>At ATMs with limited access</i>	0	0	0	0	0	0
Value of transactions (KZT billions)	1.03	6.3	23.2	58.1	138.0	241.4
<i>Of which:</i>						
<i>At ATMs with open access</i>	1.03	6.3	23.2	58.1	138.0	241.4
<i>At ATMs with limited access</i>	0	0	0	0	0	0
Number of ATMs with a giro transfer function	0	0	0	1	1	1
Volume of transactions (millions)	0	0	0	nav	nav	nav
Value of transactions (KZT billions)	0	0	0	nav	nav	nav
<b>Debit function</b>						
Cards with a debit function (thousands)	237.5	352.7	554.4	949.9	1,218.9	1,495.9
<i>Of which: retailer cards</i>	0	0	0	0	0	0
Number of networks	1	2	2	4	4	4
Number of terminals	873	1,295	4,172	3,935	4,369	5,285
Volume of transactions (millions)	neg	neg	0.1	0.3	0.4	0.6
<i>Of which: transactions with retailer cards</i>	0	0	0	0	0	0
Value of transactions (KZT billions)	neg	neg	1.0	3.1	5.8	9.6
<i>Of which: transactions with retailer cards</i>	0	0	0	0	0	0
<b>Credit function</b>						
Cards with a credit function (thousands)	0.39	2.1	4.6	9.7	36.6	119.7
<i>Of which: retailer cards</i>	0	0	0	0	0	0
Number of networks	1	2	2	4	4	4
Number of terminals	873	1,295	4,172	3,935	4,369	5,285
Volume of transactions (millions)	neg	neg	neg	neg	0.01	0.05
<i>Of which: transactions with retailer cards</i>	0	0	0	0	0	0
Value of transactions (KZT billions)	neg	neg	neg	0.03	0.2	0.8
<i>Of which: transactions with retailer cards</i>	0	0	0	0	0	0

Table 6 (cont)

**Payment card functions and accepting devices**

End of year

	1997	1998	1999	2000	2001	2002
<b>Electronic money function</b>						
Cards with an e-money function (thousands)	nap	nap	nap	nap	nap	nap
Number of accepting terminals	nap	nap	nap	nap	nap	nap
Number of networks	nap	nap	nap	nap	nap	nap
<b>Delayed debit cards (charge cards)</b>						
Cards with a delayed debit function (thousands)	nap	nap	nap	nap	nap	nap
Number of terminals	nap	nap	nap	nap	nap	nap
Volume of transactions (millions)	nap	nap	nap	nap	nap	nap
Value of transactions (KZT billions)	nap	nap	nap	nap	nap	nap

Table 7

**Payment instructions handled by selected interbank funds transfer systems:  
volume of transactions**

In millions

	1997	1998	1999	2000	2001	2002
ISMT	3.2	5.0	6.2	6.5	3.7	3.2
Concentration ratio (in %)	nav	nav	64	65	48	38
SRP	2.9	3.7	2.2	3.3	7.3	8.5
Concentration ratio (in %)	nav	nav	nav	57	54	58

Table 8

**Payment instructions handled by selected interbank funds transfer systems:  
value of transactions**

In billions of KZT

	1997	1998	1999	2000	2001	2002
ISMT	2,356.0	2,900.4	4,061.7	6,767.6	9,708.6	14,786.2
Concentration ratio (in %)	nav	nav	44	45	47	53
SRP	338.2	472.1	215.7	311.3	583.5	685.7
Concentration ratio (in %)	nav	nav	nav	51	44	45

Table 9

**Indicators of use of various cashless payment instruments:  
volume of transactions**

In millions

	1997	1998	1999	2000	2001	2002
<b>Instruments</b>						
Cheques	nav	nav	nav	0.049	0.005	0.3
Payments by debit card	neg	neg	0.1	0.3	0.4	0.6
Payments by credit card	neg	neg	neg	neg	0.01	0.05
Payment orders	nav	nav	nav	10.7	14.5	15.8
Direct debits	nav	nav	nav	0.11	0.03	0.2
Collection letter	nav	nav	nav	0.29	0.23	0.3
Payment request order	nav	nav	nav	0.1	0.1	0.1
Total	neg	neg	0.1	11.5	15.3	17.4

Table 10

**Indicators of use of various cashless payment instruments:  
value of transactions**

In billions of KZT

	1997	1998	1999	2000	2001	2002
<b>Instruments</b>						
Cheques	nav	nav	nav	35.8	4.7	195.2
Payments by debit card	neg	neg	1.0	3.1	5.8	9.6
Payments by credit card	neg	neg	neg	0.03	0.2	0.8
Payment orders	nav	nav	nav	7,466.4	11,244.4	14,536.6
Direct debits	nav	nav	nav	46.04	15.9	35.0
Collection letter	nav	nav	nav	171.5	161.2	450.3
Payment request order	nav	nav	nav	18.3	27.2	33.0
Total	neg	neg	1.0	7,741.2	11,459.4	15,260.5

Table 11a

**Instructions handled by trading platforms, clearing houses  
and securities settlement systems:  
volume of transactions**

In millions

	1997	1998	1999	2000	2001	2002
<b>Trading platforms</b>	nav	nav	nav	nav	nav	nav
<b>Clearing houses</b>	nav	nav	nav	nav	nav	nav
<b>Securities settlement systems</b>						
ISMT	nav	nav	0.003	0.01	0.01	0.02

Table 11b

**Instructions handled by trading platforms, clearing houses  
and securities settlement systems:  
value of transactions**

In billions of KZT

	1997	1998	1999	2000	2001	2002
<b>Trading platforms</b>	nav	nav	nav	nav	nav	nav
<b>Clearing houses</b>	nav	nav	nav	nav	nav	nav
<b>Securities settlement systems</b>						
ISMT	nav	nav	142.2	700.2	1,231.6	2,897.8

Table 11c

**Number of participants in trading platforms, clearing  
houses and securities settlement systems**

Details are not available.

Table 11d  
**Outstanding securities**  
 End of year

	1997	1998	1999	2000	2001	2002
Value of securities issued (KZT billions)	214.6	193.8	123.4	127.5	131.8	160.1
Volume of securities issued	1,424	895	598	605	597	221
Value of securities registered (KZT billions)	nav	nav	nav	nav	nav	nav
Volume of securities registered	nav	nav	nav	nav	nav	nav

Table 11e  
**Netting ratio in clearing systems**

Details are not available.

Table 12  
**Participation in SWIFT by domestic institutions**

	1997	1998	1999	2000	2001	2002
Members	17	17	5	5	7	6
<i>Of which: live</i>	17	16	5	5	7	6
Submembers <sup>1</sup>	1	2	5	5	7	7
<i>Of which: live</i>	1	2	5	5	6	7
Participants <sup>2</sup>	1	1	11	12	11	16
<i>Of which: live</i>	1	1	11	12	11	16
Total users	19	20	21	22	25	29
<i>Of which: live</i>	19	19	21	22	24	29
<i>Memo: Total SWIFT users</i>	6,176	6,557	6,797	7,125	7,199	7,465
<i>Of which:</i>						
<i>Members</i>	2,985	2,980	2,214	2,288	2,241	2,203
<i>Submembers</i>	2,585	2,720	2,763	2,978	3,027	3,079
<i>Participants</i>	606	857	1,820	1,859	1,931	2,183

<sup>1</sup> Domestic users sponsored by members abroad. <sup>2</sup> Participants are not shareholders in SWIFT and their message traffic over the network is restricted.

Source: SWIFT.

Table 13  
**SWIFT message flows to/from domestic users**  
(in thousands)

	1997	1998	1999	2000	2001	2002
Total messages sent	148	180	207	316	441	524
<i>Of which:</i>						
<i>Category I<sup>1</sup></i>	79	91	103	173	264	315
<i>Category II<sup>2</sup></i>	24	30	35	49	55	62
Total messages received	175	214	258	357	432	515
<i>Of which:</i>						
<i>Category I<sup>1</sup></i>	58	67	80	115	138	164
<i>Category II<sup>2</sup></i>	10	8	6	6	8	9
Domestic traffic <sup>3</sup>	7	14	23	32	37	53
<i>Memo: Global SWIFT traffic</i>	812,118	937,040	1,058,836	1,273,913	1,533,906	1,817,444

<sup>1</sup> Category I: customer (funds) transfers. <sup>2</sup> Category II: bank (funds) transfers. <sup>3</sup> Messages sent to/received from domestic users.

Source: SWIFT.



## **Comparative tables**



Table 1  
**Banknotes and coin in circulation**  
 End of year

	Total (USD millions) <sup>1</sup>					Value per inhabitant (USD) <sup>1</sup>				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	1,235	833	757	753	906	81	56	51	51	61
Belgium	11,953	12,694	12,055	11,045	6,257	1,174	1,244	1,179	1,078	609
Canada	20,704	20,698	25,518	23,539	23,697	688	682	834	762	759
France	44,584	48,303	44,907	41,500	25,822	745	804	745	685	424
Germany	137,688	144,327	131,706	117,149	59,928	1,678	1,759	1,604	1,425	728
Hong Kong SAR	10,404	10,479	12,807	11,770	13,035	1,603	1,601	1,938	1,766	1,938
Italy	61,080	69,410	66,124	64,632	50,806	1,062	1,205	1,147	1,120	877
Japan	405,887	471,446	581,944	539,144	507,160	3,217	3,728	4,594	4,248	3,984
Netherlands	19,205	19,974	17,400	15,753	8,055	1,231	1,272	1,101	989	502
Singapore	6,389	6,110	6,792	6,520	6,412	1,684	1,558	1,719	1,623	1,552
Sweden	9,370	9,579	10,231	9,409	9,162	1,059	1,082	1,155	1,061	1,030
Switzerland	19,796	21,858	19,830	19,562	21,418	2,783	3,065	2,767	2,715	2,950
United Kingdom	40,116	42,339	45,612	45,057	47,102	680	715	767	754	786
United States	428,100	463,300	521,500	535,200	584,900	1,597	1,713	1,911	1,944	2,052

Note: For an explanation of the footnotes refer to the end of the table. Please refer to the individual country tables for detailed explanation.

Table 1 (cont)

**Banknotes and coin in circulation**

End of year

	As a percentage of GDP					As a percentage of narrow money				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	5.6	4.0	5.2	4.2	4.2	66.1	66.9	64.5	55.7	60.7
Belgium	5.0	4.8	5.1	4.8	2.8	26.5	23.8	20.4	19.3	11.8
Canada	3.4	3.5	3.8	3.3	3.5	14.2	14.5	15.6	13.7	13.0
France	3.3	3.2	3.3	3.1	2.0	13.1	12.9	12.7	11.9	7.4
Germany	6.7	6.4	6.6	6.2	3.3	27.1	24.1	23.5	21.9	11.3
Hong Kong SAR	6.1	6.4	8.1	7.2	7.9	42.8	45.5	48.5	45.0	44.2
Italy	5.4	5.5	5.9	6.0	4.7	16.1	16.1	14.4	14.3	11.3
Japan	10.1	10.5	11.7	12.1	13.1	25.8	25.3	24.8	25.0	23.7
Netherlands	5.3	4.8	4.6	4.2	2.1	15.7	14.1	12.8	11.4	5.7
Singapore	7.6	7.4	8.0	7.1	7.7	38.9	37.2	36.4	33.9	32.9
Sweden	4.1	4.1	4.3	4.3	4.5	nav	nav	nav	nav	nav
Switzerland	7.8	7.9	8.2	7.9	8.7	15.6	15.5	15.3	15.8	16.7
United Kingdom	3.0	3.0	3.1	3.2	3.3	5.0	5.0	5.0	5.0	5.0
United States	5.1	5.3	5.6	5.4	5.8	39.0	41.4	45.4	48.1	48.6

<sup>1</sup> Converted at end-of-year exchange rates.

Table 2  
**Transferable deposits held by non-banks**  
 End of year

	Value per inhabitant (USD) <sup>1</sup>					As a percentage of GDP					As a percentage of narrow money				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	42	28	28	40	40	2.9	2.0	2.9	3.3	2.7	33.9	33.1	35.5	44.3	39.3
Belgium	3,261	3,984	4,609	4,504	4,558	14.0	15.5	19.9	20.0	20.9	73.5	76.2	79.6	80.8	88.2
Canada	4,169	4,010	4,512	4,818	5,091	20.3	20.4	20.3	20.9	23.2	85.8	85.5	84.4	86.3	87.0
France	4,913	5,436	5,127	5,080	5,323	21.5	21.4	22.7	23.3	25.1	86.8	87.1	87.3	88.1	92.6
Germany	4,515	5,542	5,220	5,080	5,712	18.0	20.1	21.6	22.2	25.8	72.9	75.9	76.5	78.1	88.7
Hong Kong SAR	2,140	1,915	2,061	2,160	2,448	8.1	7.7	8.6	8.9	10.0	57.2	54.5	51.5	55.0	55.8
Italy	5,379	6,179	6,798	6,704	6,858	27.4	28.4	35.2	35.7	37.1	81.7	82.4	85.6	85.7	88.7
Japan	9,246	10,988	13,931	12,748	12,854	29.0	31.0	35.4	36.2	42.4	74.2	74.7	75.2	75.0	76.3
Netherlands	6,609	7,740	7,499	7,710	8,294	28.3	29.4	31.5	32.8	35.2	84.3	85.9	87.2	88.6	94.3
Singapore	2,644	2,625	3,007	3,158	3,167	12.0	12.4	13.9	13.8	15.8	61.1	62.8	63.6	66.1	67.1
Sweden	10,487	10,503	10,678	9,972	9,867	40.2	39.7	40.2	40.0	42.8	nav	nav	nav	nav	nav
Switzerland	8,561	9,682	8,714	8,234	8,462	23.9	25.0	25.7	23.9	24.8	47.9	48.9	48.2	47.9	47.8
United Kingdom	12,997	13,718	14,471	14,225	14,960	57.0	57.2	59.0	60.0	62.7	95.0	95.0	95.0	95.0	95.0
United States	2,464	2,398	2,266	2,066	2,143	7.9	7.4	6.7	5.8	6.1	60.2	57.9	53.9	51.2	50.7

Note: Please refer to the individual country tables for detailed explanation.

<sup>1</sup> Converted at end-of-year exchange rates.

Table 3  
**Settlement media used by banks**  
 End of year

	<b>Banks' reserves at central bank</b>									
	<b>USD billions<sup>1</sup></b>					<b>As a percentage of narrow money</b>				
	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
Kazakhstan	0.3	0.1	0.2	0.2	0.3	15.9	11.6	13.4	12.5	18.9
Belgium	neg	1.0	7.4	6.7	6.7	0.1	1.8	12.5	11.8	12.6
Canada	0.3	0.4	0.9	0.3	0.3	0.2	0.3	0.6	0.2	0.2
France <sup>2</sup>	3.8	19.4	24.1	26.0	26.3	1.1	5.2	6.8	7.4	7.5
Germany	23.4	27.7	33.5	33.0	34.3	4.6	4.6	6.0	6.2	6.5
Hong Kong SAR <sup>3</sup>	neg	0.3	1.0	0.1	0.1	0.2	1.4	3.9	0.3	0.3
Italy	47.6	11.9	12.2	11.4	11.5	12.6	2.8	2.7	2.5	2.6
Japan	27.7	33.2	94.9	36.9	82.6	1.8	1.8	4.0	1.7	3.9
Netherlands	3.0	9.1	7.3	8.7	9.0	2.5	6.4	5.4	6.3	6.3
Singapore	4.6	3.3	4.5	3.3	3.8	28.0	19.9	24.2	17.1	19.3
Sweden	0.3	0.2	0.5	neg	neg	nav	nav	nav	nav	nav
Switzerland	4.2	5.6	6.6	4.7	4.7	3.3	4.0	5.1	3.8	3.7
United Kingdom	4.5	2.6	3.6	2.5	2.7	0.6	0.3	0.4	0.3	0.3
United States	18.3	15.6	12.4	13.5	17.8	1.7	1.4	1.1	1.2	1.5

Note: For an explanation of the footnotes refer to the end of the table. Please refer to the individual country tables for detailed explanation.

Table 3 (cont)  
**Settlement media used by banks**  
 End of year

	Transferable deposits at other banks									
	USD billions <sup>1</sup>					As a percentage of narrow money				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	nav	nav	nav	nav	neg	nav	nav	nav	nav	0.1
Belgium	4.9	5.4	6.5	6.6	11.7	10.9	10.1	11.0	11.5	22.0
Canada	3.7	4.2	5.2	4.5	3.3	2.5	2.9	3.2	2.6	1.8
France <sup>2</sup>	149.1	183.9	190.7	169.2	165.9	44.0	49.1	53.9	48.4	47.4
Germany	238.9	281.9	114.9	105.5	108.5	47.0	47.1	20.5	19.7	20.5
Hong Kong SAR <sup>3</sup>	nap	nap	nap	nap	nap	nap	nap	nap	nap	nap
Italy	55.0	64.2	59.3	88.1	75.0	14.5	14.9	12.9	19.5	16.7
Japan	29.9	30.7	103.1	37.8	52.8	1.9	1.6	4.4	1.8	2.5
Netherlands	1.2	25.0	16.4	49.7	26.9	1.0	17.7	12.1	35.9	19.1
Singapore	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Sweden	11.9	13.9	11.1	7.9	11.7	nav	nav	nav	nav	nav
Switzerland	23.6	37.2	26.2	30.8	27.4	18.6	26.3	20.3	24.8	21.3
United Kingdom	371.1	357.9	358.9	361.4	404.3	46.1	41.9	39.6	40.4	42.8
United States	29.5	32.8	27.5	32.1	34.9	2.7	2.9	2.4	2.9	2.9

<sup>1</sup> Converted at end-of-year exchange rates.

France: <sup>2</sup> Change in reserves policy from 16 October 1998.

Hong Kong SAR: <sup>3</sup> Banks do not maintain reserves with the HKMA as there are no reserve requirements in Hong Kong SAR. The data represent the closing balance of the aggregate balance of settlement accounts.

Table 4  
Institutional framework

	Number of institutions offering payment services <sup>1</sup>		Number of central bank branches <sup>1</sup>		Number of bank branches <sup>1</sup>		Number of post office branches <sup>1</sup>		Others <sup>1</sup>		Total number of branches offering payment services <sup>1</sup>		Number of accounts on which payments can be made <sup>2</sup>	
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001
Kazakhstan	3.4	3.1	1.1	1.1	28.1	27.6	229.8	231.4	nap	nap	258.9	260.1	nav	nav
Belgium	11.8	11.2	0.8	0.7	645.1	599.9	135.1	131.1	nap	nap	780.2	731.1	1.2	1.0
Canada <sup>3,4</sup>	62.0	54.1	0.0	0.0	270.3	285.9	nap	nap	173.3	172.4	443.6	458.3	nav	nav
France	27.8	26.9	3.5	3.5	423.5	427.7	272.9	185.5	65.3	64.5	765.2	681.1	1.1	1.1
Germany <sup>5</sup>	33.3	30.6	1.6	1.6	681.1	640.5	nap	nap	nap	nap	682.9	642.0	1.1	1.1
Hong Kong SAR <sup>6</sup>	23.1	19.8	0.2	0.1	241.3	218.6	nap	nap	nap	nap	241.4	218.7	nav	nav
Italy	13.6	13.3	1.7	1.7	486.4	503.4	241.3	237.0	nap	nap	729.4	742.2	0.6	0.6
Japan	22.3	19.6	0.3	0.3	315.4	304.3	190.4	189.9	nap	nap	506.0	494.5	nav	nav
Netherlands <sup>7</sup>	7.1	6.9	0.3	0.2	238.0	218.6	137.4	140.4	nap	nap	375.7	359.3	1.4	1.4
Singapore <sup>8</sup>	54.0	48.9	0.7	0.7	174.7	150.6	nap	nap	nap	nap	175.0	150.8	nav	nav
Sweden	14.3	15.1	0.1	0.1	225.6	229.3	154.7	151.7	nap	nap	380.3	381.1	nav	nav
Switzerland	46.6	45.2	0.8	0.8	395.5	387.5	469.9	437.6	nap	nap	866.2	825.9	nav	nav
United Kingdom	8.4	8.0	neg	neg	252.0	244.9	307.8	291.9	nap	nap	559.8	536.9	2.7	2.6
United States	74.5	71.2	0.1	0.1	282.4	272.9	nap	nap	nap	nap	282.4	273.0	nav	nav

Note: Please refer to the individual country tables for detailed explanation.

<sup>1</sup> Per million inhabitants. <sup>2</sup> Per inhabitant.

Canada: <sup>3</sup> "Number of central bank branches": there are five branches but only one offers payment services. <sup>4</sup> "Others" includes trust and loan companies; local credit unions and caisses populaires; and governmental savings institutions.

Germany: <sup>5</sup> Postbank AG is a fully fledged credit institution, and those post office branches which are entrusted with the semi-cashless payment systems on behalf of Postbank AG are included under "Number of bank branches" (and not "Number of post office branches").

Hong Kong SAR: <sup>6</sup> "Number of central bank branches" excludes the HKMA's two overseas representative offices (London and New York).

Netherlands: <sup>7</sup> "Number of bank branches" excludes the counters of the postal institution.

Singapore: <sup>8</sup> As at end-March. The institutions offering payment services include banks and finance companies.



Table 5  
Cards with a cash function and ATMs

	Number of ATMs per million inhabitants (end of year)					Number of transactions per inhabitant					Average value per transaction (USD) <sup>1</sup>				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	3	12	17	26	36	0.01	0.03	0.2	0.4	0.9	151.7	191.6	58.8	62.9	68.6
Belgium	492	564	606	657	669	15.7	15.6	17.4	19.8	21.5	117.9	118.2	111.3	97.5	92.8
Canada <sup>3</sup>	652	775	873	1,034	1,142	43.1	47.3	47.2	48.3	47.8	50.4	62.0	65.3	66.6	69.5
France	452	490	538	580	606	14.0	15.5	17.0	17.9	19.1	66.2	62.8	64.8	56.0	54.7
Germany	505	556	563	580	603	nav	17.1	18.4	20.4	19.4	nav	169.5	155.9	134.2	140.2
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	444	487	524	549	593	7.2	8.5	8.7	9.1	9.7	184.9	178.7	170.6	150.3	144.9
Japan <sup>4</sup>	924	934	944	922	918	3.0	3.1	3.1	3.2	3.1	481.4	433.8	501.3	532.2	474.4
Netherlands	410	418	422	435	445	25.9	27.1	28.5	29.5	28.0	95.9	96.0	93.7	79.7	88.2
Singapore <sup>5</sup>	499	483	470	446	435	4.0	4.0	2.6	2.1	2.1	149.4	135.0	140.0	138.2	124.7
Sweden	268	281	291	295	289	35.3	37.6	35.0	36.2	37.7	104.5	108.4	100.2	92.1	81.4
Switzerland	603	642	655	675	694	11.4	11.3	12.2	17.8	19.6	186.6	180.3	173.2	117.0	111.9
United Kingdom	393	415	460	552	612	29.6	31.2	33.1	33.9	36.6	84.5	87.8	88.8	84.5	84.0
United States	616	691	832	991	1,137	41.0	41.4	39.9	46.8	47.7	67.7	68.0	68.0	69.6	68.0

Note: For an explanation of the footnotes refer to the end of the table. Please refer to the individual country tables for detailed explanation.

Table 5 (cont)

## Cards with a cash function and ATMs

	Increase in the number of ATMs (%)					Increase in the number of transactions (%)					Increase in the value of transactions (%) <sup>2</sup>				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	nav	279.2	36.3	58.9	36.8	nav	366.7	685.7	97.0	110.8	nav	511.7	268.3	150.4	137.5
Belgium	24.3	15.0	7.7	8.6	2.1	3.8	-0.2	11.4	14.1	9.2	-8.6	0.1	4.9	-0.1	4.0
Canada <sup>3</sup>	5.6	19.9	13.7	19.4	11.6	6.1	10.9	0.5	3.3	0.1	1.3	29.9	7.5	3.8	3.0
France	10.4	8.6	10.3	8.4	5.0	9.0	11.4	10.3	5.5	7.7	-5.6	5.7	13.9	-8.9	5.2
Germany	10.1	10.2	1.3	3.1	4.1	nav	nav	7.7	11.0	-4.7	nav	nav	-1.0	-4.4	-0.5
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	5.0	9.8	7.7	5.0	8.3	12.0	18.2	2.5	5.6	6.6	2.9	14.2	-2.1	-7.0	2.8
Japan <sup>4</sup>	3.0	1.3	1.2	-2.2	-0.1	4.2	3.3	neg	3.6	-2.2	-7.1	-6.9	15.6	10.0	-12.9
Netherlands	4.0	2.7	1.6	3.7	3.2	1.0	5.2	5.9	4.4	-4.3	-13.1	5.3	3.3	-11.1	5.8
Singapore <sup>5</sup>	9.2	-0.1	-2.0	-3.3	0.2	10.1	2.0	-34.8	-15.4	2.7	6.6	-7.9	-32.4	-16.5	-7.3
Sweden	-0.4	4.9	3.8	1.4	-1.9	5.1	6.7	-6.9	3.5	4.4	-8.5	10.7	-13.9	-4.9	-7.7
Switzerland	17.4	6.7	2.5	3.7	3.6	8.2	-0.6	8.5	46.9	11.2	-10.4	-4.0	4.2	-0.8	6.5
United Kingdom	4.8	6.0	11.4	20.5	11.1	9.1	6.0	6.4	3.0	8.2	18.0	10.2	7.6	-2.0	7.6
United States	18.6	13.3	21.4	20.3	18.7	2.8	1.8	-2.7	18.3	5.4	2.3	2.3	-2.7	21.1	3.0

<sup>1</sup> Converted at yearly average exchange rates. <sup>2</sup> In USD terms, converted using yearly average exchange rates.

Canada: <sup>3</sup> Data on the value of transactions refer to cash withdrawals only.

Japan: <sup>4</sup> Data on the volume and value of transactions refer to cash withdrawals only.

Singapore: <sup>5</sup> The transactions refer to shared ATM transactions.

Table 6  
Cards with a debit function and POS accepting terminals

	Number of POS terminals per million inhabitants (end of year)					Number of transactions per inhabitant					Average value per transaction (USD) <sup>1</sup>				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	57	86	280	264	295	neg	neg	0.01	0.02	0.03	nav	nav	83.7	72.7	98.8
Belgium	8,421	9,121	9,746	11,364	14,047	23.6	29.1	34.6	39.8	45.0	59.5	57.5	53.8	47.0	45.1
Canada	10,988	12,982	13,270	14,190	14,843	34.6	44.7	54.3	63.5	71.7	30.6	29.4	29.4	28.5	26.9
France	11,371	12,047	13,261	13,848	14,846	38.5	43.0	48.3	54.3	60.3	52.2	52.2	49.2	42.8	41.5
Germany <sup>3</sup>	3,069	4,423	5,761	7,196	5,291	2.8	8.2	10.5	12.7	14.7	74.3	84.7	79.7	67.7	65.7
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	4,886	6,001	7,549	9,884	12,918	2.2	3.0	4.3	5.5	7.3	100.8	90.8	81.5	66.6	61.3
Japan <sup>4</sup>	155	127	nav	nav	nav	neg	neg	neg	neg	neg	57.9	61.1	243.5	427.1	405.3
Netherlands	7,696	8,533	9,208	9,774	10,333	31.1	37.9	44.3	50.3	59.5	48.8	48.2	48.6	42.9	41.4
Singapore	3,954	4,088	4,506	4,851	5,067	13.4	14.8	16.6	19.1	21.2	45.2	36.5	36.7	35.7	34.9
Sweden	7,778	8,406	9,160	9,822	9,916	13.7	18.1	22.4	28.9	36.6	83.3	76.2	72.7	60.9	54.9
Switzerland	5,834	7,158	8,599	9,375	10,174	13.6	14.9	19.1	23.9	27.8	73.3	63.8	76.0	89.5	100.2
United Kingdom	8,981	10,298	11,765	12,300	12,879	25.9	29.8	35.3	39.9	46.0	50.0	52.2	51.6	50.3	51.7
United States	4,850	6,284	8,610	10,168	12,771	14.6	21.2	27.5	34.7	43.7	41.5	41.6	43.0	43.9	45.9

Note: For an explanation of the footnotes refer to the end of the table. Please refer to the individual country tables for detailed explanation.

Table 6 (cont)

## Cards with a debit function and POS accepting terminals

	Increase in the number of POS terminals (%)					Increase in the number of transactions (%)					Increase in the value of transactions (%) <sup>2</sup>				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	67.6	48.3	222.2	-5.7	11.0	nav	nav	nav	200.0	33.3	nav	nav	nav	210.0	87.1
Belgium	5.4	8.6	7.1	16.9	24.0	13.5	23.6	19.0	15.5	13.3	-1.0	19.5	11.4	0.8	8.7
Canada	30.6	19.1	3.1	7.9	5.7	53.6	30.3	22.6	18.0	14.1	44.5	25.2	22.8	14.2	7.9
France	2.6	6.3	10.5	4.9	7.8	9.4	12.1	12.8	13.0	11.5	-7.2	12.1	6.4	-1.7	8.1
Germany <sup>3</sup>	60.3	44.1	30.3	25.0	-26.3	5.6	198.9	27.7	20.5	16.7	-22.6	240.8	20.0	2.3	13.3
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	30.9	23.0	25.9	31.1	31.1	72.2	38.7	44.2	28.2	33.0	42.3	24.9	29.5	4.7	22.5
Japan <sup>4</sup>	-15.1	-17.7	nav	nav	nav	-16.7	neg	-20.0	700	93.8	57.5	5.5	219.1	1,303	83.9
Netherlands	25.1	11.6	8.6	6.9	6.5	30.9	22.6	17.7	14.5	19.1	13.3	21.0	18.8	0.9	15.1
Singapore	14.7	6.9	11.0	9.5	7.4	20.0	13.8	13.5	17.0	14.0	16.3	-8.2	14.4	13.7	11.4
Sweden	12.1	8.1	9.1	7.4	1.3	37.5	32.2	23.8	29.3	27.3	18.6	20.9	18.0	8.4	14.7
Switzerland	25.7	23.0	20.7	9.6	9.4	27.0	9.5	28.9	25.9	17.3	-3.6	-4.7	53.4	48.3	31.3
United Kingdom	-3.6	15.1	14.8	5.0	5.0	18.4	15.6	18.8	13.6	15.6	27.6	20.9	17.4	10.7	18.8
United States	48.5	30.8	38.2	19.1	30.0	58.4	46.5	31.0	27.2	30.4	63.0	46.8	35.3	29.9	36.4

<sup>1</sup> Converted at yearly average exchange rates. <sup>2</sup> In USD terms, converted using yearly average exchange rates.

Germany: <sup>3</sup> Figures for 1997 exclude POZ and ELV procedures.

Japan: <sup>4</sup> Figures for 1999 and thereafter are not consistent with those up to 1998. Figures up to 1998 are for the local POS services, which are no longer available. Figures for 1999 and thereafter are for the nationwide debit card service launched in January 1999.

Table 7

## Cards with a credit function and accepting terminals

	Number of accepting terminals per million inhabitants (end of year)					Number of transactions per inhabitant					Average value per transaction (USD) <sup>1</sup>				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	57	86	280	264	295	neg	neg	neg	neg	neg	nav	nav	nav	nav	136.3
Belgium	nav	nav	nav	nav	nav	3.9	4.3	4.8	5.2	5.9	110.7	111.1	107.6	94.7	97.3
Canada <sup>3</sup>	26,900	27,555	27,233	31,205	32,021	31.8	33.3	37.5	41.2	42.3	64.9	66.2	63.3	65.1	58.6
France	11,371	12,047	13,261	13,848	14,846	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Germany <sup>4</sup>	13,406	13,911	14,852	16,449	16,252	3.7	3.9	4.1	4.3	4.5	119.4	101.0	100.0	87.6	90.0
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	nav	nav	nav	nav	nav	2.5	3.0	4.0	4.7	5.4	104.8	102.0	97.6	84.6	82.6
Japan <sup>5</sup>	4,393	5,162	5,488	6,069	6,426	10.1	11.8	12.0	15.8	17.6	117.5	96.9	116.6	100.7	85.3
Netherlands <sup>6</sup>	nav	nav	nav	nav	nav	2.5	2.7	2.8	2.9	3.0	99.8	103.6	105.7	101.5	99.5
Singapore <sup>7</sup>	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Sweden	7,778	8,406	9,160	9,822	9,916	5.4	5.9	6.4	7.6	8.3	100.7	86.4	92.5	92.7	76.5
Switzerland	nav	nav	nav	nav	nav	8.5	9.8	12.1	10.4	11.1	139.4	136.3	121.7	115.1	114.3
United Kingdom	8,981	10,298	11,765	12,300	12,879	21.2	23.0	25.0	27.1	29.1	88.5	91.7	95.7	93.6	91.2
United States	41,784	41,773	41,400	45,756	46,312	48.1	49.6	53.5	58.8	60.0	81.0	84.2	86.6	88.7	88.6

Note: For an explanation of the footnotes refer to the end of the table. Please refer to the individual country tables for detailed explanation.

Table 7 (cont)

## Cards with a credit function and accepting terminals

	Increase in the number of accepting terminals (%)					Increase in the number of transactions (%)					Increase in the value of transactions (%) <sup>2</sup>				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	67.6	48.3	222.2	-5.7	11.0	nav	nav	nav	nav	nav	nav	nav	nav	nav	566.7
Belgium	nav	nav	nav	nav	nav	10.5	11.9	9.7	10.6	13.0	-2.7	12.3	6.3	-2.7	16.1
Canada <sup>3</sup>	2.7	3.3	-0.3	15.6	3.7	5.9	5.4	13.8	10.7	3.9	11.5	7.5	8.8	14.0	-6.6
France	2.6	6.3	10.5	4.9	7.8	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Germany <sup>4</sup>	10.0	3.7	6.8	10.9	-1.0	4.6	4.6	6.1	4.4	5.4	-7.2	-11.5	5.0	-8.5	8.2
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	nav	nav	nav	nav	nav	21.6	24.1	30.9	18.8	15.4	7.0	20.8	25.2	3.0	12.7
Japan <sup>5</sup>	18.5	17.8	6.5	10.8	6.2	12.7	17.4	1.4	32.3	11.8	-2.7	-3.2	21.9	14.3	-5.3
Netherlands <sup>6</sup>	nav	nav	nav	nav	nav	7.0	8.2	4.6	6.2	1.5	-12.6	12.3	6.8	2.0	-0.5
Singapore <sup>7</sup>	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	6.6	-13.1	14.7	15.9	1.1
Sweden	12.1	8.1	9.1	7.4	1.3	9.1	8.3	9.6	17.5	10.4	9.8	5.6	13.6	17.9	-0.9
Switzerland	nav	nav	nav	nav	nav	12.6	15.0	23.6	-13.1	7.1	-3.9	12.4	10.4	-17.8	6.3
United Kingdom	-3.6	15.1	14.8	5.0	5.0	11.3	8.7	9.5	8.6	7.8	21.0	12.7	14.2	6.3	5.0
United States	14.3	0.9	neg	11.5	4.8	5.4	4.0	8.8	10.9	5.6	9.3	8.2	11.8	13.6	5.5

<sup>1</sup> Converted at yearly average exchange rates. <sup>2</sup> In USD terms, converted using yearly average exchange rates.

Canada: <sup>3</sup> Includes both credit and charge cards.

Germany: <sup>4</sup> The sum of the number of accepting terminals reported by the individual credit card institutions may result in double-counting.

Japan: <sup>5</sup> Includes cards with a delayed debit function.

Netherlands: <sup>6</sup> Includes cards with a delayed debit function.

Singapore: <sup>7</sup> For both credit and charge cards.

Table 8

## Cards with an e-money function and accepting terminals

	Number of electronic money cards (end of year, in thousands)					Average value per reloading (USD) <sup>1</sup>				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan <sup>a</sup>	nap	nap	nap	nap	nap	nap	nap	nap	nap	nap
Belgium	1,035	5,606	7,898	8,396	8,543	36.4	32.2	27.9	24.3	27.3
Canada	42	36	58	87	74	nav	nav	nav	nav	nav
France	nap	nap	nap	nap	319	nav	nav	neg	neg	29.8
Germany	35,000	60,700	60,700	60,700	67,333	77.4	60.3	42.7	29.1	25.3
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	62	56	32	45	30	neg	neg	neg	neg	neg
Japan	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Netherlands	9,500	17,900	20,100	20,900	21,000	nav	nav	nav	nav	nav
Singapore	683	2,193	3,464	4,697	5,639	nav	nav	nav	nav	nav
Sweden	nav	205	540	593	557	nav	50.3	36.3	36.3	64.5
Switzerland	nap	2,953	3,137	3,355	3,524	nap	nap	nap	nap	nav
United Kingdom	110	140	160	nav	nav	neg	neg	neg	neg	neg
United States	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav

Note: For an explanation of the footnotes refer to the end of the table. Please refer to the individual country tables for detailed explanation.

Table 8 (cont)

## Cards with an e-money function and accepting terminals

	Number of purchase terminals					Average value per transaction (USD) <sup>1</sup>				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan <sup>a</sup>	nap	nap	nap	nap	nap	nap	nap	nap	nap	nap
Belgium	21,000	45,649	63,993	67,837	88,847	4.7	4.5	4.0	3.5	4.0
Canada	1,600	1,050	970	1,245	490	nav	neg	neg	neg	neg
France	nav	nav	neg	neg	13,644	nav	nav	neg	neg	3.2
Germany	35,000	60,700	60,700	60,700	67,333	12.0	7.3	3.8	2.5	2.1
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	4,406	3,910	3,605	6,485	6,644	neg	neg	neg	neg	neg
Japan	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Netherlands	105,401	107,589	125,807	133,548	148,207	nav	4.2	3.3	2.7	2.5
Singapore	6,491	10,594	14,196	16,270	17,944	9.2	0.8	0.7	1.0	1.2
Sweden	nav	33,938	43,921	43,000	47,000	nav	6.3	5.8	7.5	6.4
Switzerland	nav	18,498	22,948	27,215	31,290	nav	neg	neg	3.3	3.0
United Kingdom	3,537	1,642	1,921	nav	nav	neg	neg	neg	neg	neg
United States	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav

<sup>1</sup> Converted at yearly average exchange rates.

Kazakhstan: <sup>a</sup> There are no e-money schemes.



Table 9  
**Number of cards<sup>1</sup>**  
 Per thousand inhabitants

	Cards with a cash function		Cards with a debit function		Cards with a credit function		Cards with a debit function issued by retailers		Cards with an e-money function		Cards with a cheque guarantee function	
	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001
Kazakhstan	63.8	82.4	63.8	82.4	0.7	2.5	nap <sup>a</sup>	nap <sup>a</sup>	nap <sup>a</sup>	nap <sup>a</sup>	nap <sup>a</sup>	nap <sup>a</sup>
Belgium	1,359.6	1,360.5	1,216.8	1,216.5	289.9	296.2	147.1	152.2	819.4	831.0	374.7	272.0
Canada <sup>2</sup>	2,104.9	nav	1,165.8	nav	1,360.1	1,505.9	nap	nap	2.8	2.4	nap	nap
France <sup>3</sup>	675.8	711.2	609.2	652.3	nav	nav	nav	nav	nav	5.2	nav	nav
Germany	1,293.7	1,480.2	1,206.7	1,405.3	213.8	227.9	129.0	153.0	738.6	817.7	623.5	689.3
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Italy	366.8	394.4	350.0	370.1	293.9	345.2	nap	nap	0.8	0.5	neg	neg
Japan <sup>4</sup>	2,523.9	2,554.1	nav	nav	1,758.9	1,820.1	nap	nap	nav	nav	nap	nap
Netherlands <sup>5</sup>	1,633.0	1,608.2	1,318.9	1,315.2	314.0	311.7	nav	nav	1,312.6	1,309.0	nav	nav
Singapore <sup>6</sup>	742.2	745.1	742.2	745.1	612.5	681.2	nap	nap	1,169.0	1,365.0	nap	nap
Sweden <sup>7</sup>	551.5	536.0	515.2	541.5	429.6	418.7	nav	nav	66.8	62.6	nav	nav
Switzerland	1,149.2	1,190.6	725.6	745.2	434.6	451.9	nav	nav	465.7	485.4	739.6	762.1
United Kingdom	1,986.1	2,124.5	832.2	906.0	851.0	936.4	nap	nap	nav	nav	947.3	974.4
United States	2,758.1	2,891.7	851.9	889.4	4,539.3	4,329.5	41.0	40.0	nav	nav	nav	nav

Note: For an explanation of the footnotes refer to the end of the table. Please refer to the individual country tables for detailed explanation.

## Table 9 (cont)

**Number of cards<sup>1</sup>**

Per thousand inhabitants

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Note: Please refer to the individual country tables for detailed explanation.

<sup>1</sup> A card which has several functions is counted in each relevant column (for example, a eurocheque card which can be used to withdraw cash, to make payments and to guarantee cheques is counted under each of these three items). For this reason, the figures should not be added together.

Kazakhstan: <sup>a</sup> There are no schemes in operation.

Canada: <sup>2</sup> Data on cards with a credit function as at 31 October.

France: <sup>3</sup> Figures for cards with a credit function are not provided. Data were incorrectly reported for the previous years and concerned upmarket cards (privileged cards).

Japan: <sup>4</sup> Data on cards with a cash function are at end-March of the following year. Data on cards with a credit function include cards with a delayed debit function, and are at end-March of the current year.

Netherlands: <sup>5</sup> Data on cards with a credit function include cards with a delayed debit function.

Singapore: <sup>6</sup> Data on cards with a cash and/or debit function are based on a survey of eight banks.

Sweden: <sup>7</sup> Data on cards with a credit function include cards with a delayed debit function.

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Table 10  
Use of cards

Average number of:								
	Cash withdrawals per card with a cash function		Payments per card with a debit function		Payments per card with a credit function		Payments per card with an e-money function	
	2000	2001	2000	2001	2000	2001	2000	2001
Kazakhstan	6.8	11.2	0.3	0.3	nav	0.3	nap <sup>a</sup>	nap <sup>a</sup>
Belgium	14.5	15.8	32.7	37.0	18.1	20.0	6.1	7.1
Canada	22.9	nav	54.4	nav	30.3	28.1	nav	nav
France <sup>1</sup>	26.4	26.9	89.2	92.4	nav	nav	nav	8.8
Germany	15.8	13.1	10.5	10.5	20.0	19.7	0.4	0.4
Hong Kong SAR	nav	nav	nav	nav	nav	nav	nav	nav
Italy	24.9	24.6	15.7	19.7	16.0	15.7	neg	neg
Japan <sup>2</sup>	1.3	1.2	nav	nav	9.0	9.7	nav	nav
Netherlands <sup>3</sup>	18.1	17.4	38.2	45.2	11.4	9.5	1.2	1.5
Singapore <sup>4</sup>	nav	nav	25.8	28.5	nav	nav	21.3	18.1
Sweden <sup>5</sup>	65.6	70.2	56.0	67.7	17.6	19.9	4.9	2.7
Switzerland	15.5	16.5	32.9	37.3	24.0	24.5	5.4	5.6
United Kingdom	17.1	17.2	48.0	50.8	31.8	31.1	nav	nav
United States	17.0	16.5	40.7	49.1	12.9	13.8	nav	nav

Note: Please refer to the individual country tables for detailed explanation.

Kazakhstan: <sup>a</sup> There are no e-money schemes.

France: <sup>1</sup> Data on payments per card with a credit function are included in those for cards with a debit function.

Japan: <sup>2</sup> Data on cards with a credit function include cards with a delayed debit function.

Netherlands: <sup>3</sup> Data on cards with a credit function include cards with a delayed debit function.

Singapore: <sup>4</sup> Payments per card with a debit function refer to shared ATM transactions.

Sweden: <sup>5</sup> Data on cards with a credit function include cards with a delayed debit function.

Table 11

**Use of cashless payment instruments**

Total number of transactions, in millions

	Cheques					Payments by credit/debit cards				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	nav	nav	nav	0.05	neg	neg	neg	0.1	0.3	0.4
Belgium	95.8	86.9	80.2	70.7	60.1	279.9	341.4	402.1	462.0	523.4
Canada	1,736.3	1,693.0	1,716.4	1,658.2	1,589.0	1,960.7	2,364.2	2,809.0	3,230.9	3,556.6
France	4,903.0	4,825.4	4,479.6	4,493.7	4,338.6	2,301.6	2,580.1	2,911.6	3,292.4	3,670.7
Germany <sup>2</sup>	650.3	596.0	423.5	392.2	319.0	529.4	993.0	1,199.4	1,390.9	1,583.4
Hong Kong SAR	149.9	135.8	134.1	138.6	133.5	nav	nav	nav	nav	nav
Italy	656.8	648.7	665.2	602.0	606.2	265.0	346.8	476.7	589.8	737.2
Japan	283.4	260.1	239.3	225.9	208.9	1,275.7	1,497.5	1,517.8	2,010.6	2,250.3
Netherlands <sup>3</sup>	64.9	46.6	26.7	14.2	5.3	524.4	637.1	744.4	848.3	1,001.9
Singapore <sup>4</sup>	87.7	87.6	92.6	91.7	92.0	66.1	73.4	75.8	85.5	96.5
Sweden	18.0	4.0	4.0	2.0	2.0	169.0	213.0	255.0	323.0	400.0
Switzerland <sup>5</sup>	9.3	7.7	6.7	11.2	7.2	157.6	175.9	223.0	243.5	282.1
United Kingdom	3,090.0	2,986.0	2,859.0	2,699.0	2,565.0	2,631.0	2,960.0	3,406.0	3,788.0	4,257.0
United States <sup>6</sup>	46,569.4	45,169.7	43,812.1	42,500.0	41,222.6	16,817.3	19,153.1	22,106.4	25,734.9	29,542.8

Note: For an explanation of the footnotes refer to the end of the table. Please refer to the individual country tables for detailed explanation.

Table 11 (cont)  
**Use of cashless payment instruments**  
 Total number of transactions, in millions

	Credit transfers					Direct debits				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	nav	nav	nav	10.7	14.5	nav	nav	nav	0.1	0.03
Belgium	697.3	674.7	723.0	656.8	752.4	117.9	117.4	142.3	166.2	176.8
Canada	391.7	463.5	508.5	569.5	591.3	318.5	361.9	405.4	444.4	488.5
France	1,859.8	1,951.8	2,050.7	2,093.6	2,175.5	1,430.3	1,577.9	1,730.6	1,968.6	2,063.5
Germany <sup>2</sup>	5,387.3	6,216.6	7,025.3	6,446.3	6,957.9	4,867.7	4,600.5	4,806.0	5,026.7	5,080.3
Hong Kong SAR	13.5	14.8	15.5	16.6	18.1	31.7	32.7	33.5	35.2	37.1
Italy	976.0	971.4	1,003.4	1,018.6	1,038.3	290.1	329.8	496.7	569.8	610.6
Japan	1,105.5	1,143.2	1,166.9	1,215.4	1,269.2	nav	nav	nav	nav	nav
Netherlands <sup>3</sup>	1,053.1	1,075.5	1,086.2	1,140.4	1,182.7	642.8	722.6	785.0	836.2	873.8
Singapore <sup>4</sup>	15.1	15.7	13.9	14.6	16.8	23.2	20.7	17.4	17.3	19.0
Sweden	660.0	633.0	712.0	715.0	697.0	65.0	74.0	85.0	91.0	98.0
Switzerland <sup>5</sup>	505.0	554.0	586.0	545.2	503.0	25.0	27.0	30.4	46.1	47.6
United Kingdom	1,659.0	1,726.0	1,797.0	1,845.0	1,931.0	1,584.0	1,736.0	1,863.0	2,010.0	2,152.0
United States <sup>6</sup>	2,488.6	2,899.2	3,167.8	3,486.1	3,890.3	1,347.2	1,530.9	1,676.9	1,947.3	2,385.4

Note: For an explanation of the footnotes refer to the end of the table. Please refer to the individual country tables for detailed explanation.

Table 11 (cont)

**Use of cashless payment instruments**

Total number of transactions, in millions

	Card-based e-money					Total <sup>1</sup>				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan <sup>a</sup>	nap	nap	nap	nap	nap	neg	neg	0.1	11.5	15.3
Belgium	9.4	28.2	45.5	51.3	60.5	1,200.4	1,248.5	1,393.0	1,407.0	1,573.1
Canada	nav	nav	nav	nav	nav	4,407.2	4,882.6	5,439.3	5,903.0	6,225.4
France	nap	nap	nav	nav	2.8	10,494.7	10,935.1	11,172.5	11,848.3	12,248.3
Germany <sup>2</sup>	4.2	13.6	20.7	26.6	29.4	11,438.9	12,419.7	13,474.9	13,282.7	13,970.0
Hong Kong SAR	nav	nav	nav	nav	nav	195.0	183.3	183.2	190.3	188.8
Italy	neg	neg	neg	neg	neg	2,187.9	2,296.7	2,642.0	2,780.2	2,992.3
Japan	nav	nav	nav	nav	nav	2,664.6	2,900.8	2,924.0	3,451.9	3,728.4
Netherlands <sup>3</sup>	nav	17.0	22.0	25.0	31.0	2,285.2	2,498.8	2,664.3	2,864.1	3,094.7
Singapore <sup>4</sup>	0.7	26.3	77.0	100.1	102.2	192.7	223.7	276.6	309.1	326.4
Sweden	nav	2.0	4.2	2.9	1.5	912.0	926.0	1,060.2	1,133.9	1,198.5
Switzerland <sup>5</sup>	nap	4.1	10.7	18.0	19.8	696.9	768.7	856.8	864.0	859.7
United Kingdom	nav	nav	nav	nav	nav	8,964.0	9,408.0	9,925.0	10,342.0	10,905.0
United States <sup>6</sup>	nav	nav	nav	nav	nav	67,222.5	68,752.9	70,763.2	73,668.3	77,041.1

<sup>1</sup> Sum of the available data.Kazakhstan: <sup>a</sup> There are no e-money schemes.Germany: <sup>2</sup> Payments by debit cards in 1997 exclude POZ and ELV procedures.Netherlands: <sup>3</sup> Payments by credit/debit cards include cards with a delayed debit function.Singapore: <sup>4</sup> Interbank transactions only. Payments by credit/debit cards exclude credit card transactions. Credit transfers include large-value transactions (MEPS).Switzerland: <sup>5</sup> Includes eurocheques, bank cheques, Swiss banker traveller's cheques and, as from 2000, Postcheques.United States: <sup>6</sup> A Federal Reserve study of the cheque clearing system, published in August 2002, estimated that the number of cheques paid in the United States was 49,500 million in 1995 and 42,500 million in 2000. Values for other years are derived from these estimates.

Table 12  
**Use of cashless payment instruments**  
 Total number of transactions per inhabitant

	Cheques					Payments by credit/debit cards					Credit transfers				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	nav	nav	nav	neg	neg	neg	neg	0.01	0.02	0.03	nav	nav	nav	0.7	1.0
Belgium	9.4	8.5	7.8	6.9	5.8	27.5	33.5	39.3	45.1	50.9	68.5	66.1	70.7	64.1	73.2
Canada	57.7	55.8	56.1	53.7	50.9	65.2	77.9	91.8	104.6	114.0	13.0	15.3	16.6	18.4	18.9
France	81.9	80.4	74.3	74.2	71.2	38.5	43.0	48.3	54.3	60.3	31.1	32.5	34.0	34.6	35.7
Germany <sup>2</sup>	7.9	7.3	5.2	4.8	3.9	6.5	12.1	14.6	16.9	19.2	65.7	75.8	85.6	78.4	84.5
Hong Kong SAR	23.1	20.8	20.3	20.8	19.9	nav	nav	nav	nav	nav	2.1	2.3	2.4	2.5	2.7
Italy	11.4	11.3	11.5	10.4	10.5	4.6	6.0	8.3	10.2	12.7	17.0	16.9	17.4	17.6	17.9
Japan	2.2	2.1	1.9	1.8	1.6	10.1	11.8	12.0	15.8	17.7	8.8	9.0	9.2	9.6	10.0
Netherlands <sup>3</sup>	4.2	3.0	1.7	0.9	0.3	33.6	40.6	47.1	53.3	62.5	67.5	68.5	68.7	71.6	73.7
Singapore <sup>4</sup>	23.1	22.3	23.4	22.8	22.3	17.4	18.7	19.2	21.3	23.4	4.0	4.0	3.5	3.6	4.1
Sweden	2.0	0.5	0.5	0.2	0.2	19.1	24.1	28.8	36.4	45.0	74.6	71.5	80.4	80.6	78.3
Switzerland	1.3	1.1	0.9	1.6	1.0	22.2	24.7	31.1	33.8	38.9	71.0	77.7	81.8	75.7	69.3
United Kingdom	52.4	50.4	48.0	45.2	42.8	44.6	50.0	57.2	63.4	71.0	28.1	29.1	30.2	30.9	32.2
United States <sup>5</sup>	173.7	167.0	160.5	154.3	144.6	62.7	70.8	81.0	93.5	103.7	9.3	10.7	11.6	12.7	13.6

Note: For an explanation of the footnotes refer to the end of the table. Please refer to the individual country tables for detailed explanation.

Table 12 (cont)

**Use of cashless payment instruments**

Total number of transactions per inhabitant

	Direct debits					Card-based e-money					Total <sup>1</sup>				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	nav	nav	nav	0.01	neg	nap <sup>a</sup>	nap <sup>a</sup>	nap <sup>a</sup>	nap <sup>a</sup>	nap <sup>a</sup>	neg	neg	0.01	0.8	1.0
Belgium	11.6	11.5	13.9	16.2	17.2	0.9	2.8	4.4	5.0	5.9	117.9	122.4	136.3	137.3	153.0
Canada	10.6	11.9	13.2	14.4	15.7	nav	nav	nav	nav	nav	146.5	161.0	177.8	191.2	199.5
France	23.9	26.3	28.7	32.5	33.9	nap	nap	nav	nav	neg	175.4	182.1	185.3	195.6	201.1
Germany <sup>2</sup>	59.3	56.1	58.5	61.2	61.7	0.1	0.2	0.3	0.3	0.4	139.4	151.4	164.2	161.6	169.7
Hong Kong SAR	4.9	5.0	5.1	5.3	5.5	nav	nav	nav	nav	nav	30.0	28.0	27.7	28.6	28.1
Italy	5.0	5.7	8.6	9.9	10.5	neg	neg	neg	neg	neg	38.0	39.9	45.8	48.2	51.7
Japan	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav	21.1	22.9	23.1	27.2	29.3
Netherlands <sup>3</sup>	41.2	46.0	49.7	52.5	54.5	nav	1.1	1.4	1.6	1.9	146.4	159.1	168.5	179.9	192.9
Singapore <sup>4</sup>	6.1	5.3	4.4	4.3	4.6	0.2	6.7	19.5	24.9	24.7	50.8	57.0	70.0	76.9	79.0
Sweden	7.3	8.4	9.6	10.3	11.0	nav	0.2	0.5	0.3	0.2	103.1	104.6	119.7	127.8	134.7
Switzerland	3.5	3.8	4.2	6.4	6.6	nap	0.6	1.5	2.5	2.7	98.0	107.8	119.5	119.9	118.4
United Kingdom	26.8	29.3	31.3	33.6	35.9	nav	nav	nav	nav	nav	151.9	158.8	166.8	173.1	181.9
United States <sup>5</sup>	5.0	5.7	6.1	7.1	8.4	nav	nav	nav	nav	nav	250.8	254.2	259.3	267.3	270.3

<sup>1</sup> Sum of the available data.Kazakhstan: <sup>a</sup> There are no e-money schemes.Germany: <sup>2</sup> Payments by debit cards in 1997 exclude POZ and ELV procedures.Netherlands: <sup>3</sup> Payments by credit/debit cards include cards with a delayed debit function.Singapore: <sup>4</sup> Interbank transactions only. Payments by credit/debit cards exclude credit card transactions. Credit transfers include large-value transactions (MEPS).United States: <sup>5</sup> A Federal Reserve study of the cheque clearing system, published in August 2002, estimated that the number of cheques paid in the United States was 49,500 million in 1995 and 42,500 million in 2000. Values for other years are derived from these estimates.



Table 13

**Relative importance of cashless payment instruments**Percentage of total volume of cashless transactions<sup>1</sup>

	Cheques					Payments by credit/debit cards					Credit transfers				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	nav	nav	nav	0.4	0.03	nav	nav	nav	2.6	2.7	nav	nav	nav	92.6	94.9
Belgium	8.0	7.0	5.8	5.0	3.8	23.3	27.3	28.9	32.8	33.3	58.1	54.0	51.9	46.7	47.8
Canada	39.4	34.7	31.6	28.1	25.5	44.5	48.4	51.6	54.7	57.1	8.9	9.5	9.3	9.6	9.5
France	46.7	44.1	40.1	37.9	35.4	21.9	23.6	26.1	27.8	30.0	17.7	17.9	18.4	17.7	17.8
Germany <sup>2</sup>	5.7	4.8	3.1	3.0	2.3	4.6	8.0	8.9	10.5	11.3	47.1	50.1	52.1	48.5	49.8
Hong Kong SAR	76.8	74.1	73.2	72.8	70.7	nav	nav	nav	nav	nav	6.9	8.0	8.5	8.7	9.6
Italy	30.0	28.2	25.2	21.7	20.3	12.1	15.1	18.0	21.2	24.6	44.6	42.3	38.0	36.6	34.7
Japan	10.6	9.0	8.2	6.5	5.6	47.9	51.6	51.9	58.2	60.4	41.5	39.4	39.9	35.2	34.0
Netherlands <sup>3</sup>	2.8	1.9	1.0	0.5	0.2	22.9	25.5	27.9	29.6	32.4	46.1	43.0	40.8	39.8	38.2
Singapore <sup>4</sup>	45.5	39.2	33.5	29.6	28.2	34.3	32.8	27.4	27.7	29.6	7.8	7.0	5.0	4.7	5.1
Sweden	2.0	0.4	0.4	0.2	0.2	18.5	23.0	24.1	28.5	33.4	72.4	68.4	67.2	63.1	58.2
Switzerland	1.3	1.0	0.8	1.3	0.8	22.6	22.9	26.0	28.2	32.8	72.5	72.1	68.4	63.1	58.5
United Kingdom	34.5	31.7	28.8	26.1	23.5	29.3	31.5	34.3	36.6	39.0	18.5	18.3	18.1	17.8	17.7
United States <sup>5</sup>	69.3	65.7	61.9	57.7	53.5	25.0	27.9	31.2	34.9	38.3	3.7	4.2	4.5	4.7	5.0

Note: For an explanation of the footnotes refer to the end of the table. Please refer to the individual country tables for detailed explanation.

Table 13 (cont)

**Relative importance of cashless payment instruments**Percentage of total volume of cashless transactions<sup>1</sup>

	Direct debits					Card-based e-money				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	nav	nav	nav	1.0	0.2	nap <sup>a</sup>	nap <sup>a</sup>	nap <sup>a</sup>	nap <sup>a</sup>	nap <sup>a</sup>
Belgium	9.8	9.4	10.2	11.8	11.2	0.8	2.3	3.3	3.6	3.8
Canada	7.2	7.4	7.5	7.5	7.8	nav	nav	nav	nav	nav
France	13.6	14.4	15.5	16.6	16.8	nap	nap	nav	nav	neg
Germany <sup>2</sup>	42.6	37.0	35.7	37.8	36.4	neg	0.1	0.2	0.2	0.2
Hong Kong SAR	16.2	17.8	18.3	18.5	19.7	nav	nav	nav	nav	nav
Italy	13.3	14.4	18.8	20.5	20.4	neg	neg	neg	neg	neg
Japan	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Netherlands <sup>3</sup>	28.1	28.9	29.5	29.2	28.2	nav	0.7	0.8	0.9	1.0
Singapore <sup>4</sup>	12.0	9.2	6.3	5.6	5.8	0.4	11.8	27.8	32.4	31.3
Sweden	7.1	8.0	8.0	8.0	8.2	nav	0.2	0.4	0.3	0.1
Switzerland	3.6	3.5	3.5	5.3	5.5	nap	0.5	1.2	2.1	2.3
United Kingdom	17.7	18.5	18.8	19.4	19.7	nav	nav	nav	nav	nav
United States <sup>5</sup>	2.0	2.2	2.4	2.6	3.1	nav	nav	nav	nav	nav

<sup>1</sup> Where the total is the sum of the available data.

Kazakhstan: <sup>a</sup> There are no e-money schemes.

Germany: <sup>2</sup> Payments by debit cards in 1997 exclude POZ and ELV procedures.

Netherlands: <sup>3</sup> Payments by credit/debit cards include cards with a delayed debit function.

Singapore: <sup>4</sup> Interbank transactions only. Payments by credit/debit cards exclude credit card transactions. Credit transfers include large-value transactions (MEPS).

United States: <sup>5</sup> A Federal Reserve study of the cheque clearing system, published in August 2002, estimated that the number of cheques paid in the United States was 49,500 million in 1995 and 42,500 million in 2000. Values for other years are derived from these estimates.

Table 14

**Relative importance of cashless payment instruments**Percentage of total value of cashless transactions<sup>1</sup>

	Cheques					Payments by credit/debit cards					Credit transfers				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	nav	nav	nav	0.5	0.04	nav	nav	nav	0.04	0.1	nav	nav	nav	96.5	98.1
Belgium	2.9	3.2	0.6	0.5	0.6	0.2	0.2	0.1	0.2	0.2	96.7	96.3	98.9	99.0	99.0
Canada	97.0	96.5	21.5	14.5	12.7	0.7	0.8	0.5	0.6	0.5	1.8	2.1	77.5	84.8	86.1
France	3.9	2.6	2.9	2.9	2.4	0.2	0.1	0.2	0.2	0.2	95.1	96.6	96.2	96.2	96.6
Germany	7.9	7.1	3.6	3.1	2.7	0.2	0.3	0.3	0.4	0.4	78.2	78.1	83.2	85.4	84.2
Hong Kong SAR	97.3	94.2	93.2	93.1	90.6	nav	nav	nav	nav	nav	2.3	5.0	6.0	6.1	8.4
Italy	3.3	2.9	3.7	3.2	3.0	0.1	0.1	0.1	0.1	0.1	95.9	96.2	94.6	95.1	95.1
Japan	3.0	2.4	2.7	2.7	3.0	neg	neg	neg	0.1	0.1	96.9	97.5	97.2	97.3	96.9
Netherlands <sup>2</sup>	0.2	0.1	0.1	0.1	neg	1.0	1.2	1.3	1.3	1.4	93.9	93.8	93.4	93.5	93.6
Singapore <sup>3</sup>	5.9	4.9	5.1	4.7	3.6	0.1	0.2	0.2	0.2	0.2	93.7	94.8	94.6	95.0	96.1
Sweden	nav	0.5	0.4	0.3	0.2	1.6	1.9	2.3	2.6	3.2	95.8	94.9	94.3	93.9	93.3
Switzerland	neg	neg	neg	0.1	neg	neg	neg	0.1	0.1	0.1	99.8	99.8	99.8	99.7	99.7
United Kingdom	5.0	4.4	2.8	2.5	2.2	0.3	0.3	0.2	0.2	0.2	93.8	94.4	96.3	96.6	97.0
United States <sup>4</sup>	5.8	5.5	5.6	5.4	4.9	0.2	0.2	0.2	0.3	0.3	93.0	93.3	93.0	93.2	93.8

Note: For an explanation of the footnotes refer to the end of the table. Please refer to the individual country tables for detailed explanation.

Table 14 (cont)

**Relative importance of cashless payment instruments**Percentage of total value of cashless transactions<sup>1</sup>

	Direct debits					Card-based e-money				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Kazakhstan	nav	nav	nav	0.6	0.1	nap <sup>a</sup>	nap <sup>a</sup>	nap <sup>a</sup>	nap <sup>a</sup>	nap <sup>a</sup>
Belgium	0.3	0.3	0.3	0.3	0.3	neg	neg	neg	neg	neg
Canada	0.6	0.7	0.5	0.5	0.6	nav	nav	nav	nav	nav
France	0.8	0.6	0.7	0.8	0.8	nap	nap	nav	nav	neg
Germany	13.7	14.4	12.8	11.1	12.8	neg	neg	neg	neg	neg
Hong Kong SAR	0.4	0.8	0.8	0.8	1.0	nav	nav	nav	nav	nav
Italy	0.8	0.9	1.6	1.6	1.7	neg	neg	neg	neg	neg
Japan	nav	nav	nav	nav	nav	nav	nav	nav	nav	nav
Netherlands <sup>2</sup>	4.9	4.9	5.2	5.1	5.0	nav	neg	neg	neg	neg
Singapore <sup>3</sup>	0.2	0.2	0.2	0.2	0.2	neg	neg	neg	neg	neg
Sweden	2.5	2.7	3.0	3.2	3.3	nav	neg	neg	neg	neg
Switzerland	0.1	0.1	0.1	0.2	0.2	nap	neg	neg	neg	neg
United Kingdom	1.0	1.0	0.7	0.7	0.6	neg	neg	nav	nav	nav
United States <sup>4</sup>	1.0	1.1	1.2	1.1	1.1	nav	nav	nav	nav	nav

<sup>1</sup> Where the total is the sum of the available data.Kazakhstan: <sup>a</sup> There are no e-money schemes.Netherlands: <sup>2</sup> Payments by credit/debit cards include cards with a delayed debit function.Singapore: <sup>3</sup> Interbank transactions only. Payments by credit/debit cards exclude credit card transactions. Credit transfers include large-value transactions (MEPS).United States: <sup>4</sup> A Federal Reserve study of the cheque clearing system, published in August 2002, estimated that the number of cheques paid in the United States was 49,500 million in 1995 and 42,500 million in 2000. Values for other years are derived from these estimates.

Table 15  
**Features of selected interbank funds transfer systems**  
 End of 2001, unless otherwise noted

	Type <sup>1</sup>	Owner/manager <sup>2</sup>	Number of participants		Processing <sup>3</sup>	Settlement <sup>4</sup>	Membership <sup>5</sup>
			Total	Of which: Direct			
Kazakhstan							
ISMT	L	CB	74	74	RTT	RTGS	O
SRP	R	CB	54	54	ACH	N	O
Belgium							
ELLIPS	L	B+CB	96	17	RTT	RTGS	O
Clearing House	R	B+CB	94	34	RTT	N	O
CEC	R	B+CB	94	33	RTT	N	O
Canada							
LVTS	L	PA	14	14	RTT	N	O
France							
CH Paris	R	B/PA	331	27	M	N	RM
CH Province	R	CB	267	219	M	N	O
SIT	R	CB+B/PA	677	17	RTT	N	O
CREIC	R	B/CB	28	28	ACH	N	O
TBF	L	CB	646	195	RTT	RTGS	O
PNS	L	CB+B/PA	468	24	RTT	N/BN/RTGS	RM
Germany							
RPS (former DTA)	R	CB	2,325	2,325	ACH	GS	O
RTGS <sup>plus 9, 10</sup>	L	CB	1,612	59	RTT	RTGS	RM
ELS <sup>9</sup>	nap	nap	nap	nap	nap	nap	nap
EAF (former EAF2) <sup>9</sup>	nap	nap	nap	nap	nap	nap	nap
Hong Kong SAR							
HKD CHATS	All value	CMA <sup>11</sup>	134	134	RTT	RTGS	RM
USD CHATS	All value	B	180	65	RTT	RTGS	O

Note: For an explanation of the footnotes refer to the end of the table.

Table 15 (cont)

## Features of selected interbank funds transfer systems

End of 2001, unless otherwise noted

	Type <sup>1</sup>	Owner/manager <sup>2</sup>	Number of participants		Processing <sup>3</sup>	Settlement <sup>4</sup>	Membership <sup>5</sup>
			Total	Of which: Direct			
Italy							
BI-REL	L	CB	863	682	RTT	RTGS	RM
Local Clearing	R	CB	124	124	RTT <sup>14</sup>	N	O
Retail	R	CB <sup>15</sup>	nav	209	ACH	N	O
Japan							
FXYCS	L	B	244	40	RTT	N/RTGS	RM
BOJ-NET Funds Transfer System	L	CB	383	383	RTT	RTGS	RM
Netherlands							
Interpay	R	B	72	72	ACH	N	RM
TOP	L	CB	164	108	RTT	RTGS	RM
Singapore							
SGDCCS	R	PA	104	40	ACH	N	O
USDCCS	R	PA	53	31	ACH	GS	O
Interbank GIRO	R	PA	45	41	ACH	N	O
EFTPOS	R	B	5	5	RTT	N	RM
MEPS	L	CB	130	86	RTT	RTGS	O
Sweden							
K-RIX	L	CB	20	20	RTT	RTGS	RM
E-RIX	L	CB	15	15	RTT	RTGS	RM
Bankgirot	R	B	21	21	ACH	N	O
Dataclearing	R	B	21	21	ACH	N	O
Postgirot <sup>21</sup>	R	B	1,200,000	1,200,000	ACH	GS	O
Switzerland							
SIC	L+R	B+CB	313	313	RTT	RTGS	O <sup>23</sup>
DTA/LSV	R	B	155	155	ACH	GS	O <sup>23</sup>

Note: For an explanation of the footnotes refer to the end of the table.

Table 15 (cont)

**Features of selected interbank funds transfer systems**

End of 2001, unless otherwise noted

	Type <sup>1</sup>	Owner/manager <sup>2</sup>	Number of participants		Processing <sup>3</sup>	Settlement <sup>4</sup>	Membership <sup>5</sup>
			Total	Of which: Direct			
United Kingdom							
CHAPS Sterling	L	B+CB	369	13	RTT	RTGS	RM
CHAPS Euro <sup>24</sup>	L	B+CB	85	20	RTT	RTGS	RM
BACS	R	B	62,000	14	ACH	N	RM
Cheque/credit	R	B	516	12	M	N	RM
United States							
Fedwire	L	CB	8,110 <sup>27</sup>	8,110 <sup>27</sup>	RTT	RTGS	O
CHIPS <sup>26</sup>	L	B	58	58	RTT	N/BN	RM
European Union							
EURO1	L	B	73	73	RTT	SOS <sup>28</sup>	RM
TARGET <sup>29</sup>	L	CB	3,888	1,579	RTT	RTGS	RM

Note: For an explanation of the footnotes refer to the end of the table.

Table 15 (cont)

## Features of selected interbank funds transfer systems

End of 2001, unless otherwise noted

	Degree of centralisation <sup>6</sup>	Pricing <sup>7</sup>	Closing time for same day transactions (local time)	Number of transactions (thousands)		Value of transactions (USD billions) <sup>8</sup>		Ratio of transactions value to GDP (at annual rate)	
				2000	2001	2000	2001	2000	2001
Kazakhstan									
ISMT	C	V	20:00	6,512	3,735	48	66	2.6	3.0
SRP	D	V	15:30	3,327	7,314	2	4	0.1	0.2
Belgium									
ELLIPS	C	F	18:00	1,780	1,842	11,720	12,818	51.3	56.3
Clearing House	D	V	15:00	4,190	3,528	97	80	0.4	0.3
CEC	C	F	15:00	885,220	919,044	447	455	2.0	2.0
Canada									
LVTS	C	F	18:30	3,544	3,740	17,105	18,061	24.5	26.1
France									
CH Paris	C	F	nap	682,210	677,765	669	683	0.5	0.5
CH Province	D	N	nap	2,771,691	2,469,057	1,071	883	0.8	0.7
SIT	C	F	13:30	6,485,332	7,131,087	2,264	2,187	1.7	1.7
CREIC	D	V	nap	307,724	270,165	24	21	neg	neg
TBF domestic	C	F	18:00	3,025	3,801	62,765	78,365	48.1	59.8
PNS	C	F	16:00	5,515	8,004	20,117	19,977	15.4	15.3
Germany									
RPS (former DTA)	D	F	nap	2,226,589	2,197,487	2,067	1,971	1.1	1.1
RTGS <sup>plus 9, 10</sup>	C	F	18:00	nap	4,829	nap	17,392	nap	9.4
ELS <sup>9</sup>	nap	nap	18:00	21,534	19,031	48,158	44,109	25.8	23.8
EAF (former EAF2) <sup>9</sup>	nap	nap	nap	12,988	11,014	38,237	31,343	20.5	16.9
Hong Kong SAR									
HKD CHATS	C	F	17:30 <sup>12</sup>	3,410	3,470	11,678	11,134	70.6	67.9
USD CHATS	C	F	17:30	185 <sup>13</sup>	691	242 <sup>13</sup>	931	4.5	5.7
Retail	C	F	nap <sup>16</sup>	1,005,362	1,269,828	1,416	1,551	1.3	1.4

Note: For an explanation of the footnotes refer to the end of the table.



Table 15 (cont)  
**Features of selected interbank funds transfer systems**  
 End of 2001, unless otherwise noted

	Degree of centralisation <sup>6</sup>	Pricing <sup>7</sup>	Closing time for same day transactions (local time)	Number of transactions (thousands)		Value of transactions (USD billions) <sup>8</sup>		Ratio of transactions value to GDP (at annual rate)	
				2000	2001	2000	2001	2000	2001
Italy									
<i>BI-REL</i>	C	F	18:00	10,401	10,247	25,584	24,291		
<i>Local Clearing</i>	C	V	12:00	109,438	105,360	663	641	0.6	0.6
Japan									
<i>FXYCS</i>	C	V <sup>17</sup>	13:45(N)/17:00(G)	9,298	9,564	57,961	56,587	12.2	13.6
<i>BOJ-NET Funds Transfer System</i>	C	V <sup>17</sup>	17:00	4,715	5,046	328,430	156,640	69.0	37.5
Netherlands									
<i>Interpay</i>	C	F	17:00	2,328,445	2,558,284	1,342	1,409	3.6	3.7
<i>TOP</i>	C	F	18:00	3,725	4,023	16,552	18,514	44.6	48.2
Singapore									
<i>SGDCCS</i>	C	V	16:45 <sup>18</sup>	91,259	91,599	262	233	2.9	2.7
<i>USDCCS</i>	C	V	15:30	390	399	12	11	0.1	0.1
<i>Interbank GIRO</i>	C	V	12:00 <sup>19</sup>	29,980	33,640	42	45	0.5	0.5
<i>EFTPOS</i>	C	V	23:59	76,932	87,728	2.7	3.1	neg	neg
<i>MEPS</i>	C	V	18:30 <sup>20</sup>	1,908	2,065	5,542	6,447	60.3	75.3
Sweden									
<i>K-RIX</i>	C	F	17:00	510	655	11,689	10,962	51.1	52.3
<i>E-RIX</i>	C	F	17:00	62	70	1,582	1,265	6.9	6.0
<i>Bankgirot</i>	C	F	<sup>22</sup>	351,410	345,200	407	376	1.8	1.8
<i>Dataclearing</i>	C	F	<sup>22</sup>	78,217	66,910	147	107	0.6	0.5
<i>Postgirot</i> <sup>21</sup>	C	F	<sup>22</sup>	454,000	450,000	445	367	1.9	1.8
Switzerland									
<i>SIC</i>	C	F	16:15	149,500	161,200	26,425	26,905	110.0	109.4
<i>DTA/LSV</i>	C	F	09:00	105,900	103,700	228	225	0.9	0.9

Note: For an explanation of the footnotes refer to the end of the table.

Table 15 (cont)

**Features of selected interbank funds transfer systems**

End of 2001, unless otherwise noted

	Degree of centralisation <sup>6</sup>	Pricing <sup>7</sup>	Closing time for same day transactions (local time)	Number of transactions (thousands)		Value of transactions (USD billions) <sup>8</sup>		Ratio of transactions value to GDP (at annual rate)	
				2000	2001	2000	2001	2000	2001
United Kingdom									
<i>CHAPS Sterling</i>	<i>C</i>	<i>F</i>	<i>17:00</i>	<i>21,705</i>	<i>23,962</i>	<i>74,464</i>	<i>76,189</i>	<i>51.7</i>	<i>53.6</i>
<i>CHAPS Euro</i> <sup>24</sup>	<i>C</i>	<i>F</i>	<i>17:00</i>	<i>3,250</i>	<i>2,580</i>	<i>38,358</i>	<i>26,844</i>	<i>26.6</i>	<i>18.9</i>
<i>BACS</i>	<i>C</i>	<i>F</i>	<i>.<sup>25</sup></i>	<i>3,316,213</i>	<i>3,527,340</i>	<i>2,912</i>	<i>3,119</i>	<i>2.0</i>	<i>2.2</i>
<i>Cheque/credit</i>	<i>D</i>	<i>F</i>	<i>.<sup>25</sup></i>	<i>2,033,000</i>	<i>1,940,000</i>	<i>2,202</i>	<i>2,073</i>	<i>1.5</i>	<i>1.5</i>
United States									
<i>Fedwire</i>	<i>C</i>	<i>F</i>	<i>18:30</i>	<i>108,300</i>	<i>112,500</i>	<i>379,756</i>	<i>423,867</i>	<i>38.7</i>	<i>42.0</i>
<i>CHIPS</i> <sup>26</sup>	<i>C</i>	<i>F</i>	<i>17:00</i>	<i>59,800</i>	<i>60,400</i>	<i>292,147</i>	<i>311,707</i>	<i>29.7</i>	<i>30.9</i>
European Union									
<i>EURO1</i>	<i>C</i>	<i>F</i>	<i>16:00</i>	<i>24,692</i>	<i>28,633</i>	<i>49,644</i>	<i>58,101</i>	<i>nap</i>	<i>nap</i>
<i>TARGET</i> <sup>29</sup>	<i>D</i>	<i>F</i>	<i>18:00</i>	<i>47,980</i>	<i>53,664</i>	<i>263,291</i>	<i>368,469</i>	<i>nap</i>	<i>nap</i>

Note: For an explanation of the footnotes refer to the end of the table.

Table 15 (cont)

**Features of selected interbank funds transfer systems**

End of 2001, unless otherwise noted

<sup>1</sup> L = large-value system; R = retail system. <sup>2</sup> B = bank(s); CB = central bank(s); PA = payment association. <sup>3</sup> M = manual; ACH = automated clearing house (offline); RTT = real-time transmission. <sup>4</sup> N = multilateral netting; BN = bilateral netting; RTGS = real-time gross settlement; GS = other gross settlement. <sup>5</sup> O = open membership (any bank can apply); RM = restricted membership (subject to criteria). <sup>6</sup> Degree of centralisation: C = centralised (one processing centre where all settlement instructions are processed and accounts settled); D = decentralised (presence of more than one such processing centre). <sup>7</sup> Prices charged to participants: F = full cost (including investments); V = variable costs; S = symbolic cost (below variable cost); N = no cost. <sup>8</sup> Converted at yearly average exchange rates.

Germany: <sup>9</sup> RTGS<sup>plus</sup>, the new RTGS system, opened for business on 5 November 2001. On the same day, ELS (the former RTGS system) and EAF were closed down. For the time being, ELS serves as a procedure for accessing RTGS<sup>plus</sup>. <sup>10</sup> The number of participants solely includes direct participants and indirect participants of the Deutsche Bundesbank. Others, which are addressable via RTGS<sup>plus</sup>, are not included.

Hong Kong: <sup>11</sup> Central Monetary Authority. <sup>12</sup> 12:00 on Saturdays. <sup>13</sup> From 21 August.

Italy: <sup>14</sup> Transactions can also be submitted on floppy disk. <sup>15</sup> System managed by SIA (Interbank Company for Automation) in the name and on behalf of the Bank of Italy. <sup>16</sup> Except for credit transfers entered before 10:00, which are settled on the same day.

Japan: <sup>17</sup> Prices are set on the principle that the institutions that are to benefit from online processing should pay the relevant fees.

Singapore: <sup>18</sup> 13:15 on Saturdays. <sup>19</sup> 09:00 on Saturdays. <sup>20</sup> 14:45 on Saturdays.

Sweden: <sup>21</sup> Postgirot is a "quasi system", ie transfer between accounts in special purpose bank. Non-banks can have accounts. <sup>22</sup> No same day transactions.

Switzerland: <sup>23</sup> With restriction criteria for remote members.

United Kingdom: <sup>24</sup> Quantitative figures for 2000 include domestic and all cross-border (inward and outward) payments across TARGET. Figures for 2001 exclude inward cross-border payments. <sup>25</sup> No same day transactions.

United States: <sup>26</sup> In January 2001, CHIPCo converted CHIPS from an end-of-day, multilateral net settlement system to a real-time final settlement system that continuously matches, nets and settles payment orders during the operating day. <sup>27</sup> Number of depository institutions that used the Fedwire Funds Transfer Service in 2001. Other Fedwire Funds Transfer participants not included here, are: the US Treasury and any entity specifically authorised by federal statute to use the Reserve Banks as fiscal agents or depositories; entities designated by the Secretary of the Treasury; foreign central banks, foreign monetary authorities, foreign governments and certain international organisations.

European Union: <sup>28</sup> The legal structure of EURO1 is based on the Single Obligation Structure (SOS), whereby on each settlement day, at any given time, each participant will have only one single payment obligation or claim with respect to the community of the other participants as joint creditors/debtors, which will be settled at the end of the day. In accordance with the SOS, no bilateral payments, claims or obligations between participants will be created by the processing of payments in the system. Nor will there be any form of setoff, novation or netting resulting from the continuous adjustment of the participants' single claim or obligation. <sup>29</sup> The RTGS systems of the countries which have adopted the euro and the ECB payment mechanism are integral parts of the TARGET system. The euro RTGS systems of Denmark, Greece, Sweden and the United Kingdom were allowed to connect to TARGET on the basis of a decision taken by the Governing Council of the ECB in July 1998. On 1 January 2001 Greece joined the euro area. The HERMES Payment System in drachmas and the EURO-HERMES System were unified into a single HERMES Payment System. The figure of TARGET participants is based on a survey of direct and indirect participants. The previously published number of indirect participants was an estimate. In addition, there is a substantial change in the number of direct participants due to the fact that EAF closed down when RTGS<sup>plus</sup> opened for business on 5 November 2001.

Table 16

## Operating hours of selected large-value interbank funds transfer systems

End of 2001

System	Gross or net	Opening/closing time for same day value (local time)	Settlement finality (local time)	Cutoff for all third-party payment orders (local time)	Cutoff for international correspondents' payment orders (local time)	Memo: standard money market hours (local time)
Kazakhstan ISMT	Gross	08:00-20:00	20:00	20:00	20:00	10:15-18:30
Belgium ELLIPS	Gross	07:00-18:00	07:00-18:00	17:00	18:00	07:00-18:00
Canada <sup>1</sup> LVTS	Net	07:00-18:30 <sup>2</sup>	19:30	18:00	18:00	nap <sup>3</sup>
France TBF	Gross	07:00-18:00	real-time	17:00	nap	09:00-17:00
PNS	Gross/Net	08:00-16:00	real-time	16:00	nap	09:00-17:00
Germany <sup>4</sup> RTGS <sup>plus</sup>	Gross	07:00-18:00	07:00-18:00	17:00	nap	08:30-18:00
EAF (former EAF2)	nap	nap	nap	nap	nap	nap
ELS	nap	nap	nap	nap	nap	nap
Hong Kong SAR HKD CHATS	Gross	09:00-17:30 <sup>5</sup>	09:00-17:30 <sup>5</sup>	17:00	17:30	09:00-17:30
USD CHATS	Gross	09:00-17:30	09:00-17:30	17:00	17:30	09:00-17:30
Italy BI-REL	Gross	07:00-18:00	07:00-18:00	17:00	nap	07:00-18:00
Japan FXYCS	Net	09:00-13:45	14:30	13:45	13:45	09:00-17:00
	Gross	09:00-17:00	09:00-17:00	17:00	17:00	09:00-17:00
BOJ-NET Funds Transfer System	Gross	09:00-17:00	09:00-17:00	14:00	14:00	09:00-17:00
Netherlands TOP	Gross	07:00-18:00	07:00-18:00	17:00	17:00	07:00-18:00

Note: For an explanation of the footnotes refer to the end of the table.

Table 16 (cont)  
**Operating hours of selected large-value interbank funds transfer systems**  
 End of 2001

System	Gross or net	Opening/closing time for same day value (local time)	Settlement finality (local time)	Cutoff for all third-party payment orders (local time)	Cutoff for international correspondents' payment orders (local time)	<i>Memo:</i> <i>standard money market hours</i> (local time)
Singapore <i>MEPS</i>	<i>Gross</i>	<i>06:00-20:00</i> <sup>6, 7</sup>	<i>09:00-18:30</i> <sup>8, 9</sup>	<i>18:30</i> <sup>10, 11</sup>	<i>nap</i> <sup>12</sup>	<i>09:00-18:30</i> <sup>7</sup>
Sweden <i>K-RIX</i>	<i>Gross</i>	<i>07:00-17:00</i>	<i>07:00-17:00</i>	<i>17:00</i>	<i>17:00</i>	<i>09:00-16:15</i>
<i>E-RIX</i>	<i>Gross</i>	<i>07:00-18:00</i>	<i>07:00-18:00</i>	<i>17:00</i>	<i>18:00</i>	<i>09:00-16:15</i>
Switzerland <i>SIC</i>	<i>Gross</i>	<i>18:00-16:15</i> <sup>13</sup>	<i>18:00-16:15</i>	<i>15:00</i>	<i>08:00</i>	<i>09:00-16:00</i>
United Kingdom <i>CHAPS Sterling</i>	<i>Gross</i>	<i>06:00-17:00</i>	–	<i>16:00</i>	<i>16:00</i>	<i>07:00-16:00</i>
<i>CHAPS Euro</i>	<i>Gross</i>	<i>06:00-17:00</i>	–	<i>16:00</i>	<i>16:00</i>	–
United States <sup>14</sup> <i>Fedwire</i>	<i>Gross</i>	<i>00:30-18:30</i>	<i>00:30-18:30</i>	<i>18:00</i>	<i>17:00</i>	<i>08:30-18:30</i> <sup>16</sup>
<i>CHIPS</i>	<i>Net</i>	<i>00:30-17:00</i>	<i>intraday</i> <sup>15</sup>	<i>16:30</i>	<i>16:30</i>	<i>08:30-18:30</i> <sup>16</sup>
European Union <i>EURO1</i>	<i>Net</i>	<i>07:30-16:00</i>	<i>after 16:00</i>	<i>16:00</i>	<i>16:00</i>	<i>07:00-18:00</i>
<i>TARGET</i>	<i>Gross</i>	<i>07:00-18:00</i>	<i>real-time</i>	<i>17:00</i>	<i>nap</i>	<i>07:00-18:00</i>

Canada: <sup>1</sup> Local times are Eastern time. <sup>2</sup> The initialisation period for collateral pledging/valuation, setting of bilateral limits, etc, begins at 07:00. The payment message exchange period begins at 08:00. <sup>3</sup> No standard hours.

Germany: <sup>4</sup> RTGS<sup>plus</sup>, the new RTGS system, opened for business on 5 November 2001. On the same day, ELS (the former RTGS system) and EAF were closed down. For the time being, ELS serves as a procedure for accessing RGTS<sup>plus</sup>.

Hong Kong: <sup>5</sup> To 12:00 on Saturdays.

Singapore: <sup>6</sup> The initialisation period for collateral pledging/valuation, setting of bilateral limits, etc begins at 07:00. The payment message exchange period begins at 08:00. <sup>7</sup> To 15:00 on Saturdays. <sup>8</sup> For net settlement systems. <sup>9</sup> To 14:30 on Saturdays. <sup>10</sup> For same day clearing. <sup>11</sup> To 14:45 on Saturdays. <sup>12</sup> MEPS is used for domestic payment orders only.

Switzerland: <sup>13</sup> The system is open for input 24 hours a day. Settlement services are limited by the indicated opening and closing times. A value day starts at 18:00 local time on the previous business day and ends at 16:15 on the value day. Third-party payments may be entered for same day settlement until 15:00. Between 15:00 (cutoff 1) and 16:00 (cutoff 2) only cover (bank-to-bank) payments are accepted for same day settlement. From 16:00 to 16:15 transactions are restricted to the processing of lombard credits (collateralised loans from the Swiss National Bank at a penalty rate).

United States: <sup>14</sup> Local times are Eastern time. <sup>15</sup> Trading occurs among dealers for funds on deposit at Federal Reserve Banks (ie federal funds) as early as 06:30. <sup>16</sup> Payments over CHIPS become final on completion of settlement, which occurs throughout the day. Rules are designed to ensure that settlement takes place no later than 18:00.

Table 17  
**Features of selected securities settlement systems**  
 End of 2001

	Kazakhstan	Belgium			Canada	
<b>Name of system</b>	<b>CSD</b>	<b>NBB SSS</b>	<b>Euronext-CIK</b>	<b>Euroclear</b>	<b>SSS/BBS</b>	<b>DCS</b>
Type of securities <sup>1</sup>	G, E	G, O	E, O	G, E, O	S, B, O	B, G, O
Owner/manager <sup>2</sup>	B, SE, O	CB	B	B	B, SE, O	B, SE, O
Number of participants	42	130	104	1,750	107	82
<i>Of which: direct participants</i>	42	130	104	1,750	<i>nav</i>	6
Settlement of cash leg <sup>3</sup>	G	G	G	G/N	N	N
Securities settlement (delivery) <sup>3</sup>	G	G	N	G/N	N	G
Delivery lag (T+n)	T+0, T+3 <sup>a</sup>	T+2, T+3 <sup>5</sup>	T+3	T+3, T+n (OTC)	T+3	T+0, T+1 <sup>7</sup>
DVP mechanism	DVP1	DVP1	DVP1	DVP1	3	2
Intraday finality	Yes	Yes	Yes	Yes	No	Yes
Central securities depository	CSD	NBB	CIK	Euroclear (eurobonds) + others	CDS	CDS
Cash settlement agent <sup>2</sup>	CB	NBB	NBB	Euroclear/NBB	B	CB
Number of transactions (thousands)	14.3	145	356	161,000 (before netting) <sup>6</sup>	31,400	1,780
Value of transactions (USD billions) <sup>4</sup>	8.4	2,483	90	117,000 <sup>6</sup>	1,520	18,570
Ratio of transactions value to GDP (at annual rate)	37.5	10.9	0.4	<i>nap</i>	2.2	26.8

Note: For an explanation of the footnotes refer to the end of the table.

Table 17 (cont)  
**Features of selected securities settlement systems**  
 End of 2001

Name of system	France		Germany	Hong Kong SAR		Italy		
	RGV	RELIT	Clearstream Banking Frankfurt (CBF)	CCASS	CMU	LDT	EXPRESS	Monte Titoli
Type of securities <sup>1</sup>	B, C, G, O	B, C, G, O, S	G, S, B, O	S, O	G, O	G, S, B, O	G, S, B, O	G, S, B, O
Owner/manager <sup>2</sup>	Euroclear France	Euroclear France	SE	SE	CMA <sup>10</sup>	CB	Monte Titoli	Monte Titoli
Number of participants	658 <sup>8</sup>		422	527	166 <sup>11</sup>	281	255 <sup>13</sup>	1,867
<i>Of which: direct participants</i>	331 <sup>8</sup>		422	527	166 <sup>11</sup>	281	116 <sup>13</sup>	653
Settlement of cash leg <sup>3</sup>	RTGS	N	RTGS, N	G/N	G/N	N	G	nap
Securities settlement (delivery) <sup>3</sup>	RTGS	GS	RTGS, G	G/N	G/N	N	G	G
Delivery lag (T+n)	from T to T+100	from T to T+30	T+0 to T+40	T+2	T+0	G, B: T+3 <sup>12</sup> S, O: T+5	T	T
DVP mechanism	DVP1	DVP2	DVP1 DVP2/DVP3 <sup>9</sup>	Yes	Yes	DVP3	DVP1	No
Intraday finality	Yes	No	Yes	No	Yes	No	Yes	nap
Central securities depository	Euroclear France		CBF	CCASS	CMU	Monte Titoli	Monte Titoli	Monte Titoli
Cash settlement agent <sup>2</sup>	CB		CB	B	CMA <sup>10</sup>	CB	CB	nap
Number of transactions (thousands)	31,400 <sup>8</sup>		105,121	29,361	43	42,350	97	1,830 <sup>14</sup>
Value of transactions (USD billions) <sup>4</sup>	39,047 <sup>8</sup>		nav	989	683	26,090	1,009	nav
Ratio of transactions value to GDP (at annual rate)	29.8 <sup>8</sup>		nav	6.0	4.2	24.0	0.9	nav

Note: For an explanation of the footnotes refer to the end of the table.

Table 17 (cont)

## Features of selected securities settlement systems

End of 2001

	Japan		Netherlands	Singapore		
Name of system	BOJ-NET JGB Services	JASDEC <sup>16</sup>	Necigef	CDP	DCSS	MEPS-SGS
Type of securities <sup>1</sup>	G	S	G, B, S	E,O	O	G
Owner/manager <sup>2</sup>	CB	B, SE, O	Euroclear	SE	SE	CB
Number of participants	360 (Book-entry System) / 398 (Registration System)	290	56	85	50	130
<i>Of which: direct participants</i>	360/398	290	56	31	50	86
Settlement of cash leg <sup>3</sup>	RTGS	G/N	RTGS	N	G	RTGS
Securities settlement (delivery) <sup>3</sup>	RTGS	G/N	RTGS	G	G	G
Delivery lag (T+n)	T+0 to T+3 <sup>15</sup>	T+3	T+3	T+3	T+n <sup>19</sup>	T+0
DVP mechanism	DVP1	DVP3 <sup>17</sup>	DVP1	DVP2	DVP1	DVP1
Intraday finality	Yes	Yes	Yes	Yes	Yes	Yes
Central securities depository	CB	JASDEC	Necigef	CDP	CDP	CB
Cash settlement agent <sup>2</sup>	CB	CB, B	CB, B	B	CB	CB
Number of transactions (thousands)	2,838/23	36,257	3,073	93,066,000 <sup>18</sup>	4.5	47
Value of transactions (USD billions) <sup>4</sup>	85,650/122	nav	858	74	5	262
Ratio of transactions value to GDP (at annual rate)	20.5/neg	nav	2.2	0.9	neg	3.1

Note: For an explanation of the footnotes refer to the end of the table.



Table 17 (cont)

## Features of selected securities settlement systems

End of 2001

Name of system	Sweden		Switzerland	United Kingdom		United States	
	Stockholmsbörsen	VPC	SECOM	CREST	CMO	NBES <sup>20</sup>	DTC
Type of securities <sup>1</sup>	O	G, E, O	G, B, S, O	G, B, S, O	G, C, O	G	S, O, B
Owner/manager <sup>2</sup>	O	B, O	B, O	B, CB, SE, O	B, CB, O	CB	B, SE, O
Number of participants	72	47	433	41,227	64	1,888 <sup>21</sup>	475
<i>Of which: direct participants</i>	72	47	433	<i>nap</i>	<i>nap</i>	1,888 <sup>21</sup>	475
Settlement of cash leg <sup>3</sup>	N	G/N	G	RTGS	N	RTGS	N
Securities settlement (delivery) <sup>3</sup>	N	G	G	RTGS	RTGS	RTGS	G
Delivery lag (T+n)	T+3	T+2, T+3	T+3	T+3	T	T, T+1 <sup>22</sup>	T+3 <sup>23</sup>
DVP mechanism	No	DVP2/ DVP3/DVP1	DVP1	DVP1	DVP2	DVP1	DVP2
Intraday finality	Yes	Yes	Yes	Yes	Yes	Yes	No
Central securities depository	OM	VPC	SIS SegalInterSettle	<i>nap</i>	CMO	CB	DTC
Cash settlement agent <sup>2</sup>	CB	CB	CB	B, CB	CB	CB	DTC
Number of transactions (thousands)	66,575	7,740	13,400	73,400	200	15,000	350,000
Value of transactions (USD billions) <sup>4</sup>	386	8,492	3,822	74,909	3,247	212,300	89,000
Ratio of transactions value to GDP (at annual rate)	1.8	40.5	15.5	52.7	2.3	21.1	8.8

Note: For an explanation of the footnotes refer to the end of the table.

Table 17 (cont)

**Features of selected securities settlement systems**

End of 2001

<sup>1</sup> B = bonds; C = CDs; G = government securities; S = shares; O = others. <sup>2</sup> B = bank(s); CB = central bank(s); SE = stock exchange; O = other. <sup>3</sup> G = gross; N = net; RTGS = real-time gross settlement. <sup>4</sup> Converted at yearly average exchange rates.

Kazakhstan: <sup>a</sup> T+0 for government securities, and T+3 for non-government securities.

Belgium: <sup>5</sup> For Treasury bills, T+2; for bonds, T+3. <sup>6</sup> Including Euroclear France.

Canada: <sup>7</sup> Although all securities have the potential for T+0 delivery, money market mutual funds tend to be T+1.

France: <sup>8</sup> RGV and RELIT combined.

Germany: <sup>9</sup> Mixture of DVP 2 + DVP 3 (securities disposition on a gross basis without finality until final settlement of net cash position).

Hong Kong: <sup>10</sup> Central Monetary Authority. <sup>11</sup> Recognised dealer for Exchange Fund Bills and Notes.

Italy: <sup>12</sup> For government bills, T+2. <sup>13</sup> Number of accounts. <sup>14</sup> Free of payment (FOP) transfers not including multilateral net balances from LdT.

Japan: <sup>15</sup> T+3 is the norm for outright transactions. Most repo transactions are settled on a T+2 to T+3 basis. Settlement for the BOJ's open market operations takes place on a T+0 to T+3 basis.

<sup>16</sup> End-March 2002. <sup>17</sup> For stocks traded on the Tokyo Stock Exchange and the Osaka Securities Exchange.

Singapore: <sup>18</sup> Number of securities cleared. <sup>19</sup> By mutual agreement between counterparties.

United States: <sup>20</sup> NBES is the Federal Reserve's National Book-Entry System. <sup>21</sup> Number of depository institutions that used the Federal Reserve's National Book-Entry System in 2001. Other participants not included here, are: the US Treasury and any entity specifically authorised by federal statute to use the Reserve Banks as fiscal agents or depositories; entities designated by the Secretary of the Treasury; foreign central banks, foreign monetary authorities, foreign governments and certain international organisations. <sup>22</sup> Securities are settled on a same day basis within the Federal Reserve's National Book-Entry System. The market convention for the settlement of repurchase agreements is T+0. The convention for government securities is T+1. <sup>23</sup> The market convention for the settlement of corporate equities is T+3.

Table 18  
**Direct participants in real-time gross settlement systems**  
 End of 2001

Name of system	Kazakhstan	Belgium	Canada	France	Germany <sup>1</sup>		Hong Kong SAR		Italy	Japan
	ISMT	ELLIPS	nap	TBF	RTGS <sup>plus</sup>	ELS	HKD CHATS	USD CHATS	BI-REL	BOJ-NET Funds Transfer System
Direct participants	74	17	nap	195	59	nap	134	65	682	383
Credit institutions	44	15	nap	165	58	nap	134	64	671 <sup>3</sup>	325
Central bank	1	1	nap	1	1	nap	1 <sup>2</sup>	1	1	0
Non-banks	29	1	nap	29	0	nap	0	0	10 <sup>4</sup>	58 <sup>5</sup>
<i>Of which:</i>										
<i>Public authorities</i>	19	0		0					1	0
<i>Postal administration</i>	1	1		1					1	0
<i>Supervised financial institutions</i>	9	0		28					6	52

Note: For an explanation of the footnotes refer to the end of the table.

Table 18 (cont)

**Direct participants in real-time gross settlement systems**

End of 2001

	Netherlands	Singapore	Sweden		Switzerland	United Kingdom		United States	European Union
Name of system	TOP	MEPS	K-RIX	E-RIX	SIC	CHAPS Sterling	CHAPS Euro	Fedwire	TARGET <sup>8</sup>
Direct participants	108	86	20	15	313	13	20	8,110 <sup>7</sup>	1,579
Credit institutions	97	85	15	10	299	12	19	8,110 <sup>7</sup>	1,484
Central bank	1	1	1	1	1	1	1	nav	15
Non-banks	10 <sup>6</sup>	0	4	4	13	0	0	nav	80 <sup>9</sup>
<i>Of which:</i>									
<i>Public authorities</i>	2		0	0	1				5
<i>Postal administration</i>	0		0	0	1				2
<i>Supervised financial institutions</i>	4		4	4	11				65

Germany: <sup>1</sup> RTGS<sup>plus</sup>, the new RTGS system, opened for business on 5 November 2001; for the time being, ELS serves only as a procedure for accessing RTGS<sup>plus</sup>.

Hong Kong: <sup>2</sup> The central bank is not a direct participant.

Italy: <sup>3</sup> Of which: 31 branches of other EU banks; 13 branches of non-EU banks; 1 remote participant. <sup>4</sup> Includes, amongst others, Cassa Compensazione e Garanzia (clearing house) and Monte Titoli (Central Securities Depository).

Japan: <sup>5</sup> Includes, amongst others, stock exchanges, a bankers' association and the Deposit Insurance Corporation of Japan.

Netherlands: <sup>6</sup> Includes clearing and settlement organisations.

United States: <sup>7</sup> Number of depository institutions that used the Fedwire Funds Transfer Service in 2001. Other Fedwire Funds Transfer participants not included here are: the US Treasury and any entity specifically authorised by federal statute to use the Reserve Banks as fiscal agents or depositories; entities designated by the Secretary of the Treasury; foreign central banks, foreign monetary authorities, foreign governments and certain international organisations.

European Union: <sup>8</sup> The figures are preliminary. The substantial change from the previously published figure of direct participants is due to the fact that EAF closed down when RTGS<sup>plus</sup> opened for business on 5 November 2001. <sup>9</sup> Includes, amongst others, other participants (see also footnotes 4 and 6).

Table 19  
**Direct participants in large-value payment systems**  
 End of 2001

	Kazakhstan	Belgium	Canada	France	Germany	Hong Kong SAR		Italy	Japan
<b>Name of system</b>	<b>nap<sup>a</sup></b>	<b>nap</b>	<b>LVTS</b>	<b>PNS</b>	<b>EAF<sup>1</sup></b>	<b>HKD CHATS</b>	<b>USD CHATS</b>	<b>nap<sup>3</sup></b>	<b>FXYCS</b>
Direct participants			14	24	nap	134	65		40
Credit institutions			13	23	nap	134	64		40
Central bank			1	nap	nap	1 <sup>2</sup>	1		0
Non-banks			0	1	nap	0	0		0
<i>Of which:</i>									
<i>Public authorities</i>				0					
<i>Postal administration</i>				1					
<i>Supervised financial institutions</i>				0					

	Netherlands	Singapore	Sweden	Switzerland	United Kingdom	United States		European Union
<b>Name of system</b>	<b>nap</b>	<b>MEPS</b>	<b>nap</b>	<b>nap</b>	<b>nap</b>	<b>Fedwire</b>	<b>CHIPS</b>	<b>EURO1</b>
Direct participants		86				8,110	58	73
Credit institutions		85				nav	nav	73
Central bank		1				nav	nav	0
Non-banks		0				nav	nav	nap
<i>Of which:</i>								
<i>Public authorities</i>								
<i>Postal administration</i>								
<i>Supervised financial institutions</i>								

Kazakhstan: <sup>a</sup> The only large-value payment system in Kazakhstan is the ISMT.

Germany: <sup>1</sup> EAF was closed down when RTGS<sup>plus</sup>, the new RTGS system, opened for business on 5 November 2001.

Hong Kong: <sup>2</sup> The central bank is not a direct participant.

Italy: <sup>3</sup> The only large-value payment system in Italy is BI-REL. For details please see Table 18.

Table 20

## Direct participants in retail interbank funds transfer systems

End of 2001

	Kazakhstan	Belgium		Canada	France		Germany	Hong Kong SAR
Name of system	SRP	Clearing House	CEC	ACSS	CH and CREIC	SIT	RPS	nap
Direct participants	54	34	33	12	246	17	2,325	
Credit institutions	32	31	29	11	242	15	2,324	
Central bank	1	1	1	1	1	1	1	
Non-banks	21	2	3	0	3	1	0	
<i>Of which:</i>								
<i>Public authorities</i>	18	1	2		2	0		
<i>Postal administration</i>	1	1	1		1	1		
<i>Supervised financial institutions</i>	2	0	0		0	0		

	Italy		Japan		Netherlands	Singapore		
Name of system	BI-COMP		Zengin system	Tokyo Clearing House	Interpay	SGDCCS	IBG	EFTPOS
	Local Clearing	Retail						
Direct participants	124	209	154	121	72	40	41	5
Credit institutions	121 <sup>1</sup>	207 <sup>2</sup>	154	119	72	39	41	5
Central bank	1	1	0	1	0	1	0	0
Non-banks	2	1	0	1	0	0	0	0
<i>Of which:</i>								
<i>Public authorities</i>	1	0		0				
<i>Postal administration</i>	1	1		1				
<i>Supervised financial institutions</i>	0	0		0				

Note: For an explanation of the footnotes refer to the end of the table.

Table 20 (cont)

## Direct participants in retail interbank funds transfer systems

End of 2001

Name of system	Sweden			Switzerland	United Kingdom		United States
	Bankgirot	Dataclearing	Postgirot	DTA/LSV	BACS	Cheque and credit clearing	nav
Direct participants	21	21	1,200,000	155	14	12	nav
Credit institutions	21	21	0	155	13	11	nav
Central bank	0	0	0	0	1	1	nav
Non-banks	0	0	1,200,000	0	0	0	nav
<i>Of which:</i>							
<i>Public authorities</i>			1,200,000				
<i>Postal administration</i>			0				
<i>Supervised financial institutions</i>			0				

Italy: <sup>1</sup> Of which: two branches of other EU banks. <sup>2</sup> Of which: 15 branches of other EU banks and six branches of non-EU banks.

Table 21

**Access criteria for real-time gross settlement systems**

End of 2001

	Kazakhstan	Belgium	Canada	France	Germany <sup>1</sup>		Hong Kong SAR	Italy	Japan
<b>Name of system</b>	<b>ISMT</b>	<b>ELLIPS</b>	<b>nap</b>	<b>TBF</b>	<b>RTGS<sup>plus</sup></b>	<b>ELS</b>	<b>HKD RTGS</b>	<b>BI-REL</b>	<b>BOJ-NET Funds Transfer System</b>
Access criteria	+	+		+	+	nap	+	+	+
Written rules	+	+		+	+	nap	+	+	+
Minimum level of data or ratios representative of financial strength	+	+		-	-	nap	+	-	+
Minimum number of transactions	-	-		-	-	nap	-	-	- <sup>4</sup>
Payment of an entry fee	-	+		+	-	nap	+	-	-
Approval from the owner/manager or the direct participants	+	+		+	+ <sup>2</sup>	nap	+	+ <sup>3</sup>	+ <sup>5</sup>
Approval from the local central bank	+	+		+	+	nap	+	+	+
Technical requirements	+	+		+	+	nap	+	+	+
Removal rules	+	+		+	+	nap	+	+	+

Note: For an explanation of the footnotes refer to the end of the table.



Table 21 (cont)

## Access criteria for real-time gross settlement systems

End of 2001

Name of system	Netherlands	Singapore	Sweden		Switzerland	United Kingdom	United States
	TOP	MEPS	K-RIX	E-RIX	SIC	CHAPS Sterling/Euro	Fedwire
Access criteria	+	+	+	+	+	+	+
Written rules	+	+	+	+	+	+	+
Minimum level of data or ratios representative of financial strength	-	+	+	+	-	-	-
Minimum number of transactions	-	-	-	-	-	-	-
Payment of an entry fee	-	-	+	+	+	+	-
Approval from the owner/manager or the direct participants	+ <sup>6</sup>	+	+	+	+	+	+
Approval from the local central bank	+	+	+	+	+	+	+
Technical requirements	+	+	+	+	+	+	+
Removal rules	+	+	+	+	+	+	+

Key: + = yes; - = no.

Germany: <sup>1</sup> RTGS<sup>plus</sup>, the new RTGS system, opened for business on 5 November 2001; for the time being, ELS serves as a procedure for accessing RTGS<sup>plus</sup>. <sup>2</sup> The owner/manager is the central bank.

Italy: <sup>3</sup> The owner/manager is the central bank.

Japan: <sup>4</sup> To open a current account at the Bank of Japan, securities companies are required to meet certain standards on market presence set by the Bank of Japan. <sup>5</sup> The owner/manager is the central bank.

Netherlands: <sup>6</sup> The owner/manager is the central bank.

Table 22

**Access criteria for other large-value payment systems**

End of 2001

	<b>Kazakhstan</b>	<b>Belgium</b>	<b>Canada</b>	<b>France</b>	<b>Germany</b>	<b>Hong Kong SAR</b>	<b>Italy</b>	<b>Japan</b>
<b>Name of system</b>	<b>nap<sup>a</sup></b>	<b>nap</b>	<b>LVTS</b>	<b>PNS</b>	<b>EAF<sup>1</sup></b>	<b>USD RTGS</b>	<b>nap<sup>3</sup></b>	<b>FXYCS</b>
Access criteria			+	+	nap	+		+
Written rules			+	+	nap	+		+
Minimum level of data or ratios representative of financial strength			-	-	nap	+		+
Minimum number of transactions			-	-	nap	-		+
Payment of an entry fee			+	+	nap	+ <sup>2</sup>		+
Approval from the owner/manager or the direct participants			+	+	nap	+		+
Approval from the local central bank			-	+	nap	+		+
Technical requirements			+	+	nap	+ <sup>2</sup>		+
Removal rules			+	+	nap	-		+

Note: For an explanation of the footnotes refer to the end of the table.

Table 22 (cont)

**Access criteria for other large-value payment systems**

End of 2001

	Netherlands	Singapore	Sweden	Switzerland	United Kingdom	United States	European Union
<b>Name of system</b>	<b>nap</b>	<b>nap</b>	<b>nap</b>	<b>nap</b>	<b>nap</b>	<b>CHIPS</b>	<b>EURO1</b>
Access criteria						+	+
Written rules						+	+
Minimum level of data or ratios representative of financial strength						+	+
Minimum number of transactions						-	-
Payment of an entry fee						-	+
Approval from the owner/ manager or the direct participants						+	+
Approval from the local central bank						-	-
Technical requirements						+	+
Removal rules						+	+

Key: + = yes; - = no.

Kazakhstan: <sup>a</sup> The only large-value payment system in Kazakhstan is the ISMT.Germany: <sup>1</sup> EAF was closed down when RTGS<sup>plus</sup>, the new RTGS system, opened for business on 5 November 2001.Hong Kong: <sup>2</sup> Not applicable to indirect participants.Italy: <sup>3</sup> The only large-value payment system in Italy is BI-REL. For details please see Table 21.

Table 23

## Risk control measures in large-value net settlement systems

End of 2001

	Kazakhstan	Belgium	Canada	France	Germany	Hong Kong SAR	Italy	Japan
<b>Name of system</b>	<b>nap<sup>a</sup></b>	<b>nap</b>	<b>LVTS</b>	<b>PNS</b>	<b>EAF<sup>8</sup></b>	<b>nap</b>	<b>nap<sup>9</sup></b>	<b>FXYCS</b>
1. Settlement in central banks' accounts		+	+	+	nap			nap
2. Same day settlement		+	+	+	nap			nap
3. Compliance with Lamfalussy standards		nap	+	+	nap			nap
a. Legal framework				+				
<i>Contractual (+) or advisory (-) netting</i>			+ <sup>1</sup>	nap <sup>5</sup>				
<i>If contractual: legally enforceable (+) or not (-)</i>			+					
b. Participants' awareness			+	+				
c. Risk management			+					
<i>Monitoring of intraday balance</i>			+	nap <sup>6</sup>				
<i>Multilateral limits</i>			+ <sup>2</sup>	nap <sup>6</sup>				
<i>Collateral requirements</i>			+	nap <sup>6</sup>				
<i>Intraday closures</i>			+ <sup>3</sup>	+				
d. Timely settlement completion			+					
<i>Risk-sharing agreements</i>			+	nap <sup>5</sup>				
<i>Full collateralisation of largest net debit position</i>			+ <sup>4</sup>	nap <sup>6</sup>				
e. Fair open access			+	+				
f. Technical reliability			+	+				

Note: For an explanation of the footnotes refer to the end of the table.

Table 23 (cont)

## Risk control measures in large-value net settlement systems

End of 2001

	Netherlands	Singapore	Sweden	Switzerland	United Kingdom	United States	European Union
<b>Name of system</b>	<b>nap</b>	<b>nap</b>	<b>nap</b>	<b>nap</b>	<b>nap</b>	<b>CHIPS</b>	<b>EURO1</b>
1. Settlement in central banks' accounts						+ <sup>10</sup>	+
2. Same day settlement						+	+
3. Compliance with Lamfalussy standards						+	+
a. Legal framework <i>Contractual (+) or advisory (-) netting</i>						+	+
<i>If contractual: legally enforceable (+) or not (-)</i>						+	+
b. Participants' awareness						+	+
c. Risk management <i>Monitoring of intraday balance</i>						+	+
<i>Multilateral limits</i>						-	+
<i>Collateral requirements</i>						-	+
<i>Intraday closures</i>						-	-
d. Timely settlement completion <i>Risk-sharing agreements</i>						-	+
<i>Full collateralisation of largest net debit position</i>						-	+
e. Fair open access						+	+
f. Technical reliability						+	+

Note: For an explanation of the footnotes refer to the end of the table.

Table 23 (cont)

**Risk control measures in large-value net settlement systems**

End of 2001

Key: + = yes; – = no.

Kazakhstan: <sup>a</sup> There are no large-value net settlement systems in Kazakhstan.

Canada: <sup>1</sup> The LVTS employs multilateral netting by novation. Once the payment instruction passes the risk controls and is accepted by the system, the bilateral obligations are extinguished and replaced by a multilateral obligation vis-à-vis the system as a whole. <sup>2</sup> The LVTS employs bilateral and multilateral limits. <sup>3</sup> Final settlement occurs at the end of the LVTS processing period. However, the risk control mechanisms of the LVTS ensure that, once a payment has passed the risk control mechanisms and been accepted by the system, it is certain to settle and irrevocable. Therefore, the LVTS provides intraday receiver finality. <sup>4</sup> The LVTS is certain to settle even if the defaulter with the largest net debit position defaults.

France: <sup>5</sup> PNS is a hybrid system; the legal and risk framework is comparable to that of the RTGS system. <sup>6</sup> PNS functions on the basis of positive balances, ie multilateral debit cap set to 200. <sup>7</sup> Continuous settlement mechanism.

Germany: <sup>8</sup> Transformed into a hybrid system in March 1996; the risk situation was comparable to that of a gross settlement system. EAF was closed down when RTGS<sup>plus</sup>, the new RTGS system, opened for business on 5 November 2001.

Italy: <sup>9</sup> There are no large-value net settlement systems in Italy.

United States: <sup>10</sup> Since January 2001, CHIPS has been a real-time final settlement system that continuously matches, nets and settles payment orders. To facilitate this process, each CHIPS participant is required to transfer, via Fedwire, a pre-established opening position requirement to a CHIPS account at the Federal Reserve Bank of New York. Throughout the day, payment orders are settled with real-time finality on the books of CHIPS against positive positions, simultaneously offset by incoming payment orders, or both. At the end of the day, each participant with a final position requirement must transfer, via Fedwire, its requirement to the CHIPS account at the Federal Reserve Bank of New York.

Table 24a

**SWIFT traffic: message flows in selected countries in 2001**

Number of messages

<b>From/to</b>	<b>Kazakhstan</b>	<b>Belgium</b>	<b>Canada</b>	<b>France</b>	<b>Germany</b>	<b>Hong Kong SAR</b>	<b>Italy</b>	<b>Japan</b>
Kazakhstan	37,484	1,817	702	1,034	27,945	848	634	777
Belgium	6,208	12,995,706	353,048	3,727,906	4,105,345	716,344	2,203,562	1,164,432
Canada	975	366,647	7,158,444	402,969	452,341	351,216	214,254	352,220
France	2,022	3,447,868	393,963	25,415,355	5,969,142	575,098	3,134,653	1,020,489
Germany	49,478	4,018,613	398,968	5,880,406	13,159,502	765,380	6,112,299	1,282,659
Hong Kong SAR	1,144	550,693	456,753	381,191	727,261	4,461,437	291,873	2,601,265
Italy	869	2,168,151	164,562	3,188,759	5,499,486	305,062	5,168,788	512,290
Japan	2,832	1,130,503	308,211	872,599	1,234,693	1,681,134	524,895	6,700,827
Netherlands	8,098	4,334,125	160,884	2,103,537	5,258,309	275,948	1,036,059	335,091
Singapore	517	305,324	132,969	291,150	573,385	1,339,822	119,347	1,785,429
Sweden	512	1,100,515	73,647	710,564	1,519,762	145,618	380,183	130,450
Switzerland	9,190	2,041,931	459,655	2,835,950	5,963,165	551,681	1,765,559	1,113,826
United Kingdom	15,096	6,161,061	2,031,516	9,871,087	14,035,055	3,825,604	7,128,511	9,410,453
United States	177,082	5,410,909	4,622,431	6,989,284	9,458,996	8,679,708	4,968,205	10,535,035
<b>Total all countries</b>	<b>432,080</b>	<b>54,678,699</b>	<b>18,891,219</b>	<b>78,905,625</b>	<b>103,566,432</b>	<b>30,144,906</b>	<b>45,241,684</b>	<b>44,025,860</b>

Table 24a (cont)

**SWIFT traffic: message flows in selected countries in 2001**

Number of messages

<b>From/to</b>	<b>Netherlands</b>	<b>Singapore</b>	<b>Sweden</b>	<b>Switzerland</b>	<b>United Kingdom</b>	<b>United States</b>	<b>All countries</b>
Kazakhstan	9,876	516	270	3,913	25,032	140,266	440,567
Belgium	5,208,089	406,113	417,463	2,719,460	13,861,751	7,733,088	66,893,452
Canada	145,120	134,771	64,195	512,291	2,351,642	6,003,923	21,556,392
France	2,143,824	257,652	400,431	2,385,605	18,807,811	11,745,415	87,959,936
Germany	4,781,369	420,787	971,645	4,957,461	19,091,911	15,360,345	107,056,553
Hong Kong SAR	164,888	1,465,880	79,766	505,281	4,710,374	8,760,384	34,046,629
Italy	1,018,552	98,257	217,565	1,601,768	11,121,026	6,450,279	46,192,087
Japan	272,457	1,199,388	104,198	1,067,379	9,594,033	11,805,166	44,435,517
Netherlands	23,006,779	151,095	419,662	2,045,002	14,602,228	7,202,837	67,955,394
Singapore	170,535	2,790,820	74,373	444,930	2,657,771	5,000,492	19,869,551
Sweden	591,271	87,968	3,969,098	439,644	5,754,545	3,290,066	24,573,488
Switzerland	1,413,276	402,815	370,595	12,589,813	12,524,420	12,183,276	65,791,151
United Kingdom	7,954,165	1,783,317	3,518,718	6,779,079	76,019,159	35,748,310	219,949,528
United States	5,017,012	3,897,894	1,947,100	11,543,847	29,728,668	67,346,377	251,982,226
<b>Total all countries</b>	<b>60,026,930</b>	<b>17,441,945</b>	<b>18,021,094</b>	<b>60,001,561</b>	<b>271,224,699</b>	<b>274,341,852</b>	<b>1,533,906,047</b>

Source: SWIFT.



Table 24b  
**Geographical breakdown of SWIFT message flows**  
 In 2001

	Messages sent		Messages received	
	Total	To domestic users (% of total)	Total	From domestic users (% of total)
Kazakhstan	440,567	8.51	432,080	8.68
Belgium	66,893,452	19.43	54,678,699	23.77
Canada	21,556,392	33.21	18,891,219	37.89
France	87,959,936	28.89	78,905,625	32.21
Germany	107,056,553	12.29	103,566,432	12.71
Hong Kong SAR	34,046,629	13.10	30,144,906	14.80
Italy	46,192,087	11.19	45,241,684	11.42
Japan	44,435,517	15.08	44,025,860	15.22
Netherlands	67,955,394	33.86	60,026,930	38.33
Singapore	19,869,551	14.05	17,441,945	16.00
Sweden	24,573,488	16.15	18,021,094	22.02
Switzerland	65,791,151	19.13	60,001,561	20.98
United Kingdom	219,949,528	34.56	271,224,699	28.03
United States	251,982,226	26.73	274,341,852	24.55
<b>Total all countries</b>	<b>1,533,906,047</b>	<b>22.32</b>	<b>1,533,906,047</b>	<b>22.32</b>

Source: SWIFT.

Table 24c

**SWIFT members, submembers and participants in selected countries**

In 2001

	Number of users of the SWIFT network			
	Members	Submembers	Participants	Total number of users
Kazakhstan	7	7	11	25
Belgium	23	44	16	83
Canada	14	33	12	59
France	60	120	68	248
Germany	114	113	48	275
Hong Kong SAR	23	154	28	205
Italy	142	78	35	255
Japan	125	101	33	259
Netherlands	25	47	32	104
Singapore	9	155	17	181
Sweden	8	10	12	30
Switzerland	101	87	66	254
United Kingdom	60	293	113	466
United States	96	327	207	630
<b>Total all countries</b>	<b>2,265</b>	<b>3,143</b>	<b>2,049</b>	<b>7,457</b>

Source: SWIFT.

Table 24d

## Relative share of selected countries in SWIFT traffic, membership and shareholding

In 2001

	Share of messages (%)		Share of total (%)		Share of equity holding	
	Sent	Received	Members	Users	Quantity	Percentage
Kazakhstan	0.03	0.03	0.3	0.3	nav	nav
Belgium	4.36	3.56	1.02	1.00	2,425	2.79
Canada	1.41	1.23	0.62	0.79	1,965	2.26
France	5.73	5.14	2.65	3.33	6,723	7.75
Germany	6.98	6.75	5.03	3.69	6,706	7.74
Hong Kong SAR	2.22	1.97	1.02	2.75	1,802	2.08
Italy	3.01	2.95	6.27	3.42	3,334	3.85
Japan	2.90	2.87	5.52	3.47	4,790	5.53
Netherlands	4.43	3.91	1.10	1.39	3,910	4.51
Singapore	1.30	1.14	0.40	2.43	573	0.66
Sweden	1.60	1.17	0.35	0.40	1,532	1.77
Switzerland	4.29	3.91	4.46	3.41	4,344	5.01
United Kingdom	14.34	17.68	2.65	6.25	5,563	6.42
United States	16.43	17.89	4.24	8.45	16,152	18.63
<b>Total all countries</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>86,690</b>	<b>100.00</b>

Source: SWIFT.